

SUPPORTING DOCUMENTS

CRITERION 3

3.4.3. Number of research papers per teacher in the Journals notified on UGC website during the last five years

SUBMITTED TO

NATIONAL ASSESSMENT AND ACCREDITATION COUNCIL

BY



N. L. Dalmia[®]

Institute of Management Studies and Research

(A School of Excellence of N. L. Dalmia Educational Society)

N. L. DALMIA INSTITUTE OF
MANAGEMENT STUDIES AND RESEARCH

FOR

NAAC ACCREDITATION SECOND CYCLE 2022



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Institute of Management Studies and Research

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**Number of research papers per teacher in CARE
Journals notified on UGC website A.Y. 2019-20**



Supporting Documents

3.4.3. Number of research papers per teacher in the Journals notified on UGC website during A.Y.2019-20

Sr No.	Title of paper	Name of the author/s	Department of the teacher	Name of journal
1	Impact of Social Media Marketing on various organizations	Dr. Baisakhi Mitra Mustaphi	Management	Asia Pacific Journal of Research.
2	Role of Repo Rate in Indian Monetary Policy Since 2014'.	Dr. Chetana Asbe	Management	International Journal of Business and Management Research, Vol.12, Issue No.1, December, 2019
3	Role of E-Commerce and Social Media and Its Influence on User Values.	Dr. Joyeeta Chatterjee	Management	Role of E-Commerce and Social Media and Its Influence on User Values. Smart Marketing in Digital Age
4	Corporate Distress and Bankruptcy Prediction - A Critical Review of Statistical Methods and Models.	Dr. Jyoti Nair	Management	Abhigyan [Vol 37 (2), July-Sept 2019]
5	Profitability Analysis of Outbound Mergers and Acquisitions by Indian Acquiring Firms	Dr. Sasmita Singh	Management	International Journal of Research in Engineering, IT & Social Sciences, Volume 9, Issue 11, November 2019



Supporting Documents

3.4.3. Number of research papers per teacher in the Journals notified on UGC website during A.Y.2019-20

Sr No.	Title of paper	Name of the author/s	Department of the teacher	Name of journal
6	Internet of Things (IOT) in Supply Chain Management (SCM)	Prof. Rupesh Siyodiya	Management	Studies in Indian Place Names ISSN: 2394-3114 Vol-40-Issue-73-March-2020
7	'Does Healthcare System in Kerala Need a Change? Emerging Patterns of Morbidly and Hospitalization'	Dr. Sinimole K. R.	Management	Artha Vijnana, Vol. LXI, No. 1, March 2019, pp. 1-21
8	Management Practices and Organizational Performance: Emerging Views	Dr. Sinimole K. R.	Management	Industrial Engineering Journal Vol. XIII and Issue No. 1, January 2020
9	A study on Innovative Healthcare practices in India - The hidden opportunities in the Indian Healthcare Industry.	Dr. Sinimole K. R.	Management	AIMS International Journal of Management
10	A Study on Bottom Of The Pyramid Marketing Volume 21 Issue 11 DOI: 10.9790/487X-2111013641	Dr. Baisakhi Mitra Mustaphi	Management	IOSR Journal of Business and Management



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Sr No.	Title of paper	Name of the author/s	Department of the teacher	Name of journal
11	Innovation in Services Sector with special reference to Hospitality Industry, Volume I Issue CIII	Dr. Baisakhi Mitra Mustaphi	Management	Asia Pacific Journal of Research

<i>S.No</i>	<i>Title and Authors</i>	<i>Pp</i>
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MILLARD GUBLER SYNDROME

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ABSTRACT

A 61 years old male patient presented with the complains of defective vision in left eye(LE) associated with headache since 6 months , gradual onset and progressive in nature ,he also complains of diplopia and difficulty in closing left eye .He is a known case of hypertension since 3 years on regular treatment .Patient also gave the history of cerebro vascular accident (CVA) 6 months back associated with weakness of right upper limb and lower limb , deviation of angle of mouth towards right side .**ocular examination** showed esotropia of 15degree in LE, face turn towards left side ,lagophthalmos in LE ,ectropion of grade 3 in LE ,conjunctival congestion and corneal xerosis present in LE .iris atrophy(BE) and immature cataract present in both eye(BE). **Fundus examination** of BE appears to be normal .**Extra ocular movements** restricted in LE (abduction upto -3, levoelevation and levodepression upto -2). **MRI** : MRI showed no pathological lesions.

Keywords : Diplopia , Lagophthalmos ,corneal xerosis , ectropion

INTRODUCTION

Millard-Gubler syndrome (MGS), also known as facial abducens hemiplegia syndrome or the ventral pontine syndrome, is an eponym after two French physicians Auguste Louis Jules Millard and Adolphe-Marie Gubler in 1858 who first described the features of this syndrome. MGS is one of the classical crossed brainstem syndromes characterized by a unilateral lesion of basal portion of the caudal pons involving fascicles of abducens (VI) and the facial (VII) cranial nerve, and the pyramidal tract fibers.

Components of MGS 1.Ipsilateral weakness of the eye on abduction (VI nerve)

2.Ipsilateral facial muscle weakness (VII nerve)

3.Contralateral hemiparesis or hemiplegia of upper and lower extremities (pyramidal tract involvement)

CASE REPORT

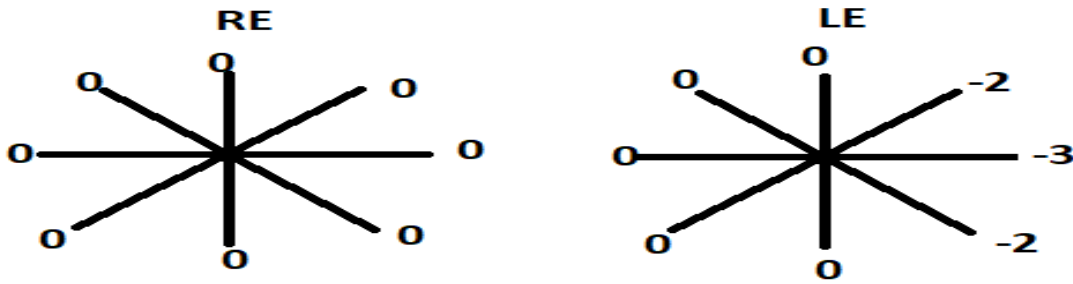
A 61 years old male patient presented to VMMC & H ,Karaikal ,Puducherry with the complains of defective vision in left eye(LE) associated with headache since 6 months , he also complains of diplopia and difficulty in closing left eye .He is a known case of hypertension since 3 years.Patient also gave the history of cerebro vascular accident (CVA) 6 months back associated with weakness of right upper limb and lower limb ,ocular examination showed esotropia of 15degree in LE, face turn towards left side

,lagophthalmos in LE ,conjunctival congestion and corneal xerosis present in LE, corneal sensation reduced in LE. Anterior segment of RE appears normal. best corrected visual acuity is 6/6 RE , 6/24 with pin hole 6/12 LE . colour vision being normal

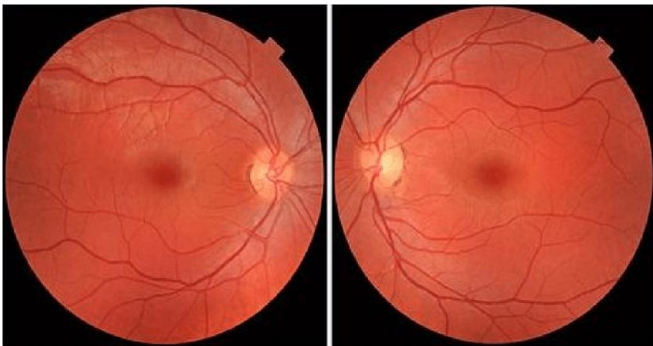
Fundus examination of BE appears to be normal .Extra ocular movements restricted in LE (abduction upto -3, levelevation and levodepression upto -2)



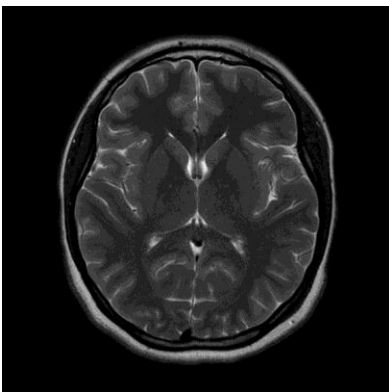
extraocular movements



Fundus examination : picture of fundus BE normal .



MRI brain : picture of MRI showing no significant pathological changes.



DISCUSSION

Millard-Gubler syndrome (MGS) is one of the classical brainstem-crossed syndromes caused due to a unilateral lesion in ventral pons, manifesting as ipsilateral palsy of CN VI and VII with contralateral hemiplegia.

Etiology varies with age. In younger people, the leading causes are tumors, infectious diseases (neurocysticercosis and tuberculosis), demyelinating disease (multiple sclerosis), and viral infection (Rhomb encephalitis). In older patients, it is more often due to hemorrhage and ischemic stroke.

MGS clinical features are an ipsilateral weakness of eye abduction and ipsilateral facial muscle weakness along with contralateral upper and lower extremity weakness.

Diagnosis of MGS depends on a detailed history and physical examination. Imaging studies such as CT and MRI are confirmatory.

Management mainly depends on the etiology of the disease.

CONCLUSION

Since patient's MRI brain appeared normal, patient was treated for hypertension, corneal xerosis and physiotherapy was given. He was on oral steroid therapy for 2 weeks and stopped after tapering the dose. patient was regularly followed up.

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ORBITAL APEX SYNDROME

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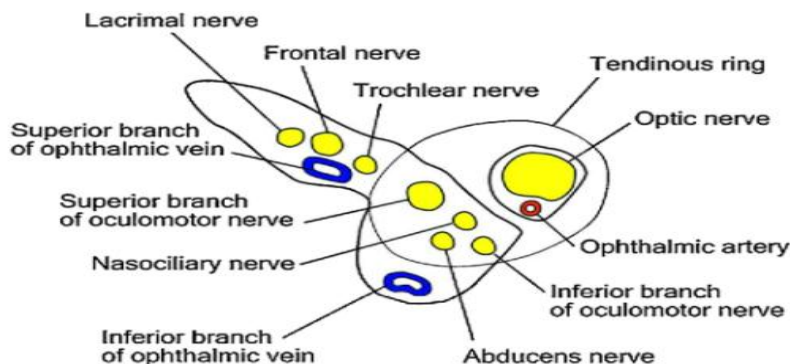
ABSTRACT

70yr old female patient presented with complaints of drooping of upper eyelids and defective vision Left eye (LE) since 10 days . She is a known case of Infiltrative ductal carcinoma Left breast- post MRM 1 and half years back and recently diagnosed left maxillary antral carcinoma due to metastasis . She is also a known case of Type 2 Diabetes mellitus and Hypertension for 10years . In ocular examination , Anterior segment (RE) normal ,(LE) pupil showed RAPD , 4mm, sluggishly reacting to light . Lens (BE) Nuclear sclerosis II + Posterior subcapsular cataract . EOM (RE) Full , (LE) restriction of all movements . Examination of fundus (RE) Normal , (LE) Hyperaemic disc . Cranial nerve examination : (R) – Normal , (L) Optic , Oculomotor , Trochlear , Abducent, Trigeminal nerves affected. Rest all cranial nerves were within normal limits . MRI showed secondaries in brain . She was referred to an oncologist for further management.

Key words: Carcinoma breast, metastasis, Optic nerve

INTRODUCTION

Orbital apex syndrome refers to a constellation of symptoms and signs which result from the involvement of various structures in the region of the orbital apex by a disease process. These structures include the four rectus muscles taking their origin from the tendinous annulus of Zinn, the optic nerve and ophthalmic artery through the optic canal. The superior and inferior branches of the oculomotor nerve, the abducens nerve and the naso-ciliary nerve pass through the annulus of Zinn through the middle portion of the superior orbital fissure.



Orbital Apex syndrome constitutes a syndrome characterized by involvement of the following cranial nerves

- Optic nerve (II C.N)
- Oculomotor nerve (III C.N)
- Trochlear nerve (IV C.N)
- Abducens nerve (VI C.N)
- The first division of the trigeminal nerve (ophthalmic division of V C.N)

Due to anatomical proximity, two other syndromes that can have overlapping features are the Superior orbital fissure syndrome and the cavernous sinus syndrome.

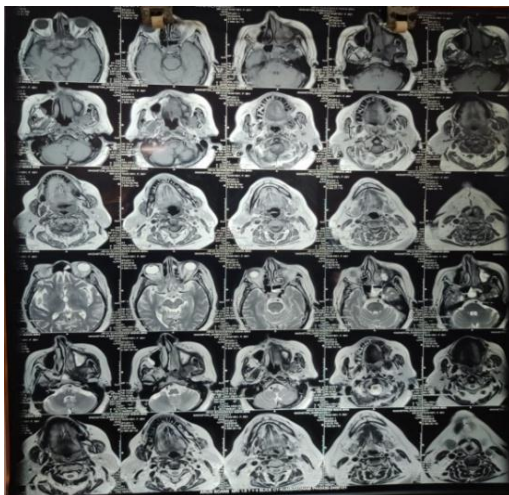
The most common clinical features of a disease process in the orbital apex are vision loss and ophthalmoplegia

Etiology : Inflammatory , infections, tumours , trauma and vascular causes

Neuro-imaging is mandatory in patients with orbital apex syndrome. Brain and orbit MRI are the imaging modality of choice and treatment is directed towards the underlying condition.

CASE REPORT

70 year old female patient who is a known case of infiltrative ductal carcinoma left breast post MRM , metastasised to left maxillary antrum came with defective vision and drooping of upper eyelid (LE) since 10 days . In ocular examination ,mild proptosis (LE), Anterior segment of (LE) pupil showed RAPD , 4mm, sluggishly reacting to light . Lense (BE) Nuclear sclerosis II + Posterior subcapsular cataract . Visual acuity (RE) 6/12with pinhole 6/9p and (LE) No Perception of light . Extra ocular Movements (RE) Full , (LE) restriction of all movements (-2 in all movements). Examination of fundus (RE) – Normal (LE) Hyperaemic disc . Cranial nerve examination (R) Normal , (L) Optic , Oculomotor , Trochlear , Abducent, Trigeminal nerves affected. Rest all cranial nerves were within normal limits . MRI showed secondaries in brain . She was referred to an oncologist for further management.



DISCUSSION

The primary focus should be to locate the lesion and then identify its etiology. Differentiation between orbital apex, superior orbital fissure and cavernous sinus syndromes might be difficult. In general, it might be important to remember that optic nerve involvement along with any of the combination of oculomotor, trochlear, abducent, ophthalmic division of trigeminal nerve with or without maxillary division involvement points to orbital apex syndrome, whereas a similar picture without involvement of the optic nerve should orientate towards a lesion in the superior orbital fissure. Finally, cavernous sinus syndrome is recognizable by all the features of superior orbital fissure syndrome along with the involvement of the maxillary division of the trigeminal nerve.

CONCLUSION

There are multiple causes of orbital apex syndromes varying from inflammatory disorders to trauma, tumor and infection. A careful clinical examination, paraclinical work-up and imaging are essential to establish the diagnosis and start adequate treatment.

Establishing the underlying etiology of this syndrome is particularly important when considering that some specific treatments, such as corticosteroids, might be helpful in some disorders, such as inflammatory causes, but can be detrimental in others, such as infections.

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A RARE CASE OF BARDET BIEDL SYNDROME

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ABSTRACT

A 10 years old male child presented to Vinayaka Missions Medical college , Karaikal with complaints of Defective vision at night & Truncal obesity. Child was apparently normal till 5 years of life , later he developed diminished vision in both the eyes in night. He has gradual increase in weight since 5 years of age . Weight gain was more pronounced in chest and abdomen, rather than the limbs.

He has significant family history. Second degree consanguineous marriage of parents. Child's maternal grandfather had lost his vision at an early age. Child's elder sister also has the similar complaints. He has delayed developmental milestones. Clinically diagnosed as Bardet Biedl syndrome

KEYWORDS: *Bardet-Biedl Syndrome, ciliopathy*

INTRODUCTION:

Bardet Biedl syndrome (BBS) is a rare autosomal recessive disorder. BBS was first described by Bardet and Biedl in the year 1920 .The principal manifestations are rod-cone dystrophy (Retinitis pigmentosa), postaxial polydactyly, central obesity, mental retardation, hypogonadism, and renal dysfunction. Other features not always present include hepatic fibrosis, diabetes mellitus, neurological, speech and language deficits, behavioral traits, facial dysmorphism, dental anomalies and developmental delay.BBS genes encode proteins that localise to the cilia and basal body and are involved in cilia biogenesis and function. Mutations lead to defective cilia accounting in part for the pleiotropic effects observed in BBS.



CASEREPORT :

A 10 years old male child presented to Vinayaka Missions Medical college , Karaikal with complaints of Defective vision at night & Truncal obesity. Child was apparently normal till 5 years of life , later he developed diminished vision in both the eyes in night. He has gradual increase in weight since 5 years of age . Weight gain was more pronounced in chest and abdomen, rather than the limbs. He has significant family history. Second degree consanguineous marriage of parents.Child's maternal grandfather had lost his vision at an early age.Child's elder sister also has the similar complaints.He has delayed developmental milestones.

On general examination – Polydactyly of bilateral lower limbs ; hypogonadism, truncal obesity .

Ophthalmic examination – Retinitis pigmentosa and myopic astigmatism.

Abdominal USG – Grade III Fatty liver , evidence of Medical renal disease as cortical echoes were raised

Scrotal USG - Small sized and undescended testicles – suggestive of hypogonadiasm.

DIAGNOSIS : Clinically diagnosed as Bardet-Biedl Syndrome

DISCUSSION:

The Bardet-Biedl syndrome (BBS) phenotype is seen in individuals with mutations in 14 different genes . BBS1 accounts for ~25-30% cases. The exact pathogenesis of BBS is unknown. It has recently been recognized that the proteins which are coded for by the BBS4, BBS6, BBS8, and the BBS10 genes are expressed in the basal body of the cilia and that BBS is now regarded as one of the

'ciliopathies'. The gene products are probably involved in the signaling pathway in the cilia; and the abnormalities interfere with a normal development, resulting in the diverse pathological effects of the syndrome.

Modified diagnostic criteria

Primary Features

- Rod-cone Dystrophy
- Polydactyly
- Obesity
- Learning Disabilities
- Hypogonadism in males
- Renal Anomalies

Secondary Features

- Speech disorder/Delay
- Strabismus/cataracts/astigmatism
- Brachydactyly/ syndactyly
- Developmental delay
- Nephrogenic diabetes insipidus
- Ataxia/poor coordination/imbalance
- Mild spasticity
- Diabetes mellitus
- Dental crowding/hypodontia/small roots
- Left ventricular hypertrophy/CHD
- Hepatic fibrosis

Patients who is having 4 primary characteristics or 3 primary and 2 secondary criteria were identified as Bardet-Biedl syndrome.

Our case had 4 primary characteristics :

Rod-cone Dystrophy , Polydactyly , Obesity , Hypogonadism , Renal Anomalies

Management :

The management of BBS is supportive and it includes training and rehabilitation for blind patients and for those with specific learning disabilities, hearing aids for deafness, and diet and exercise for obesity.

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Phytochemical analysis, antioxidant activity and carbohydrate content in leaves of *Quercus semecarpifolia* and *Q. floribunda* along altitudinal gradient, Western Himalaya

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ABSTRACT

The angiosperm genus, *Quercus* (Oak) is the most widely distributed member of the family Fagaceae, and among the most important hardwoods of the Northern hemisphere. Oaks are dominant climax tree species of the moist temperate forests and occupy most of the area of mid-elevation in the Indian Himalayan Region (IHR) where about 35 species of this genus are extensively distributed between 1000 to 3500 m elevations, and most of them are evergreen fodder species. Particularly in Western Himalaya *Quercus floribunda* and *Q. semecarpifolia* are important feed for nutrition of livestock and play an important role where few or no alternatives are available. There is limited information available on nutritional and phytochemical importance of the *Quercus floribunda* and *Q. semecarpifolia* leaves with respect to altitude. In the above context, this study was focused to investigate phytochemical and antioxidant activity of these species. The results revealed a significant variation ($p < 0.05$) in analyzed parameters among studied altitudes. A varied range of phytochemicals i.e. total phenolic content (0.54-1.16 mg GAE/g), flavonoids (0.45-0.93 mg QE/g) and tannins (0.81-1.12 mg TAE/g) fresh weight were recorded. Similarly, antioxidant activities were determined by in vitro assays (ABTS, DPPH and FRAP assays) varied significantly ($p < 0.05$). The leaves of *Q. semecarpifolia* at higher elevation range (3200 m asl) were recorded good source of phenolics, tannins and antioxidant activity. However, leaves of *Q. floribunda* were recorded best for flavonoids at 2700 m asl. Among both tested species, *Q. semecarpifolia* was recorded best for maximum carbohydrate content (0.39 mg/g fresh weight) at higher elevation. Results of the present study indicate that leaves of *Q. semecarpifolia* possess good amount of polyphenolic content, nutritional content and antioxidant activity. Hence, it is a good source of natural antioxidants, food and dry fodder for wide range of fauna.

Keywords: Oak, Himalaya, Antioxidant activity, Phytochemical

Abbreviations:

AAE= Ascorbic acid equivalent; ABTS= 2, 2'-Azinobis-3-ethylbenzthiazoline-6-sulphonic acid; asl= above mean sea level; DPPH= 1, 1'-Diphenyl-2-picrylhydrazyl; FRAP= Ferric reducing antioxidant power; g= gram; GAE= Gallic acid equivalent; IHR= Indian Himalayan Region; m = meter; mg= milligram; mM= millimole; QE= Quercetin equivalent; TAE= Tannic acid equivalent

Introduction

Trees and shrubs have been used from centuries as fodder, fuel, timber in many parts of the world (Perevolotsky et al. 1998). The leaves are important feed for livestock (Papachristou and Nastis 1996; Saklani 1999) and play an important role in the nutrition of livestock in those areas where few or no alternatives are available (Meuret et al. 1990). However, use of leaves of some trees and shrubs by livestock is restricted by defending or inhibitory mechanisms due to the high tannin content (Rubanza et al. 2003; Bakshi and Wadhwa 2004).

Oaks (*Quercus*), one of the most frequently used fodder genus of the world and, leaves and twigs are often grazed by animals or lopped to use as livestock fodder during fodder deficit periods (Singh et al. 1996; Saklani 1999). It belongs to the family Fagaceae having more than 600 species which are widely distributed and are major source of hardwood for use in construction, furniture, veneer barrels and other purposes because the wood of *Quercus* is durable and tough, and wood grain is really attractive (Sanchez-Burgosa et al. 2013). In Indian Himalayan Region (IHR), a total of 35 species of oaks have been recorded which are distributed between 1000 to 3500 m asl altitude (Troup 1921). Among them, *Quercus semecarpifolia* and *Q. floribunda* are the important fodder species for livestock of high altitude zones of the Indian Himalaya ranging from temperate to sub-alpine areas.

Leaves of *Q. semecarpifolia* contain huge amount of crude protein (9.49), organic matter (94.86), ether extract (4.07), NDF (64.20), ADF (50.60), calcium (1.60), phosphorous (0.2) and tannins (4.40) on % Dry Matter basis, which can be used as a supplementary food for the growth and development of pashmina producing (a type of woolen) lamb or goat (Singh et al. 1998). Previous study indicated that total phenolic content in younger leaves of *Q. semecarpifolia* was higher as compared to the old ones (Paul et al. 2006), because in mature leaves the apparent degree of polymerization increased, while the content of protein, phenolics and specific activity decreased (Paul et al. 1991). Besides *Q. semecarpifolia*, *Q. floribunda* also possesses high polyphenolics, total antioxidant capacity, and reducing potential (Ahmed et al. 2017). According to Sarwat and Ahmed (2012), the powdered form of its fruits is utilized for the eradication of gonorrhoea and urinary tract infections. Leaves of this species are used by the inhabitants of Western Himalaya as fodder for livestock.

Farmers in the Western Himalayan region of Indian Himalaya depend largely on these species for sustaining their livestock for almost half of the year (during winter and summer seasons). Dependency on these species is very high (>70%) during the period, beginning from October to February (Verma and Mishra, 1999). A farmer's preference for a particular tree species is also varies according to the low, mid and high hill regions depending on where he lives (Verma et al. 1989). Fodder availability in hill villages of Western Himalaya, especially in high altitude villages is insufficient and a part of it is supplemented through lopping of tree foliage. Besides this, altitude plays an important role in structuring and functioning of any organisms. With increasing altitude, the amount of the phytochemicals as well as biochemicals in most of the plant species also increases.

Hence, the present study is an attempt to investigate, i) the polyphenolic content, antioxidant potential and carbohydrate content, and ii) the impact of altitude on phytochemical content, antioxidant activity and carbohydrate content in leaves of 02 *Quercus* species of Western Himalaya.

Materials and methods**Study area**

This study was carried out in Pothibhasha to Chopta region of Rudraprayag district, Western Himalaya. It lies in between 2100-3200 m above sea level (asl), between altitude range of study varies from 2100 - 3200 m asl, Pothibhasha 2120 m asl (79°09'21.39" E and 30°29'22.56" N) to Chopta 3200 m asl (79°13'00.79" E and 30°29'18.81" N). The vegetation of the region broadly represents mixed broad leaf and coniferous forests.

1 Methodology**1.1 Sample collection**

The leaves of Himalayan oak species (*Q. floribunda* and *Q. semecarpifolia*) were collected from different altitudinal zones between 2100-2800 m asl and 2600-3200m asl respectively at every 100 m intervals. The leaves were grounded to fine powder and used for further analysis.

1.2 Extract preparation

Dried leaf powder (10 g) of both selected species was mixed with 100 ml 80% methanol (ME). In the present study, methanol was selected as solvent, because most of the studies on higher plants show the significant impact of methanol for phytochemical extraction (Surveswaran et al. 2007; Ahmed et al. 2009; Bahukhandi et al. 2013). The leaf extract was stirred continuously for 24 h and then filtered. The filtrate was centrifuged at 10,000 rpm for 10 min and the supernatant, was stored at 4 °C prior to use.

1.3 Analysis of phytochemicals, antioxidant activity and total carbohydrate content

The Phytochemicals (total phenols, flavonoids, tannins) and antioxidant activity (ABTS, DPPH, FRAP assays) were analyzed by following the method of Rawat et al. (2011a,b) and Bahukhandi et al. (2013). The analysis of total carbohydrate content was carried out by method given by Hedge and Hofreiter (1962).

1.4 Statistical analysis

Determination of total phenolics, tannins, flavonoids, antioxidant capacity (i.e. ABTS, DPPH and FRAP assays) and carbohydrate content was conducted in triplicates. The value for each sample was calculated as the mean all replicates with \pm standard error. Significant difference among means were tested by one way analysis of variance (One way-ANOVA) followed by Duncan's multiple range post hoc test (DMRT) at the significance level of $p < 0.05$, and this analysis was performed by SPSS (16.0 version) software. Pearson's correlation coefficient was determined by using same software, for knowing the relationship between altitude and analyzed parameters. Second degree polynomial regression analysis was performed to compare the phytochemicals, antioxidant potential and carbohydrate content with altitude; and phytochemicals with antioxidant potential by using MS EXCEL (2007).

2 Results and Discussion

2.1 Impact of altitude on the phytochemicals, antioxidant activity and carbohydrate content

2.1.1 Total phenolic content (TPC): TPC varied significantly ($p < 0.05$) among the different altitude zones. The TPC of *Q. floribunda* and *Q. semecarpifolia*, using 80 % methanol are presented in Table 1 & 2. Among the different altitudes, highest altitude zone i.e. 2700 m asl exhibited highest TPC of *Q. floribunda* (1.073 mg GAE/g), followed by 2600 m asl (0.933 mg GAE/g), and others (Table 1). However, the lowest altitude i.e. 2100 m asl having the lowest TPC (0.540 mg GAE/g; Table 1). In case of *Q. semecarpifolia*, the highest TPC has also been recorded in highest altitude zone i.e. 3200 m asl (1.163 mg GAE/g; Table 2). Besides this, lowest altitude (2600 m asl) showed the lowest amount of phenols (0.627 mg GAE/g; Table 2).

Table 1. Polyphenolic content, antioxidant activity and carbohydrate content of *Quercus floribunda* along altitude

S. No.	Altitude (m asl)	Phenolics (mg GAE/g)	Flavonoids (mg QE/g)	Tannins (mg TAE/g)	ABTS (mM AAE/10g)	DPPH (mM AAE/10g)	FRAP (mM AAE/10g)	Carbohydrates (mg/g)
1	2100	0.540 \pm 0.012 ^g	0.547 \pm 0.012 ^f	0.810 \pm 0.036 ^e	0.973 \pm 0.012 ^g	0.860 \pm 0.062 ^c	0.690 \pm 0.006 ^e	0.290 \pm 0.006 ^c
2	2200	0.587 \pm 0.009 ^f	0.590 \pm 0.006 ^e	0.890 \pm 0.006 ^d	1.027 \pm 0.013 ^f	0.950 \pm 0.010 ^{bc}	0.727 \pm 0.007 ^{de}	0.300 \pm 0.006 ^{de}
3	2300	0.633 \pm 0.015 ^e	0.683 \pm 0.026 ^d	0.943 \pm 0.012 ^c	1.107 \pm 0.018 ^e	1.027 \pm 0.023 ^b	0.780 \pm 0.021 ^{bc}	0.303 \pm 0.009 ^{de}
4	2400	0.717 \pm 0.012 ^d	0.760 \pm 0.006 ^c	0.967 \pm 0.009 ^b _c	1.360 \pm 0.021 ^d	1.160 \pm 0.021 ^a	0.743 \pm 0.012 ^{cd}	0.320 \pm 0.006 ^{cd}
5	2500	0.790 \pm 0.023 ^c	0.827 \pm 0.019 ^b	0.990 \pm 0.006 ^a _{bc}	1.743 \pm 0.015 ^c	1.243 \pm 0.043 ^a	0.753 \pm 0.015 ^{cd}	0.337 \pm 0.009 ^{bc}
6	2600	0.933 \pm 0.017 ^b	0.897 \pm 0.003 ^a	1.020 \pm 0.012 ^a _b	1.843 \pm 0.015 ^b	1.233 \pm 0.020 ^a	0.800 \pm 0.006 ^b	0.357 \pm 0.009 ^{ab}
7	2700	1.073 \pm 0.015 ^a	0.933 \pm 0.012 ^a	1.037 \pm 0.020 ^a	1.907 \pm 0.012 ^a	1.153 \pm 0.020 ^a	0.843 \pm 0.012 ^a	0.377 \pm 0.007 ^a

Table 2. Polyphenolic content, antioxidant activity and carbohydrate content of *Quercus semecarpifolia* along altitude

S. No.	Altitude (m asl)	Phenolics (mg GAE/g)	Flavonoids (mg QE/g)	Tannins (mg TAE/g)	ABTS (mM AAE/10g)	DPPH (mM AAE/10g)	FRAP (mM AAE/10g)	Carbohydrates (mg/g)
1	2600	0.627±0.015 ^g	0.450±0.015 ^e	0.950±0.017 ^d	1.763±0.012 ^f	0.913±0.058 ^e	0.650±0.021 ^f	0.190±0.015 ^f
2	2700	0.697±0.007 ^f	0.490±0.006 ^e	0.993±0.003 ^c	1.953±0.015 ^e	1.143±0.023 ^d	0.697±0.003 ^f	0.237±0.003 ^e
3	2800	0.790±0.023 ^e	0.553±0.024 ^d	1.033±0.023 ^b	2.027±0.009 ^d	1.243±0.043 ^d	0.770±0.031 ^e	0.277±0.009 ^d
4	2900	0.887±0.003 ^d	0.620±0.010 ^c	1.083±0.013 ^a	2.077±0.003 ^d	1.373±0.009 ^c	0.857±0.013 ^d	0.300±0.006 ^{cd}
5	3000	0.997±0.018 ^c	0.687±0.020 ^b	1.100±0.046 ^a	2.187±0.038 ^c	1.480±0.044 ^c	0.923±0.009 ^c	0.320±0.012 ^c
6	3100	1.100±0.006 ^b	0.727±0.009 ^{ab}	1.120±0.012 ^a	2.307±0.012 ^b	1.597±0.007 ^b	0.983±0.012 ^b	0.357±0.003 ^b
7	3200	1.163±0.009 ^a	0.757±0.015 ^a	1.117±0.012 ^a	2.407±0.027 ^a	1.727±0.041 ^a	1.090±0.006 ^a	0.387±0.009 ^a

Environmental factors influence the total phenolics in plants. Altitude is one of them, which play a crucial role on the amount of total phenolics (Bhatt et al. 2012; Jugran et al. 2016; Bahukhandi *et al.* 2013, 2018; Dhyani et al. 2018). However, till date no such type of study was conducted on Western Himalayan Oaks. Hence, in the present study this is true where variation in TPC was observed in different altitudes, i.e. highest altitude exhibited higher TPC. Some other studies (Jugran et al. 2016) also support the results of present study.

2.1.2 Total flavonoid content (TFC): TFC of both *Quercus* species along altitude, extracted with methanol showed that among all the studied altitudes, *Q. floribunda* as well as *Q. semecarpifolia* exhibited the higher TFC (0.933 and 0.757 mg QE/g respectively) at higher altitude in comparison to lower altitude (0.547 and 0.450 mg QE/g respectively; Table 1&2). According to Dixon and Pavia (1995), variation in flavonoid content is considered as a phytochemical adaptation to the abiotic and biotic environment such as UV light radiation, drought, ozone, phytopathogens and insect-deterrent, which influence the flavonoid synthesis in plants (Cuadra et al. 1997; Cooper-Driver and Bhattacharya 1998; Lalova 1998; Markham et al. 1998; Simmonds 1998; Chaves et al. 2001; Saleem et al. 2001). Nikolova and Ivancheva (2005) assessed the impact of altitudinal gradient on flavonoid content variation in *Artemisia vulgaris* and *Veronica chamaedrys*. Results of the present study corroborate with previous studies, which report higher accumulation of flavonoid content in xeric habitats (Williams et al. 1997; Valant-Vetschera and Wollenweber 2001).

2.1.3 Total tannin content (TTC): TTC of both *Quercus* species exhibited the higher TTC (1.037 and 1.117 mg TAE/g respectively) at higher altitude (Table 1&2). However, lower altitude exhibited low TTC (0.810 and 0.950 mg TAE/g). Chemical compounds of toxic or digestibility reducing potential have an important role in plant defense against herbivores and pathogens (Harborne 1993; Madeira et al. 1998). Along with increasing altitude there is an increase in light intensity; also the soils are generally more exposed and shallower and have reduced nutrient availability and lower moisture-retaining capacity (Sarmiento 1986). In such type of cases, tannins provide the protection against both biotic and climatic effects (Alonso-Amelot et al. 2004). Results of this study showed that the highest TTC was recorded at highest altitude in both the studied species.

2.1.4 Total Carbohydrate content: Altitude is one the major factor to differentiate the nutritive value of any plant. Our findings suggested that among the studied altitudes, higher altitude populations exhibited comparatively higher values of total carbohydrate content in *Q. floribunda* (0.377 mg/g) as well as *Q. semecarpifolia* (0.387 mg/g) and present study also supported by other studies (Bhatt et al. 2012; Singh & Todaria 2012; Jugran et al. 2016). Hence, higher altitude populations should be selected for collection of the nutritive fodder for the livestock by the mountain villages. In case of *Q. semecarpifolia*, maturity stage of leaves is an important factor affecting nutritive value (Singh & Todaria 2012), hence its leaves should be harvested at the correct stage of maturity.

2.1.5 Antioxidant activity: Antioxidants are the compounds or systems that inhibit formation of free radicals or interrupt propagation of the same by one (or more) of several mechanisms (Nawar 1996; Upadhyay et al. 2017). Antioxidant activity of *Q. floribunda* and *Q. semecarpifolia*, determined by different *in vitro* assays i.e. ABTS, DPPH & FRAP, exhibited variations across altitude.

ABTS assay: The results showing the effects of altitude on the antioxidant activity measured by ABTS assay in the methanolic extracts of *Quercus* species (Table 1&2). The values of activity for the tested extract solutions determined by ABTS assay of both tested species was ranged from 0.973 to 2.407 mM AAE/10g. Maximum antioxidant activity was shown by higher altitude individuals

of *Q. floribunda* and *Quercus semecarpifolia* (1.907 and 2.407 mM AAE/10g respectively), however, the individuals growing in low altitude showed lowest antioxidant activity (0.973 and 1.763 mM AAE/10g respectively; Table 1&2).

Antioxidant activity of tested species was significantly influenced by altitude. Results of our study showed that the ABTS activity was differing from population to population with increasing altitude. The highest ABTS activity was showed by higher altitude populations of tested *Quercus* species, besides this lower altitude population showed the poorest ABTS activity.

DPPH assay: A statistically significant difference ($P < 0.05$) was observed in the DPPH radical scavenging capacities of both tested *Quercus* species along altitude. The extract of all the tested populations of both species possessed free radical scavenging properties, but to varying degree, ranging from 0.860 to 1.727 mM AAE/100g . A maximum scavenging activity was offered by higher altitude populations of *Q. floribunda* and *Q. semecarpifolia* (1.153 and 1.727 mM AAE/10g respectively; Table 1&2) which indicates the presence of many natural antioxidants or active compounds. However, minimum radical scavenging properties were shown by lower altitude populations (0.860 and 0.913 mM AAE/10g respectively; Table 1&2).

Free radicals contribute to more than one hundred disorders in humans (Gulcin et al. 2005; Sharma and Kalikotay 2012) in which the DPPH is a stable, frequently used and accepted as a widely used free radical to determine the antioxidant ability of some natural compounds.

FRAP assay: The ferric reducing activity of tested species ranged from 0.650 to 1.090 mM AAE/10g. The maximum reducing power was observed in higher altitude population of *Q. floribunda* and *Q. semecarpifolia* (0.843 and 1.090 mM AAE/10g respectively), however, minimum was shown by lower altitude populations (0.690 and 0.650 mM AAE/10g respectively; Table 1&2).

The reducing potential of antioxidant components is very much associated with their TPC (Upadhyay et al. 2017), which is considered as a good indicator of antioxidant capacity. Thus, the extracts, which exhibited high reducing power, may be considered as an antioxidant source (Yucel et al. 2007).

2.2 Relationship of Total polyphenolic content, Total carbohydrate content and Antioxidant activity with altitude

Altitude influences significantly ($p < 0.05$) to all polyphenolic contents (phenol, flavonoid and tannin), carbohydrate content and antioxidant activity and this was confirmed by Pearson's Correlation coefficient and polynomial regression analysis (Table 3&4; Figure 1-14). Besides this, a significant ($p < 0.05$) positive relationship has also been observed between polyphenolic contents and antioxidant activity measured by ABTS, DPPH and FRAP assay (Table 3&4). Our results also corroborate with other studies (Jayaprakasha and Rao 2000; Rankovic et al. 2011; Jugran et al. 2012; Bahukhandi et al. 2013).

Table 3. Pearson's Correlation among altitude, polyphenolic content, antioxidant activity and

carbohydrate content of *Quercus floribunda*

	Altitude	Phenolics	Flavonoids	Tannins	ABTS	DPPH	FRAP	Carbohydrates
Altitude	1.000							
Phenolics	0.953**	1.000						
Flavonoids	0.964**	0.941**	1.000					
Tannins	0.900**	0.860**	0.891**	1.000				
ABTS	0.942**	0.940**	0.964**	0.854**	1.000			
DPPH	0.801**	0.711**	0.839**	0.864**	0.839**	1.000		
FRAP	0.826**	0.831**	0.826**	0.776**	0.729**	0.540*	1.000	
Carbohydrates	0.908**	0.922**	0.903**	0.804**	0.914**	0.741**	0.768**	1.000

**Correlation is significant at the 0.01 level (2-tailed). *Correlation is significant at the 0.05 level (2-tailed).

Figure 1. Total phenolics of *Quercus floribunda* along altitude
semecaroifolia along altitude

Figure 8. Total phenolics of *Quercus*

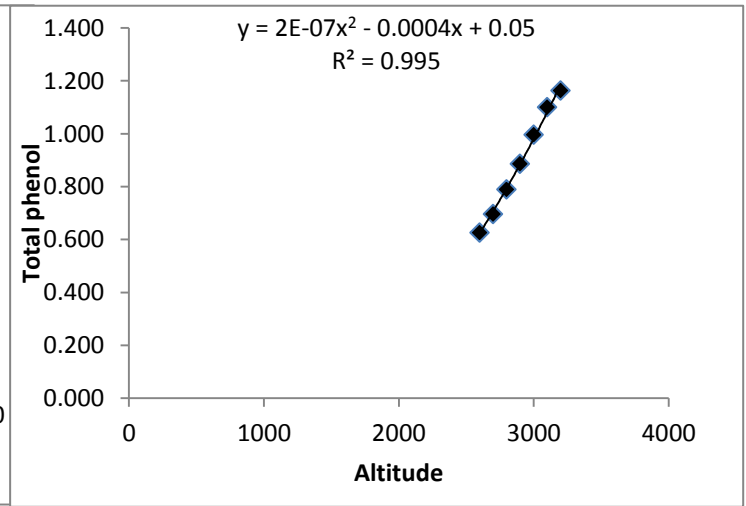
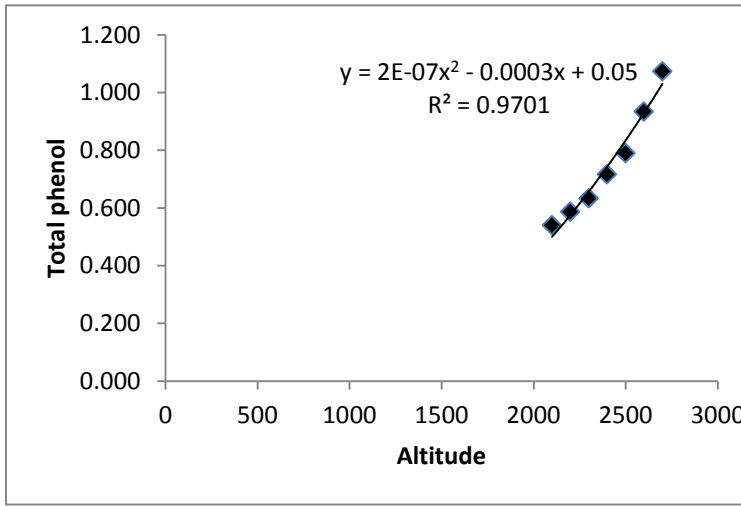


Figure 2. Flavonoids of *Quercus floribunda* along altitude
along altitude

Figure 9. Flavonoids of *Quercus semecarpifolia*

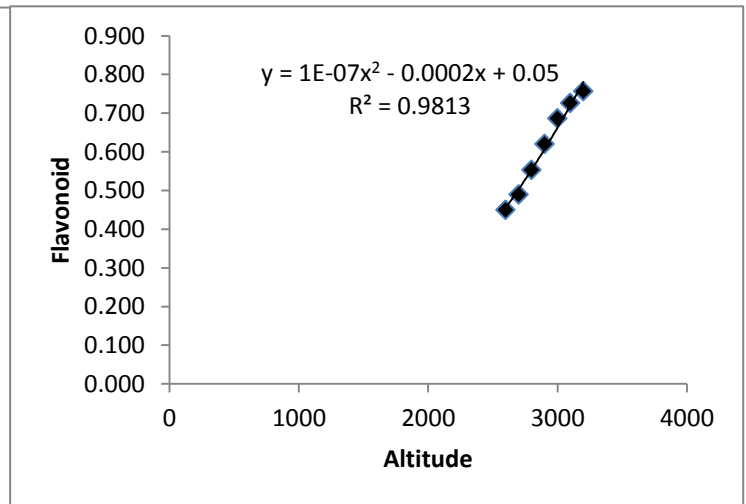
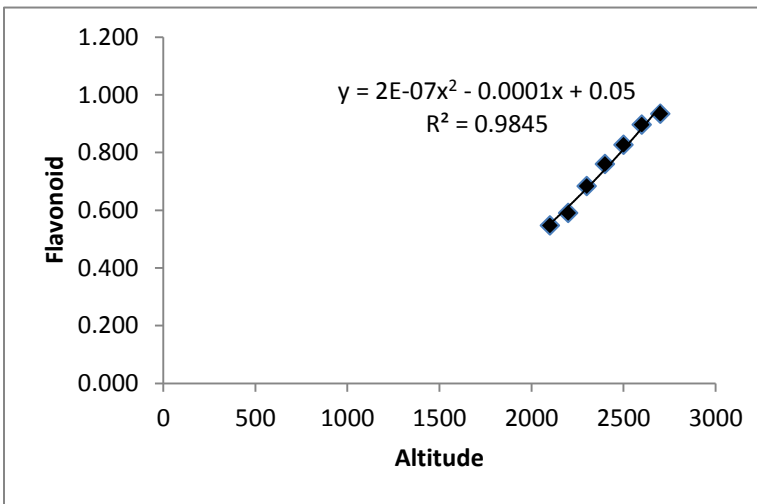


Figure 3. Total tannins of *Quercus floribunda* along altitude along altitude

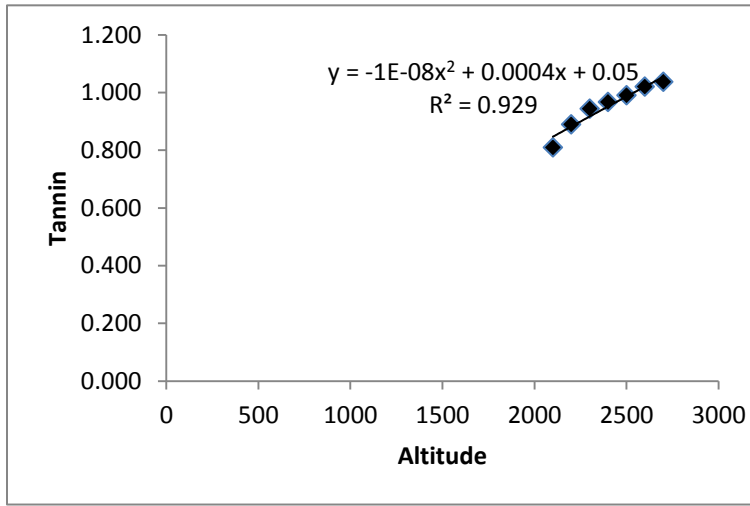


Figure 10. Total tannins of *Quercus semecarpifolia*

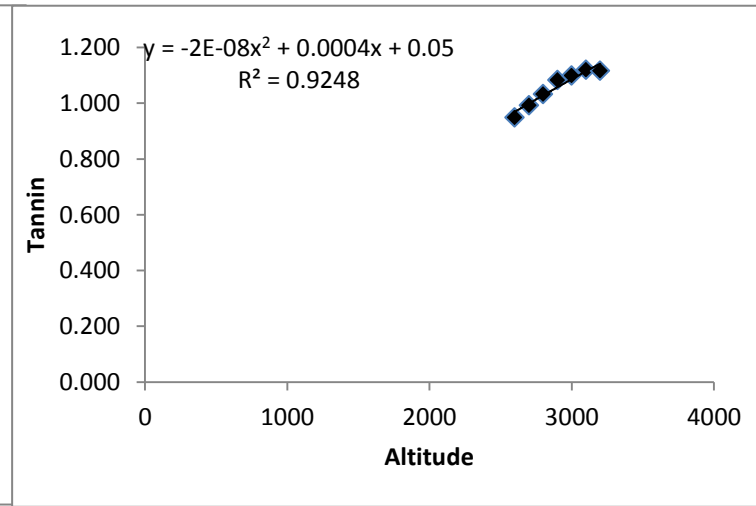


Figure 4. ABTS activity of *Quercus floribunda* along altitude along altitude

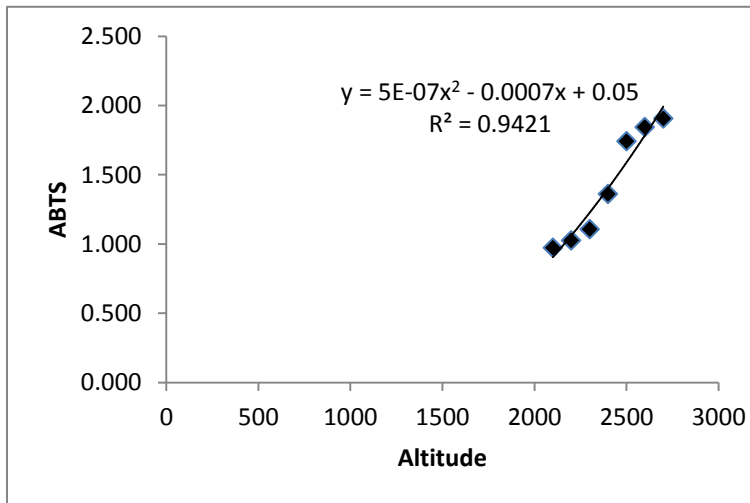


Figure 11. ABTS activity of *Quercus semecarpifolia*

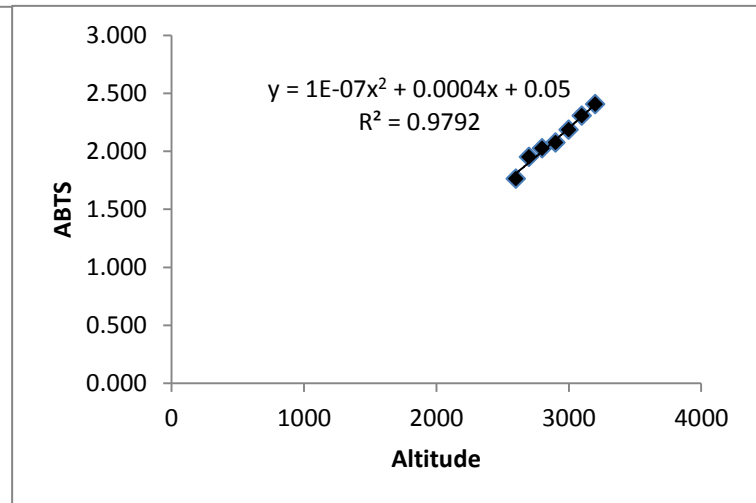


Figure 5. DPPH activity of *Quercus floribunda* along altitude
semecarpifolia along altitude

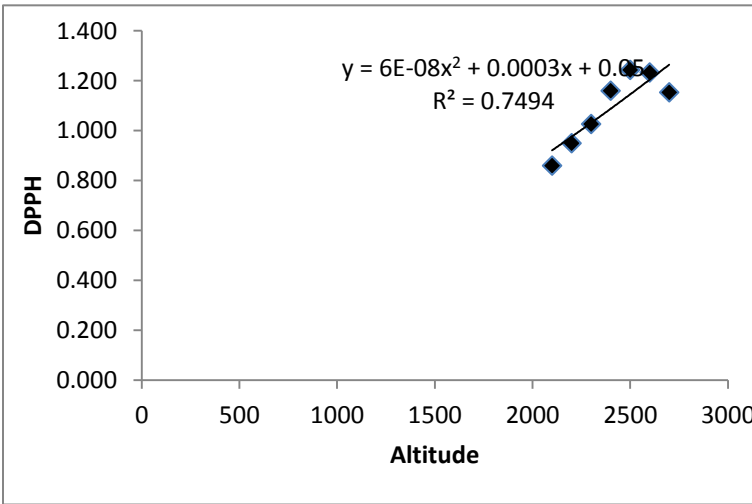


Figure 12. DPPH activity of *Quercus*

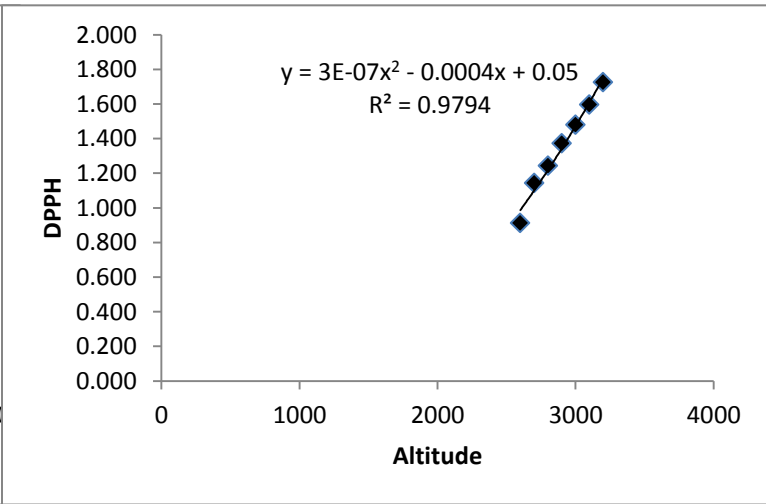


Figure 6. FRAP activity of *Quercus floribunda* along altitude
semecarpifolia along altitude

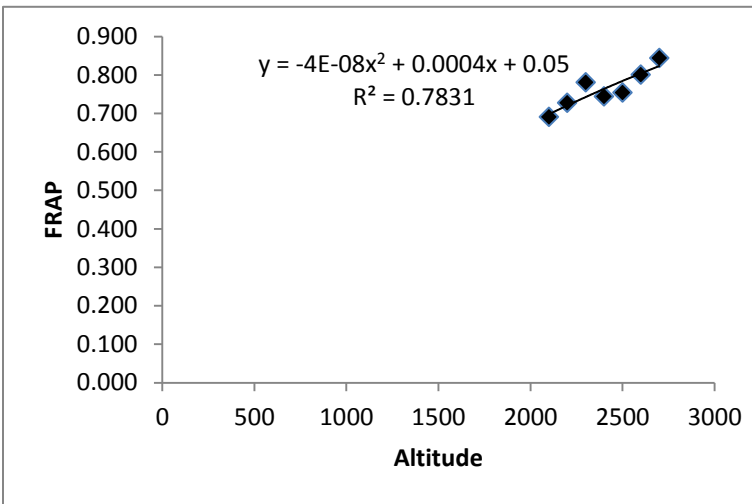


Figure 13. FRAP activity of *Quercus*

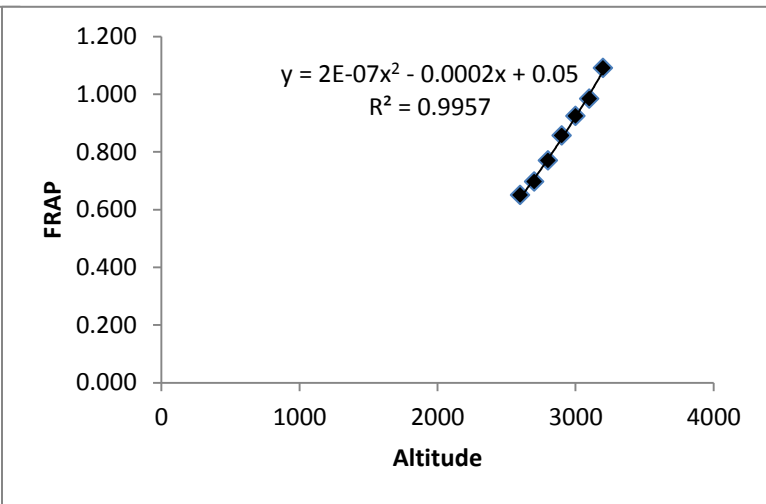


Figure 7. Carbohydrate content of *Quercus floribunda* along altitude *semecarpifolia* along altitude

Figure 14. Carbohydrate content of *Quercus*

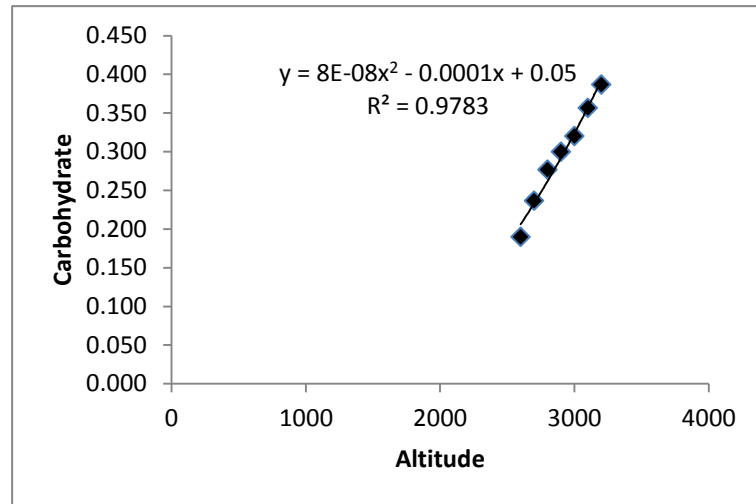
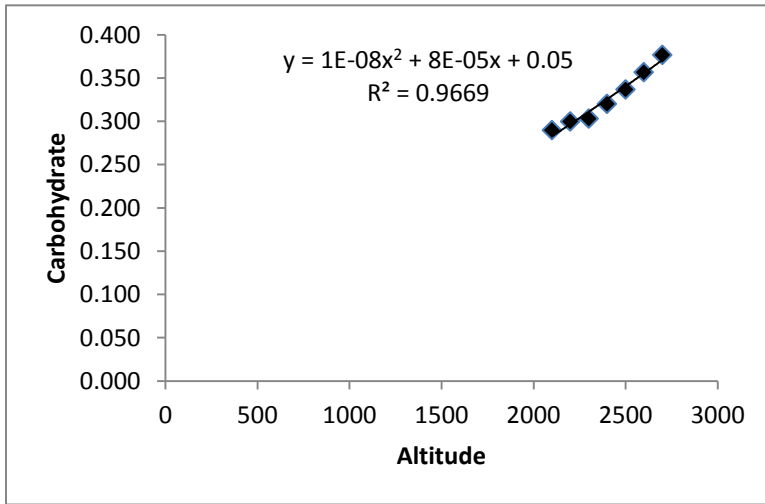


Table 4. Pearson’s Correlation among altitude, polyphenolic content, antioxidant activity and carbohydrate content of *Quercus semecarpifolia*

	Altitude	Phenolics	Flavonoids	Tannins	ABTS	DPPH	FRAP	Carbohydrates
Altitude	1.000							
Phenolics	0.993**	1.000						
Flavonoids	0.975**	0.984**	1.000					
Tannins	0.854**	0.851**	0.855**	1.000				
ABTS	0.981**	0.977**	0.962**	0.854**	1.000			
DPPH	0.974**	0.962**	0.938**	0.879**	0.963**	1.000		
FRAP	0.985**	0.978**	0.964**	0.818**	0.959**	0.942**	1.000	
Carbohydrates	0.973**	0.971**	0.957**	0.848**	0.977**	0.944**	0.967**	1.000

**Correlation is significant at the 0.01 level (2-tailed)

3 Conclusion

Considering the results from this study it can be concluded that altitude is one of the influencing factors responsible for secretion of phenolic content and showing potent antioxidant activity, free radical scavenging activity, ferric reducing potential. This suggests that the plants of higher altitude should be promoted as fodder for livestock by inhabitants of Himalaya. Considering the above results, further investigation needs to be done to find out other nutritional applications of tested *Quercus* species for value addition of livestock feed.

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IMPACT OF SOCIAL MEDIA MARKETING ON VARIOUS ORGANIZATIONS

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ABSTRACT

Social Media Marketing is immensely used by organizations today. Banks and stock broking firms are beginning to carry out business on Facebook, an important step as they try to build deeper customer relationships through social media platforms. Social networking is used as a lucrative option for brand managers to market their brand and to create a brand identity. This paper will thus try to analyze the impact of Social Media Marketing on various organizations.

Key Words: Social Media, Social networking, brand identity

INTRODUCTION

Social media is changing how individuals communicate with each other. Social media is highly interactive and users share and process information with others (Aula 2010). It is also changing where and how consumers spend their time. Consumers are accessing social media on their desktops, laptops, and mobile devices. Given this tremendous growth, companies are scrambling to try and figure how to utilize social media to reach the millions of consumers who use it on a daily basis. Social media is unstructured and is focused on generating conversation and building community and may also have an influence on purchase decisions (Nair 2011).

While academic research exists on individual consumers of social media there has not been extensive academic research on what companies are actually doing in social media. Parise et. al. (2008) interviewed executives about their use of social media tools to generate some suggestions on how get the best results from social media. Jansen et. al. (2009) evaluated the content of posts or "tweets" on the micro-blog Twitter on corporate accounts and discovered that consumer purchases are influenced by web communications and social media. They also recommend microblogging as an opportunity for building brands and for developing relationships with customers. Colliander & Dahlen (2011) compared consumer reactions to blogs and online magazines and found that consumers exposed to information on blogs and stronger brand attitudes and higher purchase intentions. Phan (2011) investigated the use of social media for thirteen luxury fashion brands to determine if having a presence in social media influenced consumer perceptions of the brands and determined that social media had no impact on consumer purchase intentions or reputation.

REVIEW OF LITERATURE

In the past few years, social media have become perhaps the most popular communication channels for college-aged Internet users (Pelling and White 2009). As Kaplan and Haenlei (2010, p. 61) define them, social media are the "group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of User Generated Content." As they have grown in both popularity and use, social media applications allow for classifications into more specific categories, determined by characteristics, such as content communities (e.g., YouTube), social networking sites (SNS;e.g., Facebook,

MySpace), microblogging (e.g., Twitter), and virtual social worlds (e.g., Second Life) (Kaplan and Haenlein 2010; Mangold and Faulds 2009). Among the various applications and platforms, SNS and Facebook in particular have emerged as primary "hang outs" for young users. Launched in 2004, Facebook reached more than 750 million active users in 2011, and half of them logged on daily. Users spend more than 700 billion minutes per month on the site (Facebook.com 2011a). Similar to other SNS, Facebook is a Web-based service that allows people to build public profiles and establish explicit connections with others in their social network (Boyd and Ellison 2007).

Internet marketing has had an immense impact in the recent years. Most prominently in UK, where internet advertising spent has overtaken popular mass media like print and television. According to a report by Price Waterhouse Coopers, as reported by Fox News (2010), online advertising accounted for 24.3% of total spend on advertising in the UK by June 2010; Increasingly consumers are trusting online information. According to TNS (2008), a global market research company, online news is the most trusted source in the UK second only to recommendations from friends. The TNS poll indicates that 40% of the surveyed respondents highly trust online news.

Many companies including multinationals have suffered for not having paid heed to what customers were saying online as can be observed from the following: British Petroleum took a hit on its reputation thanks to the self replicating negative word of mouth. The damage control needs to be done on all fronts be it traditional or social media. By the very nature of Social media, the message spreads like wildfire with each disgruntled stakeholder adding more fuel to the fire. The 'Economic times' observes that one in every four adult users of twitter is expressing discontent with companies on their twitter account. The customer base of twitter in India is 2 million (as of July 2010) and expanding every year. Similarly, Apple i phone saw its company's value depreciate by US \$ 9.9 billion due to quality issues of its 4G series magnified by the social media.

IMPACT OF SOCIAL MEDIA MARKETIG ON VARIOUS ORGANIZATIONS

Companies are trying to encourage consumers to interact with them the same way they do with their friends and family. Today's consumers almost expect companies to have a presence online and in social media and the challenge for companies is how to get involved and establish a presence (Nair 2011). From a corporate perspective, social media presents both a challenge and a tremendous opportunity. Social media is not just another channel for distributing corporate information or an add-on to a firm's current media offerings because it allows consumers to interact and participate with companies and brands and allows them to share their opinions with others which helps to influence corporate reputations (Aula 2010; Nair 2011). Companies must keep in mind their strategic goals when making decisions to be establish a presence in social media and avoid creating a Facebook page or establishing a Twitter account just because everyone else has one without first determining strategically why these moves might be effective for the organization and what goals the organization wants to achieve (Bottles & Sherlock 2011; Phan 2011). Choosing the right social media tool depends on the target market, the message being delivered, and the level of control over how the message is disseminated (Kaplan & Haenlein 2010).

Social media can provide a variety of options for companies who wish to establish a social media presence. Due to its interactive nature, opportunities are available for companies to generate feedback from their consumers that can be helpful in product development, advertising campaign development, and marketing research (McAfee et. al. 2011). Companies can develop applications or "apps" that allow users to customize their profiles, share movie preferences, chart travel histories and share information with others (Boyd & Ellison 2008). Social media also offers a platform for serving customers, listening to customers, monitoring customer feedback, encouraging dialogue, and establishing connections (Nair 2011). Companies must also try to integrate their social media activity with their activity in traditional media to increase the likelihood that consumers will be engaged with their brand and to present a cohesive brand image (Mangold & Faulds 2009; Kaplan & Haenlein 2010). Weinberg & Pehlivan (2011) examine the different types of social media and make recommendations on what types of social media might be most suited for achieving different types of marketing goals. Social network sites, for example, are effective for influencing and tracking consumer beliefs and attitudes related to products and brands, while microblogs are useful for creating awareness and brand recall for established brand and provide a fast option for companies to communicate brief information.

To generate brand awareness for its Old Spice fragrance line, Procter & Gamble invited Facebook users to "Turn Up Your Man Smell" by becoming "fans" of its products. Within a week, the brand's fan page had more than 120,000 new fans (Morrisey, 2009). Not content merely to draw fans to its Facebook page, the Red Robin restaurant chain enlisted Facebook users as "brand ambassadors," asking them to send pre-written recommendations to online friends. Some 1,500 customers—each with an average of 150 friends—agreed to post recommendations, which the company estimates resulted in approximately 225,000 positive advertising impressions (York, 2009). Faced with declining sales in the wake of safety recalls, Toyota used a combination of YouTube videos and Facebook pages to promote its Sienna minivan. Creating a fictional couple who "believe they are cool despite all evidence to the contrary" (Elliott, 2010), the automobile manufacturer broadcast a series of videos through the YouTube site, then solicited Facebook fans, combining both forms of social media. Within a few weeks, each of the YouTube videos had been sought out and viewed an estimated 12,000 to 15,000 times, with approximately 2,000 Facebook users signing on as fans of the Sienna.

In these and similar cases, social-networking site (SNS) users not only embraced advertising-related content but actively promoted it. Yet, according to one industry-sponsored study, only 22 percent of consumers had a positive attitude toward social media advertising—and 8 percent of consumers studied had abandoned an SNS because of what they perceived as excessive advertising (AdReaction, 2010). For example, although much of the decline in MySpace usage has been due to users' abandonment of the site in favor of the "next big thing" (i.e., Facebook), many users have suggested that the propensity of unwanted and unsolicited advertising messages contributed significantly to MySpace's woes (Vara, 2006).

These concerns suggest a delicate balancing act for social-networking advertising (SNA). On one hand, advertising provides revenue that enables sites to survive (or, in some instances, to thrive). On the other hand, overt and/or excessive commercialization in the form of advertising can dilute the appeal of SNSs. Thus, the key to successfully integrating advertising into SNSs is consumer acceptance (i.e., positive attitudes toward SNA). Consumers appear to be willing to accept SNA, but sites that do not manage advertising carefully may be perceived as being "populated by pseudo-users who [are] little more than paid corporate shells" (Clemons et al., 2007, p. 275). For advertisers, SNA still represents a new, rapidly growing, substantively important, and largely unexplored frontier. In 2009, Facebook and Twitter both posted triple-digit growth in the number of users (comScore, 2010). Users appear to be spending more time on SNSs as well, growing from an average of 3 hours per week in December 2008 to more than 5.5 hours in December 2010 (Nielsenwire, 2010). To tap this growing market, advertisers spent an estimated \$1.2 billion on SNA in 2009, with totals for 2010 expected to grow by more than 7 percent (Williamson, 2009). During a single month in 2009, SNA accounted for nearly 69 billion advertising impressions, with 129.6 million unique users (comScore, 2009). For the operators of SNSs themselves, SNA represents the bulk, if not the entirety, of their revenue stream. A few sites are fee based; for example, family-oriented Famster.com eschewed advertising in favor of a subscription fee (Crow, 2007). Most sites, however, depend on advertising as their primary source of revenue (Enders et al., 2008). Consumer acceptance is critically important for both SNS advertisers and SNS providers.

When an SNS is perceived as being overly commercialized or infested with commercial spam, it risks negative consequences. This is viewed as an important cause of MySpace's decline from its prior peak of 75 million U.S. users to fewer than 57 million in February 2010—a serious lag behind Facebook and Twitter (Johnson, 2010). Facebook has not been immune to user criticism about advertising. Particularly contentious is the company's "self-service" advertising capability that allows smaller advertisers to create advertising inexpensively and to target users based on such demographic and psychographic variables as location, age, gender, contextual keywords, education, or relationship status/ interest. Used properly, such advertisements can be effective. As Stone wrote in *The New York Times*, however, "When it doesn't work, it's not only creepy but offputting" (Stone, 2010), as consumers often wonder how the advertiser learned things about them. Indeed, a survey by media firm Dynamic Logic concluded that some 13 percent of consumers who said they had abandoned an SNS did so because of concerns about privacy (AdReaction, 2010).

ICICI Bank, India's largest private bank, is one of the early movers in this regard. Its application lets customers check the balance in accounts, request a statement, cheque books or even upgrade the debit card right from the user's Facebook home page. Banks and financial services companies are only just putting to use the interactive potential of a platform such as Facebook. So far, their presence has been largely static. Users, too, are bound to have security and privacy concerns but experts are of the view that security fears have been addressed. (The Economic Times, March, 2012)

HDFC Securities wants to integrate a stock-trading portal on Facebook with widgets that give a real-time information feed. It has asked capital market regulator Sebi for permission to launch such a service. Broking agencies have to comply with strict guidelines when it comes to trying anything on Digital media.

Axis Bank is promoting its platinum credit cards on Facebook by integrating a movie ticket-booking transaction engine. This was part of a larger effort to offer services which would help garner more attention on the official Axis Bank Facebook page that was launched around the same time. Financial services company Edelweiss, which does some branding with games, plans to introduce more such initiatives on Facebook.

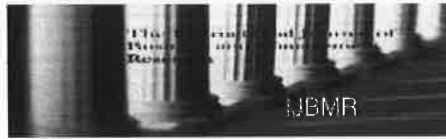
CONCLUSION

Companies post on average 24 times within a month which implies that consumers receive a message in their news feeds from companies that they like every few days. Companies need to be conscious of not bombarding users with messages. The type of posting varies. Some postings are product related and may either provide product information or ask users to talk about their experience with the product or vote on how they use the product or select their favorite aspects of the products. Fashion companies tended to have postings that showed celebrities using their products at prestigious events such as movie premieres and award shows. Polls and poll questions seem to be useful tools for marketing research. Most companies posted some form of video on their official pages. Videos of commercials offer an additional way to distribute advertising content beyond traditional sources. Content offering consumer incentives

such as coupons, sweepstakes, and contents was also frequently used. This type of content gets consumers involved and may get them to purchase the brand which is the ultimate goal of most marketing efforts. Postings requesting feedback from consumers through multiple choice polls or by simply posing questions seem most appropriate for marketing research purposes. Several companies have significantly large numbers of users who “like” them which suggests that the brand is popular but the sheer number of likes does not definitively measure sales figures or purchase intentions. Thus we can conclude that social media marketing has a huge impact on various organizations.

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Role of Repo Rate in Indian Monetary Policy Since 2014

Dr. Chetana Asbe

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Abstract

The Urjit Patel Committee report (2014) had recommended that repo rate should be made the signal of policy stance to address the issue of high inflationary pressure in India. Since then repo rate as a tool has gained pronounced importance. In the current scenario where India is amid a growth slowdown, to some extent, the monetary policy is expected to address the situation. The purpose of this paper is to analyze the role of repo rate in the conduct of Indian monetary policy since the adoption of flexible inflation targeting. It studies through regression analysis if repo rate has allowed RBI to pass on interest rate signals to the market for the period into consideration. It concludes that there is scope for adequately transmitting the rate cuts for an augmented monetary policy transmission mechanism.

Keywords: Reserve Bank of India (RBI); monetary policy; repo rate; consumer price index inflation

1. Introduction

Reserve Bank of India (RBI) is the central monetary authority in India. It began operations on April 01, 1935 and was nationalized with effect from January 1, 1949. Its responsibility of formulating and implementing the monetary policy is explicitly mandated under the Reserve Bank of India Act, 1934. In 2014, a panel headed by Dr. Urjit Patel recommended that India should adopt flexible inflation targeting (FIT) as its monetary policy framework keeping the headline inflation based on consumer price index-combined (CPI-C) as its target. It also voiced that adopting FIT in the Indian context would require a higher order of policy discipline and that clarity of communication is a prerequisite for any successful FIT regime given its role in shaping the inflation expectations of economic agents. In keeping with the committee's recommendation, RBI began reviewing and announcing its policy on a bi-monthly cycle. And hence, with the advent of FIT, RBI's monetary policy communication has improved significantly (Mathur and Sengupta, 2019) and this would aid in reducing the inside lag of the monetary policy transmission mechanism. Once the monetary policy framework is in place, the policy needs to have a supporting operating procedure through which it can be implemented. RBI is, therefore, armed with tools to enable it to influence the money supply in the economy. These instruments have been under continuous review and changes have been made in response to emerging situations and trends in prices to combat shocks. The existing framework aims at setting the policy (repo) rate based on an assessment of the current and evolving macroeconomic situation and modulation of liquidity conditions. The changes in repo rate transmit through the money market to the entire financial system, which, in turn, influences aggregate demand – a key determinant of inflation.

Once the repo rate is announced, the operating framework designed by the RBI envisages liquidity management through anchoring the operating target, the weighted average call rate (WACR), around the repo rate. For Reserve Bank to attain its policy objective efficiently, it is particularly important that a process referred to as 'monetary transmission' works impeccably (Acharya, 2017). Therefore, consequently, the operating procedure is fine-tuned and revised depending on the evolving financial market and monetary conditions, while ensuring consistency with the monetary policy stance.

This study, therefore, focusses on assessing the role of repo rate in the conduct of Indian monetary policy after the adoption of flexible inflation targeting by India in January 2014.

2. Theoretical Background

Monetary policy refers to the policy of a central bank with regard to the use of instruments under its control to achieve the specified goals. Friedman (2000) and Firend Alan Rasch (2019) explained that it is one of the two primary means (the other being fiscal policy) by which government authorities can influence the pace and direction of overall economic activity. It can also impact the level of aggregate output, employment and most importantly the general rate at which prices rise and fall.

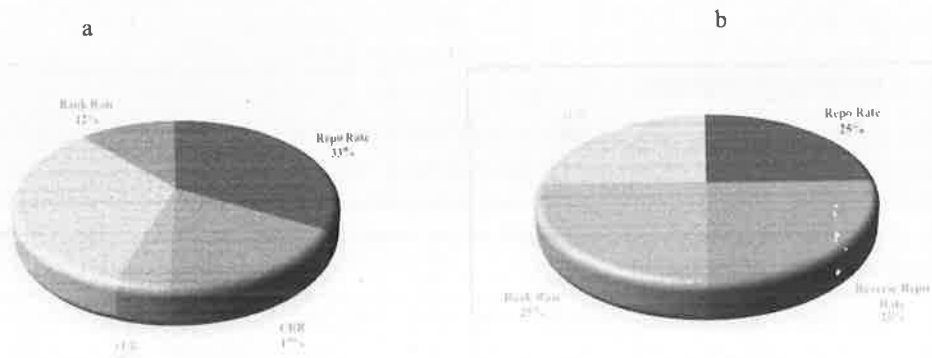
Lately in India, RBI conducts monetary policy with the chief objective of maintaining price stability while keeping in mind the objective of growth and financial stability. This responsibility is explicitly mandated under the Reserve Bank of India Act, as amended in 2016. Smitha T.H. (2010) discussed the definite and significant economic impact of monetary policy on the Indian economy in the post-reform period. Her study advocated that the importance of monetary policy in attaining the monetary objectives has been gaining relevance year after year. Along that, the use and importance of monetary policy tools like repo rate, reverse repo rate, bank rate, CRR and SLR have reformed over the years.

A similar study was carried out by Kanagasabapathy (2001) who captured the historical perspective in respect of monetary policy underpinnings with particular reference to India. He mentioned that due to the development of interest rate as an efficient variable in the transmission mechanism, the RBI had begun placing greater dependence on indirect instruments such as repo rate etc., rather than the earlier practice of greater reliance on direct instruments (like CRR).

This changing role of operating instruments was investigated further by Goyal (2011). According to her, RBI followed a variety of traditions, practices and rules in the actual implementation of its monetary policy. As observed by her, the critical instruments of RBI's monetary policy included policy rates, direct control and market operations. Through these instruments, the operating procedures directly influenced the demand equilibrium and supply of reserves as well as deposits held with RBI against the demand deposits of commercial banks.

Figures 1 (a) and 1 (b) depict the changes in the usage of some selected monetary policy instruments since the financial crisis of 2008. It can be observed that CRR a direct instrument which was widely used until 2013 was kept stagnant in the post FIT period. SLR is still used by RBI, sometimes in isolation and sometimes in combination. RBI alters SLR when it does not want to use its stronger monetary policy tools like repo rate. However, over the years, the use of CRR and SLR as instruments of monetary control has been reduced and the emphasis in the post FIT period has been shifted towards market-based tools.

Fig. 1. (a) Changes in monetary policy instruments (2008-14); (b) Changes in monetary policy instruments (2014-19)



Source: Data from RBI Website

Thus, it can be inferred that there are several direct and indirect instruments that are used in the implementation of monetary policy. Some of these instruments and their status as of September 2019 are displayed in table 1. In addition to these, another important tool that RBI uses is open market operations (OMO) where it sells and purchases government securities and treasury bills. RBI uses a mix of these tools for attaining its pre-determined objectives.

Table 1. Some Select Indian Monetary Policy Instruments as of September 2019.

Tools	Policy Rates	Policy Repo Rate	5.40%
		Reverse Repo Rate	5.15%
		Marginal Standing Facility	5.65%
		Bank Rate	5.65%
Reserve Ratios		Statutory Liquidity Ratio	18.75%
		Cash Reserve Ratio	4.00%

Source: Data from RBI Website

These instruments affect the economy through various mechanisms of transmission to the ultimate policy goals. Ahmad and Nasrin (2017) and Firend Al R. (2015) indicated that the decision maker needs to understand meticulously the effect of changes in policies on the affected (targeted) variable. The current framework aims at setting the policy (repo) rate based on a forward-looking assessment of liquidity conditions. Repo rate changes transmit through the money market to alter the interest rates in the financial system. Hence, once the repo rate is announced, the operating framework envisages liquidity management on a day-to-day basis through appropriate actions, which aim at anchoring the operating target – WACR – around the repo rate.

Monetary policy transmission mechanism can, thus, be comprehended as the process by which direct and indirect tools affect the general economic conditions as a result of monetary policy decisions. Acharya (2017) in his speech covered that monetary transmission is the process through which the policy action of the central bank is transferred to its final objective. He elaborated by saying that the process begins with a change in the policy rate by the central bank and is transmitted to various money market rates such as inter-bank lending rates, to bank deposit rates, to bank lending rates and corporate bond yields, and to asset prices, culminating in its impact on the ultimate objective. Any inhibition to

this process impedes the realization of the mandate. The RBI, therefore, closely monitors and analyses the monetary policy transmission mechanism on a regular basis, and undertakes remedial measures to improve its efficiency, if it seems impaired.

3. Research Design

The aim of this paper is to study the effect of repo rate on lending rate and deposit rate through a mediation of weighted average call rate. It covers a period of 66 months from January 2014 to June 2019 mainly focusing on the period after the adoption of flexible inflation targeting. The work is both descriptive and inferential in nature. This section throws light upon data collection method, data sources, variables chosen for the study, period of data, sample size, techniques of data analysis and statistical tools used.

3.1 Data collection method

The research for this study is based on secondary data from published sources. According to Jewel (2001), secondary data is the data that is collected for purposes other than the original use. It is an analysis of data that have already been collected for some other purpose. These may be contemporary or historical, qualitative or quantitative and usually need adjustments and validation before being put to use. This data can include survey data and documentary data.

3.2 Data sources

For this study, the sources used to gather secondary data were published reports on monetary policy, its tools and inflation, collected from the RBI bulletin, RBI occasional papers, RBI Annual Reports, RBI Speeches, Ministry of Statistics and Program Implementation (MOSPI) official website, Bloomberg and subject-relevant literature. Frequent visits to related websites became crucial in collecting recent secondary data as well as publications by renowned authors.

3.3 Period of data

As India informally adopted inflation targeting since January 2014, the study focusses on the period from January 2014 to June 2019. The following data has been collected for a period of 66 months:

- Repo rate
- Monthly Weighted Average Call-money Rate (WACR)
- Monthly Bank Group-wise Weighted Average Lending Rates (WALR)
- Monthly Bank Group-wise Weighted Average Domestic Term Deposit Rates (WADTDR)
- Monthly Consumer Price Index- Combined Inflation (Base Year 2012)

3.4 Sample Size

All the monetary policy reviews encompassing a period of 66 months i.e. from January 2014 to June 2019.

3.5 Variables Chosen for the Study

This study exclusively involves numerical data. The data has been classified under four units for regression analysis as described in table 2.

Table 2. Variables Used in the Study.

Independent Variable	Policy Rate	Repo Rate
Moderating Variable	Operating Target	Weighted Average Call Money Rate
Moderating Variable	Intermediate Target	Bank Group-wise Weighted Average Lending Rates and Bank Group-wise Weighted Average Domestic Term Deposit Rates
Dependent Variable	Goal Variable	Consumer Price Index Inflation

This paper studies the role of repo rate in the conduct of monetary policy through the following steps of the operating procedure as explained in figure 2.

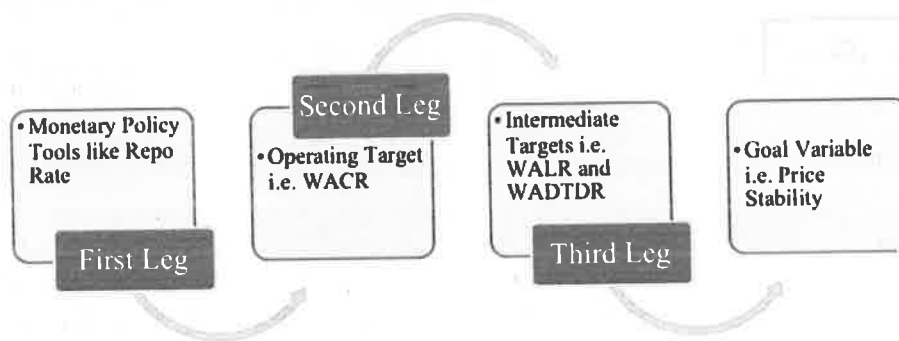


Figure 2: Sequence of steps followed for analysis of variables

The first phase studies the relationship between policy rate and the operating target and the second phase studies the association between the operating target and the intermediate targets and the last phase between the intermediate targets and goal variable.

3.6 Statistical Tools and Techniques

This study uses descriptive statistics, graphs and inferential data analysis for studying the relationship between the chosen variables. As part of inferential data analysis, the statistical tools used are correlation and ordinary least squares (OLS). These tools are used to determine whether a significant relationship exists between the dependent, moderator and independent variables through the following steps as demonstrated in table 3.

Table 3. Steps Followed for Analysing the Chosen Variables.

Step 1	$WACR_t = \beta_1 + \beta_2 Repo\ rate_{2t} + \epsilon_t$
Step 2	$WALR_t = \beta_1 + \beta_2 WACR_{2t} + \epsilon_t$
	$WADTDR_{it} = \beta_1 + \beta_2 WACR_{2t} + \epsilon_t$
Step 3	$CPI_{it} = \beta_1 + \beta_2 WALR_{2t} + \epsilon_t$
	$CPI_{it} = \beta_1 + \beta_2 WADTDR_{3t} + \epsilon_t$

4. Data Analysis

4.1 Graphical analysis

Figure 3 gives a graphical representation of the relationship between the variables under study in the Post-FIT Period (January 2014 - June 2019)

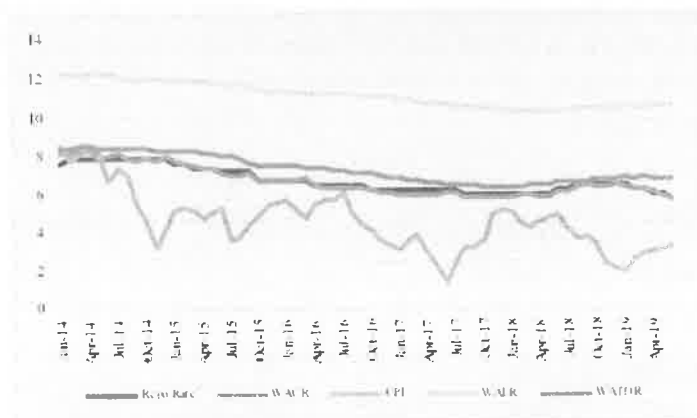


Figure 3: Graphical relationship between the variables in the post-FIT period

RBI has been using repo rate as a lever to influence the inflation in the country through the operating procedure in a pronounced manner since 2014. Figure 4 shows that as intended, WACR has demonstrated a strong relationship with the policy repo rate. It can also be witnessed that the intermediate targets- lending (WALR) and deposit rates (WADTDR) have been reasonably synced with the operating target (WACR). Another useful observation that can be made here is that inflation index has typically reacted inversely to the changes in the repo rate.

4.2 Descriptive analysis

This study has applied descriptive statistics associated with repo rate, WACR, WALR, WADTDR and inflation index during the sample period. The statistics in table 4 show that the CPI-Combined inflation ranges from a low of 1.46 percent to a high of 8.60 percent with a mean rate of 4.59 percent and a standard deviation of 1.64 percent.

Table 4. Descriptive Statistics of Chosen Variables (January 2014 - June 2019).

	Repo Rate	WACR	WALR	WADTDR	CPI
Mean	6.77	6.72	11.17	7.34	4.59
Median	6.50	6.41	11.16	7.17	4.51
Mode	6.25	5.90	10.53	6.81	4.28
Standard Deviation	0.73	0.82	0.67	0.77	1.64
Range	2.25	2.64	2.06	2.26	7.14
Minimum	5.75	5.73	10.30	6.34	1.46
Maximum	8.00	8.37	12.36	8.61	8.60

As for the statistics on policy (repo) rate, it has a mean of 6.77 percent with a minimum of 1.46 percent and maximum of 8.60 percent. As desired, the repo rate mean is very close to the mean of WACR at 6.72 percent. The mean of WADTDR and WALR stands at 7.34 percent and 11.17 percent respectively. The standard deviation is the least for WALR (0.67) followed by repo rate (0.73) and WADTDR (0.77). It can be comprehended that the variation in the inflation index was more than the variation in the policy rate, operating target and intermediate targets.

4.3 Inferential analysis

Table 5 displays the Pearson and Spearman correlation matrices employed in the study to test if an association exists between repo rate, WACR, WALR, WADTDR and CPI Inflation in the Indian economy. From the table it can be reinforced that there is a very strong correlation between policy (repo) rate and WACR (0.99).

Table 5. Correlation Between Five Variables (January 2014 - June 2019).

	Repo Rate	WACR	WALR	WADTDR
WACR	0.99			
WALR	0.93	0.93		
WADTDR	0.96	0.96	0.98	
CPI	0.63	0.68	0.69	0.67

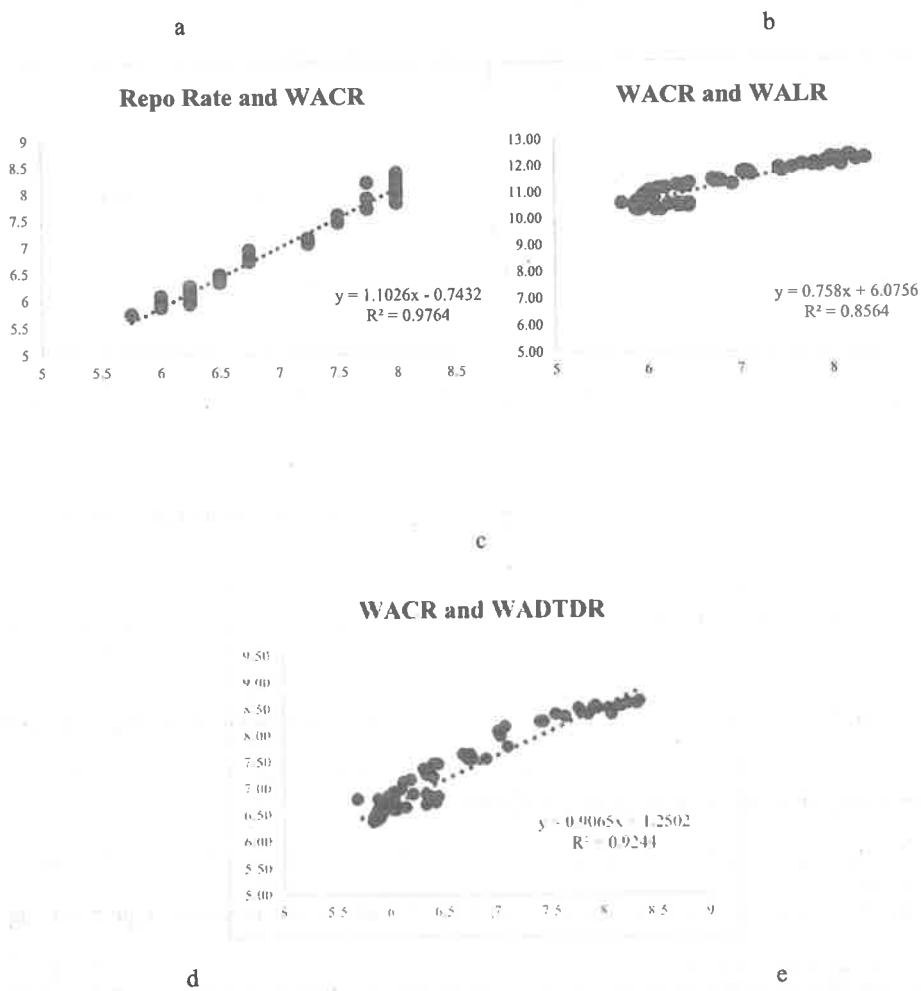
This suggests a strong first leg of the operating procedure where the effect of change in policy (repo) rate is transferred to the operating target (WACR). Also, a reasonably strong relationship exists between WACR and WALR (0.93) and WACR and WADTDR (0.96). This implies a convincing second leg of the operating procedure where the effect of change in operating target is transferred to intermediate targets (WALR and WADTDR). Since deposit rates are expected to have an effect on lending rates, the association between WALR and WALR is also very strong at 0.97. However, a moderate association is revealed between the intermediate targets and CPI Inflation (0.69 and 0.67) indicating that the third leg of the operating procedure is weak and the monetary policy transmission mechanism pertaining to this area needs to be sharpened (Firend Al R., & Hashim, 2015). To further study the results of correlation, OLS was carried out on the steps elucidated in table 3. The results of OLS are summarised in table 6.

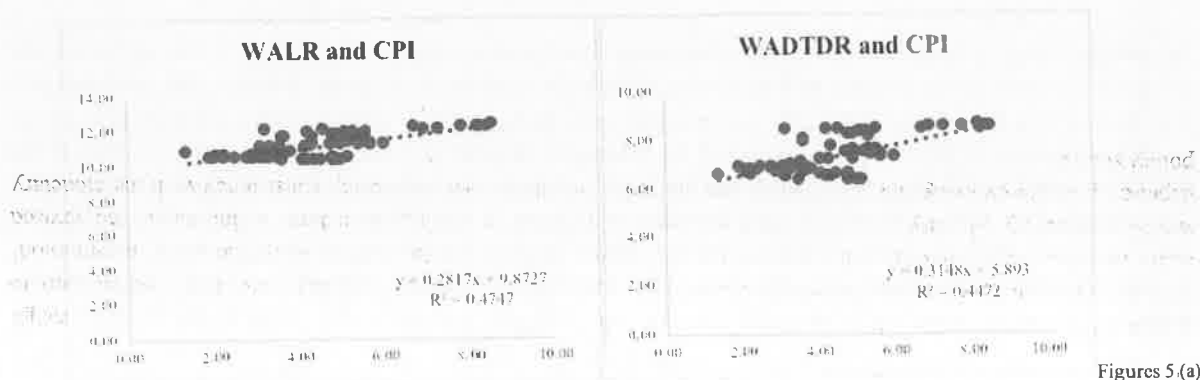
Table 6. Summary of Results of OLS.

Variables	R Square	t-stat	F-statistics (prob>F)
Repo Rate predicting WACR*	0.97	51.49	2651.36
WACR predicting WALR*	0.86	19.54	381.72
WACR predicting WADTDR*	0.92	27.96	782.01
WALR predicting CPI Inflation*	0.47	7.61	57.84
WADTDR predicting CPI Inflation*	0.45	7.19	51.77

Note: $p < 0.05$ for all regression results

The results of OLS in table 6 reveal that the relationship between policy (repo) rate and WACR was significant and strong as 97 percent of the changes in WACR were explained by changes in repo rate. Similarly, the relationship of WACR with both WALR and WADTDR is also significantly strong where 86 percent of changes in WALR and 92 percent of changes in WADTDR are explained by changes in WACR. However, the relationship of WALR and WADTDR with CPI inflation is quite moderate but significant with only 47 percent of the changes in CPI Inflation were explained by changes in WALR and 45 percent of changes in CPI Inflation were explained by WADTDR. Therefore, these results also indicate that the first two legs of the operating procedure are strong since 2014 however the third leg needs to be worked upon. The scatter plots that define the relation between the chosen variables shown below.





to (e): Scatter Plots for Chosen Variables

Figures 5(a)

Figures 5 (a) to (e) illustrate the regression line fit between the variables under study. It can be noted that the data points do not range all over the place. The structured appearance of the scatter plots leads to the conclusion that there is a moderate to strong, positive correlation between the variables without any outliers. Considering the R square from the above tables at 95% confidence level, we can conclude that there is a significant relationship between policy (repo) rate and price stability indicator through a mediation of weighted average call money rate, weighted average lending rate and weighted average domestic term deposit rates.

5. Conclusion

This paper provides new evidence on the conduct of monetary policy from January 2014 to June 2019, using a three-step model to estimate the monetary pass-through from (i) changes in the policy rate to the operating target rate, (ii) from the operating target rate to intermediate targets, and (iii) from intermediate targets to the policy goal variable (price stability). The main findings are as follows- First, as desired there is a significant pass-through of changes in policy rates to bank interest rates in India. The extent of pass-through to the deposit rate is larger than that to the lending rate. Second, the last leg of the operating procedure has still not picked up to the desired level despite adopting FIT and despite FIT being followed by an improvement in the communication policy of RBI.

Buoynantly, Reserve Bank's step of embracing social media platforms for disseminating banking-related information to all the stakeholders will boost the monetary policy transmission mechanism in India. This will help RBI in ensuring a two-way communication, transparency, timeliness and subsequently anchoring inflation expectations of economic agents.

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ROLE OF E-COMMERCE AND SOCIAL MEDIA AND ITS INFLUENCE ON USER VALUE

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Introduction

E-commerce has been adopted by organizations worldwide in their operations. With the dawn of the Internet, began the revolution in the field of communication. Industries like travel and tourism, banking, media, advertising as well as retail houses have utilized the benefits of e-commerce platform. This has been considered as another channel for enhancing sales and raising the satisfaction level of customers. It can be best described as “the use of the Internet and other networking technologies for conducting business transactions” (Turban, E., King, D., Lee, J., and Viehland, D. 2006) Over the years, it has been observed that the surge of E-Commerce and Social Media are the most popularly used platforms in the world of business which also includes the Indian market. Numerous e-commerce enterprises are adopting the initiatives and creativities of social media to trade variety of assortments to take customer satisfaction to a new height. With the entry of multinational giants in the e-commerce category such as Alibaba, Amazon, Groupon and many more, remarkable growth has been recorded in India by the homegrown companies. Examples are Flipkart, Jabong or even Snap Deal.

The Indian economy is growing at a rapid pace, and with the increased penetration of internet and social media usage, E-Commerce is showing a rapid increasing trend. The IT and IT Enabled Services industries have been one of the powerful forces stimulating India’s economic growth, contributing approximately 8 percent to India’s GDP in 2017. The market of mobile communication are becoming increasingly competitive. In the country’s total service exports, the share of IT amounts to more than 45 percent. In the year 2018, the ICT sector went up to 9.1 percent. As far as international markets are concerned, ICT market in India continues to lead in terms of growth rates. Key growth drivers are improving economic indicators, increasing

disposable income, penetration into rural markets, tier 2 and tier 3 cities, online and digital marketing, the e-commerce boom and government investments in the industry (*Atradius, 2018*) The Indian consumers started accepting the E-commerce platform which influenced other business players too to adopt the model of E-tailing to earn a rise in market share as well as profits.

Objectives

E-Commerce has grown by a significant margin which brought a huge makeover in the retail world. This study has been carried out with the purpose of understanding the role played by e-commerce and social media in influencing the minds of the Indian consumers and determine the shopping experience of the consumers on e-commerce platform. The objectives of this study were to explore the growth of e-commerce and social media trends in Indian markets; identify the segment of target audience of e-commerce platform and gauge their shopping patterns online and determine the impact of e-commerce marketing platforms on Indian consumers' user value.

Research Methodology

This research study is a blend of secondary information and primary data. For primary data, information was collected among different demographic segments across Mumbai via structured questionnaire. Convenience sampling method was used for data collection. The sample size considered for this research was 150 respondents identified from various demographic segments (SEC A, SEC B, SEC C). Moreover, two sample T-tests was run to comprehend whether social media has any significant impact on user. SPSS version 23 was used as a statistical tool to analyze the response. Questionnaire was distributed among 150 respondents; however, responses could be retrieved from 137 responses, but valid responses were taken from 100 respondents for this study

Basic trend analysis of marketing through e-commerce platforms is necessary to understand the possibility of segmentation to be carried out on basis of demographic variables. This would enable the researchers to determine the e-commerce consumption habits of the target segment. In addition, the demographic segmentation would enable the researchers understand the consumption patterns and the countless touchpoints considered by these e-platforms to reach out to their target audience, thereby improving the user value.

Review of Literature

The e-commerce platform has been in business since more than a decade. Amazon broke even and made profits in the year 2018 after almost a decade of operating in loss. Big players like Reliance, TATA and many more are trying to enter the ever-growing Indian e-commerce market. In the current era, nearly 460 million Indians have access to the Internet (*ibef.org*). The urban population is inclined towards online shopping and the figures are rising exponentially given fact that convenience is the most important factor to shop online. This growth has been triggered by surge

of smartphone users. Major Indian portals have shifted towards e-commerce instead of depending on advertising revenue. Several sites are now selling diverse products and services ranging from flowers, greeting cards, movie tickets, groceries, electronic gadgets and many more (*Mitra, Abhijit; 2013*). The progressing advanced change in the nation is expected to increase India's total internet user base to 829 million by 2021 from 560.01 million as of September 2018. The internet economy is anticipated to double from US\$125 billion as of April 2017 to US\$ 250 billion by 2020, primarily backed by e-commerce. The revenue generated in India through e-commerce platforms is expected to increase from US\$ 39 billion in 2017 to US\$ 120 billion in 2020, which indicates a growth rate of 51 per cent annually, the highest in the world (*ibef.org /2018*). At a recently held event held in Gujarat, Reliance supreme Mukesh Ambani had announced plans of launching an e-commerce venture that would leverage its near 300 million Jio customers and 10,000 outlets of its retail arm in more than 6,500 cities. (*in.news.yahoo.com;2019*)

E-commerce is a boom in the current day business practice, which has been successful in influencing both customers as well as the marketers. It has given a total face-lift to the traditional way of doing business. This significant change in business model is witnessing a tremendous growth around the globe and India is not an exception. The e-commerce has every potential to curb the pollution, thereby producing significant influences on the environment. (*Dr. Amin, Shahid, Kansana, Keshav and Majid, Jennifer, 2016*)

User Value- User value is an expression of a certain relation between the consumer and the object consumed (Paul Sweezy, 1942). In current business scenario, creating superior user values has become the ultimate goal of business houses so as to successfully sustain their competitive advantage. Identifying user values and what they truly appreciate in a dynamic and fiercely competitive market is a real challenge for the marketers. The 'textile to telecom' giant Reliance is the only telecom player in India who is also building assets on the user engagement side. For instance, they acquired music streaming app Saavn, then they have JioCinema in content play and now looking into payments space through point of sale (PoS) business to on-board the grocery merchants (Soni, Sandeep, March 2019).

Demographics

Among the 100 respondents, 55 percent were male and 45 percent were female respondents. Four different age groups were considered – (i)18-25 years comprising of 54 percent respondents, (ii) 26-35 years-30 percent, (iii) 36 – 45 years -10 percent and (iv) above 45 years- six percent. These respondents belonged to different income groups ranging from-(i) less than INR 30,000 p.m – 36 percent respondents, (ii) INR 30,000-60,000 p.m – 46 percent (iii) INR 60,000- 100,000- 10 percent and (iv) More than INR 100,000- eight percent. Among these respondents, 48 percent purchased products online on a monthly basis while 12 percent purchased once in two weeks.

Findings

The findings of this research paper sheds light on vital user values which were considered important by the identified respondents. Regression model was used to identify the demographic segments that impact the individual user values. The findings also point out the scope of improvement of different e-commerce platforms and the impact of social media on their users which can be further encashed by the e-platforms. Some of the individual user value factors that impacts the consumer's online shopping pattern as identified from this study includes shopping convenience, variety of assortments, product delivery convenience, loyalty programs, big day sale, promotions and many more.

Conclusion

From this study, it can be summarized that the future of e-commerce is bright, and this platform is here to stay. The trend analysis highlights the preferences of purchasing different products on various e-commerce sites of different demographic segments. The two sample T tests enabled to gauge the impact of social media on the user values. It was also detected that social media many times acts as a distraction by creating a situation of "too many choices" and makes the decision process tedious. Therefore, the marketing campaigns on social media need to portray the easy and online convenient shopping mode, rather than creating the decision making tiresome.

Implications of the study

This research study would facilitate the marketers, specially the e-tailers to understand the consumers' online shopping pattern and understand the consumers' perspectives on the improvement parameters of customer services of e-commerce platforms. Marketers shall also be able to gauge the most attractive segment and further capture the market for individual user values. The information gathered from the identified respondents can be used to target audiences in Tier 1 urban areas and monetize on the same. Last but not the least, the innovative and creative suggestions given by the respondents which are cost effective can surely make a difference.

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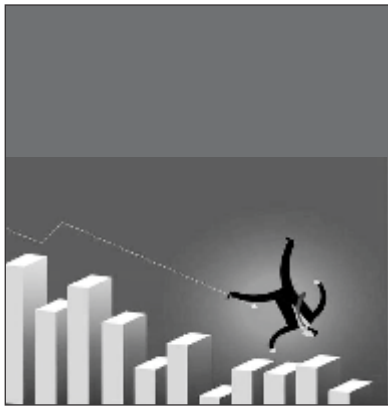
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Corporate Distress and Bankruptcy Prediction – A Critical Review of Statistical Methods and Models

Bankruptcy prediction has interested and intrigued accountants and researchers alike since early 1930's. The empirical and theoretical research conducted till date seek to find the best statistical method to develop distress / bankruptcy prediction model and also check the validity of the models developed across different industries, sectors and countries. This paper is an attempt to critically review the various models developed for bankruptcy prediction and the statistical methods adopted in such studies. It is observed that there is no consensus as to the best method and model for corporate distress and bankruptcy prediction. However certain techniques like multivariate analysis. Logistic regression and Artificial Neural Networks have found favour with researchers and academicians alike. Continuous attempts are on to discover newer techniques and methods to develop a robust bankruptcy prediction model.

Keywords: Corporate Distress and Bankruptcy, Multivariate Analysis, Logistic Regression, Artificial Neural Networks, Bankruptcy Prediction Models.



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Introduction

Bankruptcy prediction has interested and intrigued accountants and researchers alike since early 1930's. Huge financial losses are borne by investors, creditors, employees and government in the event of corporate bankruptcy. Distress prediction models can prove to be very useful in identifying distress from the early stages. One of the earliest study in this field was by Fitzpatrick (1932) where he analysed the ratios of 20 failed firms. Since then, there has been numerous studies done in the area of corporate distress and bankruptcy. The empirical and theoretical research conducted till date seek to find answers to the following questions:

1. Which is the best statistical method to develop distress / bankruptcy prediction models?
2. What is the validity of the models developed across different industries, sectors and countries?

This paper is an attempt to critically review the various models developed for bankruptcy prediction and the statistical methods adopted in these studies, applicability and predictive ability of the models.

Statistical Methods and Models

1. Univariate Analysis

Univariate Analysis is a technique which uses one variable as the explanatory variable for an event. It explores each variable in the

dataset and describes the pattern of response to the variable. Each variable in the dataset is used to classify the sample. The cutoff point for such classification is based on the percentage of misclassification. Beaver (1966) used univariate analysis using 30 ratios to develop bankruptcy prediction model. 79 failed and 79 non-failed firms were selected across 38 industries. Under this method, one financial ratio of the sample firm is compared with standard ratio to classify the firm into failed or non-failed category. This method assumes that one ratio can predict distress in firms. Beaver observed that Net Income / Total Debt has the highest predictive accuracy (92 percent). Chen and Shimerda, 1981 researchers to have used this

Advanced models like nested logit model, multinomial logit model are developed to increase the statistical and predictive power of standard logit model.

Pinches et al, 1975 and were some of the other technique, (Bellovary, 2007). Though this technique is may arise if an individual predictor of failure. Also different results for the same major limitation of

very simple, inconsistencies financial ratio is used as a different ratios can give firm, (Chancharat, 2008). A univariate analysis apart

from relying on one ratio at a time is the assumption of proportional relationship between factors, Suntraruik (2010). Beaver (1966) himself noted that multiple ratios may have higher predictive ability than single ratios. A single financial ratio cannot include all information Financial health of a firm cannot be explained by a single ratio.

2. Multivariate Discriminant Analysis (MDA)

One of the most popular and extensively used method in studies of corporate distress and bankruptcy is Multivariate Discriminant Analysis. This technique overcomes the limitations of univariate analysis. Altman (1968) used this technique in his study on corporate distress. In MDA method, an observation is classified into one of the a priori groups based on unique characteristics of the observation, (Avenhuis, 2013). Several variables are combined into a single weighted index. Such a combination of variables which maximizes the between group variance in relation to within group variance is determined. The ratio of between group variance and within group variance is shown as a relation. The resulting relationship is expressed in the form of a linear equation:

$$z = c + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n$$

Where z = Discriminant score

c = intercept

$\beta_1 - \beta_n$ = coefficients or weights

X1- Xn = independent variables

A cut off score is calculated according to priori probabilities of group membership and the cost of misclassification. Based on the cut off score and the Z score, a firm is classified into failed and non-failed. A firm is classified as failed if its z score is less than cut off score and non-failed if it is equal or more than the cut off score.

Altman (1968) used a sample of 33 bankrupt manufacturing firms in US and matched each bankrupt firm with a non-bankrupt firm from the same industry and size. He excluded very small and very large firms from the sample. The period of study was 1946 – 1965. Altman (1968) initially reviewed 22 ratios which were considered relevant for the study. The final discriminant function with five explanatory ratios is:

$$Z = 1.2X_1 + 1.4X_2 + 3.3X_3 + 0.6X_4 + 0.9X_5$$

where:

Z= Discriminant Score

X1 = Working Capital/ Total Assets. This variable is a measure of liquidity.

X2 = Retained Earnings/ Total Assets. This variable incorporates the impact of age of the firm since an older firm will have larger retained earnings.

X3= EBIT/ Total Assets. Earnings before interest and taxes (EBIT) represents the earnings from operating activities.

X4= Market Value of equity/Book Value of debt. This variable measures leverage of the firm.

X5 = Sales/Total Assets. This variable measures the efficiency in use of assets for sales.

As seen above, there is no intercept in the model and the coefficients are standardized to determine the impact of independent variable on dependent variables if the unit of measurement of the variables are different (Avenhuis, 2013).

Thus Altman (1968) used profitability and leverage for value of 'z' is a cut off value into failed and non-failed. at 2.67. The cutoff is based Type II errors in having a 'z' score of less than This score was later revised 1.81 to 2.67 was defined as implied that there is a high probability of failure, (Muller et al, 2009).

In a study of corporate distress in Estonian manufacturing companies it was observed that logistic regression models have better classification abilities than other methods.

measures of liquidity, developing his model. The which would classify a firm Initially the cut off was given on the number of Type I and classification. All firms 2.67 were classified as failed. to 1.81. The scores between ignorance zone which

The model's predictive ability was very high at 95 percent for one year and 72 percent two years before failure for the sample. The accuracy level for the holdout sample was 84 percent. However the accuracy rates declined drastically for 3 years, 4 years and 5 years before failure.

To extend the model to private firms, in variable X4, market value of equity was substituted by book value of equity. The revised model was:

$$Z' = 0.717(X1) + 0.847(X2) + 3.107(X3) + 0.420(X4) + 0.998(X5)$$

To incorporate non- manufacturing firms the model was further revised by excluding the X5 as:

$$Z = 6.56 (X1) + 3.26 (X2) + 6.72 (X3) + 1.05 (X4)$$

Altman, Haldeman and Narayanan (1977) constructed a new model ZETA® Credit Risk Model incorporating latest developments in the area of business failures. This model was developed using manufacturing and retail firms in US as sample.

Altman's model was criticized in subsequent research on following grounds:

1. Normality of data and proportional variance-covariance of factors is a major assumption of Discriminant Analysis. If this assumption is not fulfilled the results may not be accurate, (Suntraruk, 2010).
2. Limited interpretational value of Z-score.
3. Use of only manufacturing firms in sample limits the wide applicability of the model.
4. Small sample size of only 33 failed companies matched with equal number of non-failed companies.
5. Theoretical issues like research method used, definition of failure, issue of ratio instability were also questioned (Balcen and Ooghe, 2006 in Agarwal and Taffler,2007)

Agarwal and Taffler also used MDA to develop a new 'z' score model for firms in UK. Taffler selected 80 ratios of listed industrial firms in UK which failed during the period 1968-76. These firms were matched with 46 randomly selected non- failed firms. (Agarwal and Taffler, 2007). The model is given by:

$$Z = 3.20 + 12.18X_1 + 2.50X_2 - 10.68X_3 + 0.029X_4$$

Where

X₁ = Profit before tax/ Current liability measuring profitability (53%)

X₂ = Current Assets / Total Liabilities measuring working capital management (13%)

X₃ = Current Liabilities/ Total Assets measuring financial risks (18%)

X₄ = no credit interval measuring liquidity (16%)

The percentages given in Mosteller - Wallace respective independent function. The cutoff point score of less than zero was unhealthy firms with a risk

Artificial neural networks establishes relationship between networks by analysing the data.

brackets indicate the contribution of the variable to the discriminant was zero. A firm having a z identified as financially of failure.

The technique uses a combination of several variables and converts it into a single weighted index, hence it alleviates the limitation on of univariate analysis. Models developed using MDA have immense predictive value. Such models can provide a scientific base for banks to review debts. However the technique is criticized for the assumption of normal distribution of independent variables. Also the group dispersion matrices are assumed to be equal across failed and non-failed firms. It has been observed that assumption of normality often gets violated resulting in significant bias. The validity of models has to be investigated with major changes in economic and business environment, (Agarwal and Taffler, 2007).

3. Logit / Probit Analysis

Due to the limitations in MDA as a technique for developing prediction model, researchers started using logit and probit analysis. For any binary dependent variable where the outcome is dichotomous, logit/probit analysis was found to be appropriate. These method employs cumulative probability distribution due to which the value of the outcome lies between 1 and 0.

The normal logit/probit function is given as:

$$P(y=1) = \frac{e^{(b_0 + 1bx_1 + b_2x_2 + \dots + b_nx_n)}}{1 + e^{(b_0 + 1bx_1 + b_2x_2 + \dots + b_nx_n)}}$$

Where Pr (y=1, x₁...x_n) is the probability that y=1

X₁...X_n are independent variables

β₁... β_n are the coefficients.

Logit /Probit models test the relationship between the likelihood of a particular outcome and the independent variables. Maximum Likelihood Estimation is used to calculate the values of the coefficients. This method helps select the best independent variables to predict the value of dependent variable. To classify whether a firm is distressed or not, the probability function of each firm is calculated using equation as above. The value Pr(Y) is used to classify the firms as distressed and non-distressed based on a cutoff score. The cut off score is generally taken at 0.50 as the value of the dependent variable lies between 0 and 1, (Suntraruk, 2010). Logit/Probit Analysis was advocated as a better method for developing distress prediction models due to its obvious advantages:

1. No assumption about distribution of data related to independent variables.
2. Maximum Likelihood Estimation helps a researcher to identify the best independent variable to predict the value of dependent variable.
3. Logistic regression is appropriate when the dependent variable can be expressed in qualitative terms. In distress prediction studies the outcome can be defined in the form binary outcome i.e. a bankrupt or non-bankrupt firm.
4. The probability of financial distress can easily be prediction using this method.
5. The results of Logistic Regression Analysis can be easily interpreted.

Three very popular models develop distress prediction

1. Ohlson (1980)
2. Zmijewski (1984)
3. Zavgren (1985)

The advantage of using ANN is its ability to analyse complicated data patterns and represent non-linear distribution function with high accuracy.

used Logit/Probit analysis to models:

Ohlson (1980)

James Ohlson developed a bankruptcy prediction model using logit analysis in 1980. Ohlson's 'o' score is determined using nine ratios. The period of study was 1970-76 .105 bankrupt firms and 2058 non-bankrupt firms were selected as samples. Bankrupt firms were those firms which had filed for bankruptcy. All the firms belonged to industrial sector in US. The Ohlson's logit model is given as:

$$\text{Pr}(Y) = -1.3 - 0.41X_1 + 6.0X_2 - 1.4X_3 + 0.1X_4 - 2.5X_5 - 1.8X_6 + 0.3X_7 - 1.7X_8 - 0.5X_9$$

Where $X_1 = \log(\text{Total Assets}/\text{GNP price level index})$
 $X_2 = \text{Total Liabilities}/\text{Total Assets}$
 $X_3 = \text{Working capital}/\text{Total Assets}$
 $X_4 = \text{Current Liabilities}/\text{Current Assets}$
 $X_5 = 1$ if Total liabilities > Total Assets else $X_5 = 0$
 $X_6 = \text{Net Income}/\text{Total Assets}$
 $X_7 = \text{Funds from operations}/\text{Total Liabilities}$
 $X_8 = 1$ if Net Income is negative else $X_8 = 0$
 $X_9 = \text{measure of change in Net Income}$

The independent variables in the above model represents profitability, liquidity and leverage. The overall accuracy rate of the model was 96% for the estimation sample and 85% for holdout sample, (Avenhuis, 2013).

Ohlson's model was criticized on the grounds of rigidity of parameters and lack of definition of errors. A mixed logit model recognizes "the substantial amount of heterogeneity that can exist across and within all firms in terms of the role that attributes play in influencing an outcome domain", (Jones and Hensher, 2004). The accuracy rates of Ohlson (1980) and Zmijewski (1984) model was compared using samples from different industries and time periods. The accuracy rates of the models improved when the coefficients were re-estimated, (Grice and Dugan, 2001).

Zmijewski (1984)

Zmijewski (1984) in his study emphasized on two estimation biases which may exist if samples are taken

on nonrandom basis. (Avenhuis, 2013). The two biases as stated by Zmijewski are:

1. Choice based bias : In a matched firm sample where each failed firm is matched with a non-failed firm, there is a probability of overestimation of financial distress if the proportion of failed firms to non-failed firms in the sample is different from that of the population
2. Sample selection bias: If complete data on distressed firms is not available then the predictive accuracy of the model is compromised.

To overcome these limitations, Zmijewski (1984) selected all firms listed in American and New York Stock Exchange during the period 1972-78. His sample comprised of 40 bankrupt firms as estimation sample and 800 non-bankrupt firms as validation sample. Bankrupt firms which had filed for bankruptcy during the period of study. He employed Probit Analysis as the statistical tool to develop model. As logit, probit also gives the value of probability was set at 0.50. All firms having a score of less than 0.5 was identified as non-failed and all firms having a score of more than 0.5 were classified as failed.

Some other techniques which are being used in corporate distress studies are Recursive Partitioning Algorithm, Survival Analysis and Support Vector Data Analysis.

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Zmijewski (1984) probit model is given as:

$$X = -4.3 - 4.5X_1 + 5.7 X_2 - 0.004 X_3$$

where X_1 = Net Income/ Total Assets
 X_2 = Total Debt/ Total Assets
 X_3 = Current Assets/Current Liabilities
 X = Overall index

The model had an accuracy rate of 99 percent for estimation sample. The predictive power of this model was criticized for the ratio selection method used by Zmijewski. It was pointed out that ratios were selected on the basis of their use in earlier studies and not on conceptual grounds, (Grice and Dugan, 2001). It was also criticized on the grounds that the variable Net Income/ Total Assets is influenced by Capital Structure of the firm and the variable Total Debt / Total Assets also indicated capital structure. Hence there is strong correlation between these two variables, (Shumway, 2001). However Zmijewski model was considered to be better than MDA model for its interpretational value.

Zavgren (1985)

In 1985, Christine Zavgren (1985), developed a bankruptcy prediction model based on logit regression. The model is given as:

$$y = 0.23883 - 0.108x_1 - 1.583x_2 - 10.78x_3 + 3.074x_4 + 0.486x_5 - 4.35x_6 - 0.11x_7$$

- x1: Sales / Average Inventory,
- x2: Average inventory / Average accounts receivable,
- x3: Total assets / Cash balance + Short-term investments,
- x4: Current liabilities / Immediate assets,
- x5: Total assets - Current liabilities / Operating profit,
- x6: Total assets - Current debt / Long-term liabilities,

x_7 : Fixed assets + Net working capital / Sales,

$1 / (1 + e^y)$: the probability of bankruptcy.

In logit and probit models, no assumptions are made with regards to distribution of independent variables. However standard restrictive assumption related to identically distributed may lead to information loss performance of the model. logit model, multinomial increase the statistical and logit model. In a study of Estonian manufacturing that logistic regression classification abilities than other methods, (Grünberg and Lukason, 2014).

A dynamic logit model (DLM) with auto correlation structure for predicting recurrent financial distresses was also used to construct distress prediction model.

logit model is limited by the to independence and condition. Such a limitation and affect the predictive Advanced models like nested logit model are developed to predictive power of standard corporate distress in companies it was observed models have better

4. Artificial Neural Networks (ANN)

Of all the modern techniques of forecasting, Artificial Neural networks (ANN) is gaining lot of prominence amongst researchers across the world. ANN are parts of systems where information beyond the data are processed and transferred to a network structure. Artificial neural networks establishes relationship between networks by analysing the data. The output is used to estimate values for a new set of data . ANN are models that recreates the interaction between the brain cells. ANN recognizes a pattern in sample data. It predicts values for new data by identifying similar patterns. (Sharma, 2012) The neural networks relates inputs to outputs using layers to create a 'learned algorithm', (Muller et al, 2009). Each layer is connected through neurons. The value of each neuron is transferred to other neurons through layers in the network. Thus each neuron receives input which is multiplied by its weights. If the sum of these weighted inputs exceeds a cut -off point, the output is activated. Thus an output is activated if:

$$f (X_1.W_1+ X_2.W_2 + \dots X_n.W_n) > C$$

where $X_1.W_1 \dots X_n.W_n$ are weighted inputs

C = cut off value

Odom and Sharda (1980) were one of the earliest researchers to use ANN as a technique to predict bankruptcy. Neural networks were observed to have a very high accuracy and predictive power as compared to statistical techniques. Some prominent studies on corporate distress using neural networks include Studies have observed that ANN models outperform logit and MDA models, (Abid and Zouari, 2002). The advantage of ANN over other method stems from the fact that it can identify complex relationship between dependent and independent variables. It can also detect all possible relationships between variables, (Brockett et al, 2006). However this technique is criticized for its computational difficulties and empirical nature. Logit models works as well as ANN models. Since ANN is a new technique, the empirical validity of ANN models in bankruptcy prediction is yet to be established, (Grünberg and Lukason, 2014).

The advantage of using ANN is its ability to analyse complicated data patterns and represent non-linear distribution function with high accuracy, (Chancharat, 2008). It does not have restrictive assumptions leading to unbiased analysis. It can also deal with missing data. ANN is not free from limitations. It does not reveal the significance of individual variable. Also, the rationale behind the classification into failed

and non-failed is not revealed. This restricts the use of this technique. Also the interpretation of neural network model requires expertise.

5. Other Emerging Techniques

Some other techniques which are being used in corporate distress studies are Recursive Partitioning Algorithm, Survival Analysis and Support Vector Data Analysis.

A non-parametric procedure, Recursive Partitioning Algorithm (RPA) for financial analysis is an emerging technique. It is a form of binary classification based on pattern recognition which outperforms traditional Discriminant Analysis. A dynamic logit model (DLM) with auto correlation structure for predicting recurrent financial distresses was also used to construct distress prediction model, (Hwang et al, 2013). A dynamic distress prediction model for Chinese listed companies was developed using Kayman's Filtering Technique with panel data to estimate model parameters. The study emphasized on time series data to incorporate the cumulative impact of financial ratios, (Bao et al, 2015). In a study of 191 pairs of distressed and non-distressed firms in China, Support Vector Machine (SVM) a non-parametric test was combined with Choquet Integral as a combination classifier. It was observed that SVM classifier combination is more suitable for predicting financial distress as it improves the stability of predictive performance, (Li et al, 2015). However it should be used with caution as ensemble method's reliability lies on base classifier's diversity. One of the most important issues in Financial Distress Prediction is an effective algorithm leading to high predictive accuracy. One such method used was Sequential Floating Forward Selection (SFFS) in combination with SVM. It was compared with other combined feature selection methods like Artificial Bee Colony (ABC), Genetic Algorithm (GA), and Principal Component Analysis (PCA). Combined model of SVM can yield greater accuracy, (Fallahpour et al, 2017). Use of alternative data mining techniques was emphasized by many researchers. Semi parametric Cox Survival Analysis and Non parametric CART Decision Tree was used to construct distress prediction model. This was compared with MDA and Logistic Regression methods. Contemporary techniques were observed to have good prediction accuracy, (Gepp and Kumar, 2008). The relation between data mining techniques and professional understanding of the characteristics of the variables was also explored. No significant difference was observed with variable selection guided by data mining techniques and that done by domain knowledge. A combination of two can outperform existing models, (Zhou et al, 2015). Time varying variables in a Cox model was also used to develop a dynamic forecast model for prediction of financial distress, (Kim and Partington, 2015).

The focus should be on application, validation and revalidation of existing models across different economic environments, industry and companies so as to increase the robustness of the model.

Research in India

Research in India in the area of distress and bankruptcy prediction is not very encouraging. Attempts have been made to develop models using Multivariate Discriminant Analysis (Bhunia et al, 2011), Artificial Neural Network, (Sharma, 2012), Hierarchical Cluster Analysis, (Mondal and Roy, 2013), Logistic Regression (Nair, 2018). However the validity of these models remains to be examined. Most of the studies have focused on application of Altman's 'z'score model and Ohlson's 'o' score model to Indian companies, [Bardia, (2012), Sarbapriya Ray, (2011), Nair, (2015), Panda and Bahera, (2015)]. Discriminant Analysis and Logistic Regression are the preferred statistical methods used in Indian context.

Conclusion

Academicians have used different parametric and non-parametric techniques to develop distress prediction models. The need to acclimatize the models with the current economic conditions was emphasized, (Grice and Dugan, 2001). Models developed by Altman (1968), Ohlson (1980), Zmijewski,

(1984) were tested for their applicability in US firms for the period 1980-2006. The study revealed that Ohlson (1980) model has the highest discriminating ability, (Avenhuis, 2013). The effectiveness of Altman (1968) model was also reviewed in international context. The model was applied to 32 European and 3 non-European countries. The period of study was 2007-2010. The study concluded that inclusion of country specific information increases the classification accuracy of the model, (Altman et al, 2014). It is also recommended that available models should be used widely to reaffirm the validity. This will ensure the effectiveness of the existing bankruptcy prediction models developed during the last few decades, (Bellovary et al, 2007). Model coefficients should be re-estimated with a bigger sample to improve its predictive power, (Avenhuis, 2013). The focus should be on application, validation and revalidation of existing models across different economic environments, industry and companies so as to increase the robustness of the model.

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Profitability Analysis of Outbound Mergers and Acquisitions by Indian Acquiring Firms

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Abstract: Mergers and acquisitions has become an ever going inevitable necessity for growth of business world over. Not only corporates within the country, but also, corporates across the globe are finding it essential to grow. The number of cross-border mergers has increased significantly in India over the past few years. Moreover, the outbound mergers have found many takers in Indian business world. The aim of this paper is to establish whether these outbound mergers result in improvement in profitability to the acquiring Indian companies or not. The research is based on the profitability ratios pre and post-merger data. It focuses mainly on the mergers that have taken place during the period of 2008-2015. It uses the Paired Sample t-Test as well as the Wilcoxon Signed Rank Test, to test the hypotheses. The outcomes demonstrate that most of these mergers deteriorate the profitability of the firms post event and the impact is significant

Key words: Outbound Mergers, Profitability, Return on Equity, Return on Assets, Net Profit Margin

I. INTRODUCTION

Mergers and corporate restructuring have become topics of great importance in the global markets. They represent a major force in modern financial and economic environment. Acquisitions are the quickest routes for the companies to expand business. It is also a way to add new capabilities and resources to existing ones. With Globalization and advent of technology, more and more companies are finding mergers and acquisitions (M&A) to be compelling strategy for growth. Whether in times of boom or bust, M&As continue to be the preferred option for businesses seeking to grow rapidly. But are they really contributing to the growth of profitability of the firms that acquire firms from other countries, that's the question which needs to be answered. So this research paper tried to find out the impact on profitability of the acquiring Indian Firms going for Outbound Mergers and Acquisitions.

II. LITERATURE REVIEW

Healy, Palepu & Ruback (1992) conducted a study for improvement in post-merger performance on a sample of 50 largest mergers among U.S. public industrial firms. The study showed that there was a substantial improvement in productivity of assets as well as higher post-merger operating cash flow returns. Switzer (1996) studied 324 acquisitions in U.S. and found out that mergers led to synergistic gains and better performance in the long term.

Ghosh (2001) analysed 315 pairs of merged entities. He inferred that the cash flows of merging firms increased by a significant 2.4% every year. The median increase in cash flows post-merger by 0.26% every year was statistically insignificant, when the sample firms were compared with matched firms.

Sharma and Ho (2002) concluded from a sample of 36 Australian acquisitions that no significant post-acquisition improvement in the corporate operating performance was observed.

Ramaswamy and Waegelein (2003) in their article, "Firm Financial Performance Following Mergers," studied the post-merger financial performance of 162 merging firms in the US to find a significant increase of 12.7 per cent in firm performance post-merger.

Ramakrishnan K (2008) studied long term post-merger performance of firms in India. He took sample of 87 pairs of mergers consisting of 174 firms occurring in India. The study was based on analysis of pre and post-merger accounting data. It concluded that the firm performance after the merger has improved significantly irrespective of the impact of the pre-merger performance.

Aybar and Ficici (2009) concluded from a study of 433 cross border acquisition announcements that, on an average, more than half the transactions indicate value destruction.

Gubbi et al. (2010) surveyed the value creation from international acquisitions by 425 Indian firms. They found that the value created by cross border acquisitions between an emerging economy firm and an advanced economy firm is higher vis-a-vis any other cross-border acquisition.

Dharam, Malhotra and Zhan (2011) in their study on 608 acquisitions concluded that acquiring firms gain

Significance of the Study

There are many reasons that prompt the researcher to undertake this study on cross border acquisitions by Indian Firms. Firstly India has been at the forefront of acquisitions from the emerging markets (AT Kearney researchers, 2008). India has gone through deregulations in the last two decades both in terms of allowing inward and outward investments (Gopinathan S 2007). Indian companies have certain peculiarities in terms of ownership concentration by Promoters and financial institutions which make acquisition by Indian firms an interesting subject of study. (Barai, P and Mohanty, P, 2010).

The deal structure of acquisitions by Indian Firms is unusual as compared to developed country acquisitions. Since, majority of Indian acquisitions are in cash, rather than stock, this raises questions in terms of ability to finance acquisition, the route taken to do so and the impact of additional leverage on the balance sheets of Indian Acquirers.

The Indian Companies Act 1956, section 372A requires shareholder approval for investments above 60% of net worth. However, many large acquisitions such as Tata Steel-Corus, Bharti-Zain deal have been routed via Special Purpose Vehicles. In such cases, the shareholders of acquiring companies are not required to give their consent. This raises questions on protection of shareholder interests and their say in large cross border acquisitions undertaken by Indian firms.

Numbers of studies have been conducted on performance evaluation of M&A, which have assessed M&A outcomes using different parameters. In spite of a substantial volume of literature, the debate about whether mergers are wealth creating or wealth reducing for the firms that are involved is a never ending one. No definite conclusion can be drawn from the various researches as they are contradictory to each other. Also, most of these studies relate to developed economies, which cannot be generalized for Indian outbound mergers. Thus, there is a need to explore this area further.

Hence, this research is carried on to evaluate the impact of cross border mergers and acquisitions on corporate financial performance in the Indian context.

Objectives of the Study:

The main objective of this study was to measure the impact of cross border acquisitions on corporate financial performance of the acquiring firms in India. This objective was further divided into following sub objectives:

- I. To measure the impact of cross border mergers and acquisitions on Profitability of the acquiring Indian companies.
- II. To measure the impact of cross border mergers and acquisitions on Liquidity position of the acquiring Indian companies.

Main Hypotheses:

H0: There is no significant impact of cross border acquisition on profitability position of the acquiring Indian companies.

To test above null hypothesis sub hypothesis are designed which are as follows:

H0₁: There is no significant impact of cross border acquisition on Return on Equity (ROE) of the acquiring Indian companies.

H0₂: There is no significant impact of cross border acquisition on Return on Assets (ROA) of the acquiring Indian companies.

H0₃: There is no significant impact of cross border acquisition on Return on Capital Employed (ROCE) of the acquiring Indian companies.

Alternative Hypotheses:

The corresponding alternative Hypotheses are as follows:

Ha: There is a significant impact of cross border acquisition on profitability position of the acquiring Indian companies.

Ha₁: There is a significant impact of cross border acquisition on Return on Equity (ROE) of the acquiring Indian companies.

Ha₂: There is a significant impact of cross border acquisition on Return on Assets (ROA) of the acquiring Indian companies.

Ha₃: There is a significant impact of cross border acquisition on Return on Capital Employed (ROCE) of the acquiring Indian companies.

Scope of study:

The study covered a span of 14 years starting from 2005 to 2018. For this purpose, outbound mergers which had taken place between 7 years' period – 2008 to 2015 were considered for research. It primarily focused on 30 selected cross border outbound acquisitions undertaken by Indian firms post financial crisis. It analyzed the financial performance on the basis of comparison between pre and post-acquisition ratios related to Profitability

II. RESEARCH METHODOLOGY

This research was based on secondary data, which was extracted from the sources such as corporate database of Bloomberg and Capitaline, Web site of Securities and Exchange Board of India (SEBI), Web sites of Bombay Stock Exchange (BSE), National Stock Exchange (NSE), and Other related websites.

The study analyzed the financial data of selected cross border acquisitions during 2008-2015 made by Indian firms. This period was chosen as it identifies impacts due to global slowdown as well as it is relatively recent.

For the purpose of this selection initially 795 outbound M&As which were announced between January 2008 to December 2014 were identified. Out of them deals which were terminated or pending were dropped and the number reduced to 734 deals. Acquisitions between the parent and subsidiary companies were dropped. Firms for which three years of data, both prior to and after the merger, were not available, were dropped from the list. Pairs, for which data was unavailable for both the target and the bidder, and for which complete information was not obtainable, were also dropped.

The final sample size used for the analysis is selected using convenient sampling and consists of 30 pairs of mergers consisting of 60 firms.

Tools used for Analysis:

The financial performance of the sample acquiring firms before and after the M&A deal was analyzed with the help of following ratios:

Type	Sr No.	Ratio	Definitions
Profitability ratio	1	Net Profit Margin	Net Profit / Sales
	2	Return on Equity	PAT / Equity
	3	Return on Assets	PAT / Total Assets

Data Analysis Technique:

The parameters, mentioned above, were calculated for six years on the basis of historical data obtained from Profit & Loss Statement as well as Balance Sheets for both pre-merger and post-merger period. While this data of six years could indicate trend but evaluation of performance required two comparable figures.

Therefore, the six years' data was reduced into two comparable figures:

Average of three years' Pre-merger data

Average of three years' Post-merger data

While excel was used to calculate above mentioned ratios, the evaluation of results was done by use of SPSS- the software package. The data of comparable averages pre-merger period and post-merger period was inserted into SPSS software to see if there was any statistically significant change in performance of acquirer firm after M&A, using 'Paired Sample t-test' at confidence level of 0.05 or 95%. Also, PEARSON Correlation coefficient test had been employed to assess the significance level.

III. DATA ANALYSIS

The three financial ratios indicating profitability were used viz; Return on Equity (ROE), Return on Assets (ROA), Return on Capital Employed (ROCE).

Pre and Post-Merger Return on Equity Ratio Data

Sr No	Name of the acquiring corporate	Pre-merger Average	Post-merger Average
1	Bharti Airtel	31.5310	6.0397
2	ONGC IN	28.4832	21.0403
3	Adani Ports & Special Economic Zone Ltd	20.2809	25.2076
4	Tata Motors Ltd	30.5572	52.0699
5	GVK Power & Infrastructure Ltd	5.0668	-18.3646
6	Shree Renuka Sugars Ltd	20.3956	-17.1391
7	GOCL Corp Ltd	4.9666	4.2192
8	Rain Industries Ltd	25.2931	7.1378

12	Sterlite Industries India Ltd	18.2158	11.7653
13	Mahindra & Mahindra Ltd	26.2097	21.3710
14	Fortis Healthcare Ltd	3.8176	4.6622
15	Piramal Enterprises Ltd	74.5453	9.9786
16	Jindal Steel & Power Ltd	45.5006	16.0356
17	Adani Enterprises Ltd	20.8331	9.2063
18	Motherson Sumi Systems Ltd	26.6081	25.9912
19	Bayer CropScience Ltd/India	21.8323	17.3117
20	Binani Industries Ltd	18.8076	-71.5829
21	Reliance Industries Ltd	14.6515	12.1105
22	Hindalco Industries Ltd	11.2300	5.6320
23	Infosys Ltd	28.2271	23.8825
24	Suzlon Energy Ltd	29.5528	-13.7543
25	Aditya Birla Nuvo Ltd	9.6291	12.2130
26	Tata Chemicals Ltd	13.6328	-0.0729
27	Maruti Suzuki India Ltd	17.7793	16.2499
28	Godrej Consumer Products Ltd	66.5393	26.5186
29	WNS Holdings Ltd	17.7992	4.3865
30	Jubilant Life Sciences Ltd	27.6236	11.2255

Pre and Post-Merger Return on Assets Ratio Data

Sr No	Name of the acquiring corporate	Pre-merger Average	Post-merger Average
1	Bharti Airtel	14.92706667	1.954933333
2	ONGC IN	17.3949	12.5825
3	Adani Ports & Special Economic Zone Ltd	8.422233333	7.557666667
4	Tata Motors Ltd	9.372866667	8.0137
5	GVK Power & Infrastructure Ltd	2.007566667	-1.7092
6	Shree Renuka Sugars Ltd	7.878966667	-2.32115
7	GOCL Corp Ltd	2.3766	1.5776
8	Rain Industries Ltd	7.0068	1.579966667
9	Lanco Infratech Ltd	3.863933333	-2.308366667
10	HCL Technologies Ltd	20.58096667	12.48336667
11	Cox & Kings Ltd	9.179666667	2.705566667
12	Sterlite Industries India Ltd	9.883133333	6.31045
13	Mahindra & Mahindra Ltd	6.468666667	5.658233333
14	Fortis Healthcare Ltd	1.544333333	1.043866667
15	Piramal Enterprises Ltd	53.41203333	4.900366667
16	Jindal Steel & Power Ltd	15.22763333	6.170833333
17	Adani Enterprises Ltd	3.4553	1.853466667
18	Motherson Sumi Systems Ltd	7.4636	4.746
19	Bayer CropScience Ltd/India	10.28956667	12.81683333
20	Binani Industries Ltd	2.807366667	-7.4782

23	Infosys Ltd	24.02593333	19.87133333
24	Suzlon Energy Ltd	12.30023333	-3.0041
25	Aditya Birla Nuvo Ltd	1.635766667	2.080066667
26	Tata Chemicals Ltd	4.500166667	-0.052866667
27	Maruti Suzuki India Ltd	12.69426667	11.26353333
28	Godrej Consumer Products Ltd	22.90046667	11.64283333
29	WNS Holdings Ltd	10.58176667	2.133433333
30	Jubilant Life Sciences Ltd	9.0806	3.1951

Pre and Post-Merger Return on Capital Employed Ratio Data

Sr No	Name of the acquiring corporate	Pre-merger Average	Post-merger Average
1	Bharti Airtel	22.9301	3.9975
2	ONGC IN	27.6076	19.7893
3	Adani Ports & Special Economic Zone Ltd	12.9468	12.1747
4	Tata Motors Ltd	16.5710	16.5148
5	GVK Power & Infrastructure Ltd	4.3571	0.1575
6	Shree Renuka Sugars Ltd	10.8735	1.6869
7	GOCL Corp Ltd	5.3298	2.8170
8	Rain Industries Ltd	10.7522	5.2093
9	Lanco Infratech Ltd	9.3994	0.8993
10	HCL Technologies Ltd	27.3532	48.8141
11	Cox & Kings Ltd	14.3754	6.2297
12	Sterlite Industries India Ltd	17.3542	11.2308
13	Mahindra & Mahindra Ltd	13.5936	11.3219
14	Fortis Healthcare Ltd	3.6854	3.0601
15	Piramal Enterprises Ltd	63.7533	8.2529
16	Jindal Steel & Power Ltd	21.9209	9.5141
17	Adani Enterprises Ltd	7.7553	4.3956
18	Motherson Sumi Systems Ltd	15.2368	13.2920
19	Bayer CropScience Ltd/India	19.9064	17.5066
20	Binani Industries Ltd	13.3774	-3.3519
21	Reliance Industries Ltd	10.1708	7.6236
22	Hindalco Industries Ltd	6.2812	3.6107
23	Infosys Ltd	28.2271	23.8825
24	Suzlon Energy Ltd	21.7616	-0.5270
25	Aditya Birla Nuvo Ltd	6.7077	7.7377
26	Tata Chemicals Ltd	9.8047	3.5624
27	Maruti Suzuki India Ltd	16.9167	15.9622
28	Godrej Consumer Products Ltd	40.0977	16.4585
29	WNS Holdings Ltd	17.2373	4.8999
30	Jubilant Life Sciences Ltd	12.5738	5.3254

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
ROE Pre	30	3.8176	74.5453	24.278253	15.4793184
ROE Post	30	-71.5829	52.0699	7.492393	22.4027008
ROA Pre	30	1.5443	53.4120	10.736478	10.1318682
ROA Post	30	-7.4782	19.8713	4.410409	5.8130901
ROCE Pre	30	3.6854	63.7533	16.961933	12.0902627
ROCE Post	30	-3.3519	48.8141	9.401603	9.9406313
Valid N (listwise)	30				

Inferential Statistics

Paired Sample t-test:

Hypothesis 1

H1: There is a significant impact of cross border acquisition on profitability position of the acquiring Indian companies.

In order to test hypothesis 1, paired samples T test was applied by using SPSS.

Paired Samples Test

	Paired Differences					T	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 ROE Pre - ROE Post	16.7858600	23.3972096	4.2717265	8.0491983	25.5225217	3.930	29	.000
Pair 2 ROA Pre - ROA Post	6.3260689	9.0452720	1.6514332	2.9485088	9.7036290	3.831	29	.001
Pair 3 ROCE Pre - ROCE Post	7.5603300	12.2550485	2.2374555	2.9842197	12.1364403	3.379	29	.002

H0₁: There is no significant impact of cross border acquisition on Return on Equity (ROE) of the acquiring Indian companies.

The T value corresponding to the mean difference between the pre and post ROE was 3.93 and its corresponding p value is 0.000<0.05. Since the p value is less than 0.05, we can conclude that there is significant impact of cross border on ROE of acquiring Indian companies. Hence alternate hypothesis can be accepted for ROE.

H0₁: There is no significant impact of cross border acquisition on Return on Assets (ROA) of the acquiring Indian companies.

The T value corresponding to the mean difference between the pre and post ROA was 3.831 and its corresponding p value is 0.001<0.05. Since the p value is less than 0.05, we can conclude that there is significant impact of cross border on ROA of acquiring Indian companies. Hence alternate hypothesis can be accepted for ROA.

H0₁: There is no significant impact of cross border acquisition on Return on Capital Employed (ROCE) of the acquiring Indian companies.

The T value corresponding to the mean difference between the pre and post ROCE was 3.379 and its corresponding p value is 0.002<0.05. Since the p value is less than 0.05, we can conclude that there is significant impact of cross border on ROCE of acquiring Indian companies. Hence alternate hypothesis can be accepted for ROCE.

IV. CONCLUSION

This research studied whether the Indian acquirer firms are able to create value for the shareholders after the cross border (outbound) merger and acquisition. The study employed Financial Performance Study approach to address the issue.

Two tests were carried out namely, Paired Sample t-test and Wilcoxon Signed Ranks Test. The results revealed that in case of the acquiring companies, the liquidity is significantly impacted by the event of Outbound Merger. Whereas, the same cannot be implied for the solvency of the acquiring companies. In terms of raw performance, it has been found that there is a significant impact on the Return on Equity (ROE), Return on Assets

A closer analysis also reveals that the impact is negative which implies that the event of Outbound Merger is value deteriorating for the acquiring companies taken in this study. It was evident from the analysis that 29 out of 30 sample firms failed to achieve better and improved profitability after merger. Whereas, only one firm Aditya Birla Nuvo Ltd has achieved better and improved profitability after merger. Also, 29 out of 30 sample firms failed to achieve better and improved liquidity after merger. Whereas, only one firm Bayer Crop Science Ltd has achieved better and improved liquidity after merger.

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Annexures:

Final Sample Firms Selected for Analysis

Deal Type	Announce Date	Completion Date	Target Name	Acquirer Name	Announced Total Value (mil.)
M&A	3/30/2010	6/8/2010	Bharti Airtel Africa BV	Bharti Airtel Ltd	10700
M&A	8/26/2008	3/9/2009	Imperial Energy Corp PLC	Oil & Natural Gas Corp Ltd	2607.16
M&A	5/3/2011	6/1/2011	Abbot Point X50 Coal Terminal	Adani Ports & Special Economic Zone Ltd	1961.64
M&A	3/26/2008	6/2/2008	Jaguar Land Rover Operations	Tata Motors Ltd	2300
M&A	9/16/2011	9/30/2011	Coal and Infrastructure Projects	GVK Power & Infrastructure Ltd, GVK Natural Resources Pvt	1260
M&A	2/22/2010	3/22/2010	Renuka do Brasil SA	Shree Renuka Sugars Ltd	1159.98
M&A	11/6/2012	12/20/2012	Houghton International Inc	GOCL Corp Ltd	1045
M&A	10/22/2012	1/4/2013	RUETGERS Germany GmbH	Rain Industries Ltd	916.74
M&A	12/15/2010	3/4/2011	Griffin Coal Mining Co Pty Ltd	Lanco Infratech Ltd	742.05
M&A	9/26/2008	12/16/2008	Axon Group Ltd	HCL Technologies Ltd	731.11
M&A	7/26/2011	9/27/2011	Holidaybreak Ltd	Cox & Kings Ltd	727.41
M&A	12/3/2010	12/3/2010	Skorpion Zinc Mine	Sterlite Industries India Ltd	707
M&A	11/23/2010	2/9/2011	Ssangyong Motor Co	Mahindra & Mahindra Ltd	702.96
M&A	11/1/2011	1/12/2012	Fortis Healthcare International Pt	Fortis Healthcare Ltd	665
M&A	5/16/2012	6/8/2012	Decision Resources Group LLC	Piramal Enterprises Ltd	635
M&A	5/20/2010	6/22/2010	Shadeed Iron & Steel LLC	Jindal Steel & Power Ltd	464
M&A	8/3/2010	8/3/2010	Coal tenements/Galle Basin	Adani Enterprises Ltd	456.55
M&A	7/13/2011	11/24/2011	Peguform Group	Motherson Sumi Systems Ltd	454.92
M&A	7/3/2012	8/16/2012	AgraQuest Inc	Bayer CropScience Ltd/India	425
M&A	11/16/2011	2/1/2012	3B The Fibreglass Co	Binani Industries Ltd	371.86
M&A	9/28/2012	12/31/2012	BP Chemicals Malaysia Sdn Bhd	Reliance Industries Ltd	371.52
M&A	11/18/2011	12/31/2011	Novelis Korea Ltd	Hindalco Industries Ltd	350
M&A	9/10/2012	10/22/2012	Infosys Consulting Holding AG	Infosys Ltd	349.21
M&A	6/5/2008	6/5/2008	Senvion SE	Suzlon Energy Ltd	322.27
M&A	7/5/2012	7/5/2012	Terrace Bay pulp mill/The	Aditya Birla Nuvo Ltd	300
M&A	4/11/2011	4/11/2011	Stream 1 Of Urea Manufacturing	Tata Chemicals Ltd	290
M&A	6/12/2012	3/17/2013	Suzuki Powertrain India Ltd	Maruti Suzuki India Ltd	269.14
M&A	5/12/2010	5/28/2010	Godrej Household Products Ltd	Godrej Consumer Products Ltd	234.14
M&A	7/10/2008	7/10/2008	Aviva Global Services	WNS Holdings Ltd	227.4
M&A	4/4/2008	5/30/2008	Draxis Health Inc	Jubilant Life Sciences Ltd	226.2

Internet of Things (IOT) in Supply Chain Management (SCM)

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INTRODUCTION

We are part of a generation where internet plays a very important part of our life. It is very difficult to live a life without internet. It has made our lives very easier to such an extent that we are trying to make the most out of it. Since internet started providing its services, lot of research happened in taking it to the next level and optimizing the process. This gave birth to internet of things which has revolutionized the way we think about internet. Internet of things helps in connecting all the devices to each other, collecting the data, analyzing it and providing applications based on the research. Sensors play a very important role in detecting, collecting and storing the data from the external environment of the device. The data collected is monitored and optimized. The data finds its applications in all the sectors one can think of; internet of things has made the process of connecting the devices, sharing of content, its applications very efficient and effective. It finds applications in our daily lives and in all the companies. Industrial sector depends a lot on the data in order to make decisions about their product and analyzing its operations. The industrial revolution which gave birth to manufacturing sector mostly revolved around the workers doing the major work of collecting the raw data, managing the components and working to get the desired result. As technology revolved, the workers were more getting dependent on machines, and using the optimized data to monitor and providing applications. Internet has revolutionized the industry.

Supply chain management has benefited a lot from the revolution in the technology. It takes care of the process from collecting the raw materials, delivering to the supplier, then to the manufacturer, then the distributor from where it goes to the retail channel and finally to the end consumer. Supply chain role in the business consists of procurement, product life cycle, distribution, management, analysis, logistics, time to market, strategy, planning, enterprise applications, asset management and having a good profitable margin. Supply chain adds value at each stage. Its components include in-bound, in-house and out-bound supply chain management. The digitization of supply chain management with the help of internet of things has optimized the performance of the industries by making it more efficient and effective. As a result, it finds applications in all the sectors has bought another industrial revolution by evolving the supply chain management. The evolution of supply chain management from a traditional approach to the internet of things approach consists of lot of challenges and at the same time has been very impactful.

OBJECTIVE OF THE STUDY

The objective of this study is to understand the integration of internet of things and supply chain management. It includes understanding the applications of internet of things and how it has impacted the supply chain management. Supply chain management initially had a traditional approach and has evolved a lot with the help of technology; before and after internet and making it more efficient and effective with the help of optimized and analyzed data, which helps us monitor it and provide more application based solutions for various companies in different sectors. The study includes the challenges of internet of things and supply chain management and how it has been impactful. The objective explains the practical approach; its applications, the companies which are using it and how they have implemented it in their supply chain management and how they have been to make their process of supply chain right from raw materials to manufactures, then to distributors and retailers and finally to the end consumers. The study also gives an insight on the managerial implications of internet of things in supply chain management.

LITERATURE REVIEW

The literature review of this report includes the explanation of internet of things, supply chain management, impact of IOT in SCM and applications of companies implementing IOT in SCM. The report describes the different method of implications used, the challenges faced and benefits of this integration. The report also gives us a view of the managerial implications which would help us with the approach of iot in supply chain.

- **Internet of Things (IoT)**

The internet of things has changed the way we look at the internet. Since its inception, the internet of things has almost found itself in all the applications with the help of sensors for collecting and assessing data. Whether we tend to area unit rising the assembly of a works, giving city residents real time updates on where to park, or monitoring our personal health, internet of things makes sure to collect the right data, making it efficient and effective. The process starts with the devices themselves which securely communicate with the IOT platform. For example; A car, after taking a long road trip Jatin notices that his check engine light is it's something minor or something that needs immediate attention. As it turns out, the sensor that triggered Jatin's check engine light monitors the pressure in a brake line. A component in the car called the diagnostic bus gathers the data from all these sensors then passes it to a gateway in the car. The Gateway integrates and sorts the data from the sensors. But before causation this organized knowledge, the car's gateway and platform must first register with each other and confirm a secure communication. The platform is gathering and storing thousands of bits of information from Jatin's car and hundreds of thousands of cars like his building an historical record in a secure database. The manufacturers added rules and logic to the platform so when Jatin's car sends a signal that his brake fluid has dropped below a recommended level, the platform triggers an alert in his car. The manufacturer conjointly uses the platform to make and manage applications that solve specific problems. This application oversees all of their customer's car on the road as well as all the parts in their warehouse. It uses the data from Jatin's car to offer him a potential appointment time to service his car, directions to the nearest certified dealer and a coupon for the service. What's more is that the app will ensure that Jatin's brakes are covered under his warranty, that the correct replacement part is ordered and then sent to the dealership so it is ready when he arrives. But the manufacturer's analysis does not stop there. They have conjointly deployed an eternal engineering application that tracks not solely Jatin's automotive however many thousands of others searching for ways that to enhance the look and producing processes of car itself. If the same problem in a brake line crops up in a critical number of other cars, the manufacturer uses applications custom-built for automobile industry to pinpoint the exact problem. They can see if these cars were made at the same factory, used the same parts or came off the assembly line on the same day. So what do all of these pieces add upto? Streamlined inventory management for the dealer, a better safer car from the manufacturer and for Jatin, it means he can be back on road faster and get to where he is going safely, all thanks to The Internet of Things.

- **Supply Chain Management (SCM)**

Supply chain management (SCM) is the active integration and coordination of all provided chain activities to supply a client with the simplest worth of goods and raw materials. Providing with the simplest worth means that providing with a high quality product for an inexpensive value. Supply chain and supply square measure usually used interchangeably, however, supply merely refers to the transformation of products, and is so just one a part of the availability chain. Example: Conglomo manufactures a contrivance it sells in its retail stores. The contrivance has 10 parts, eight of that square measure premade components, the opposite a pair of square measure raw materials. The contrivance provide chain includes all eight of the element manufactures, beside the 2 staple suppliers. additionally, it includes all the suppliers to those makers. The transportation firms for all the parts and raw materials also are a part of the availability chain. And any company that ships the widgets to Conglomo's retail stores.

- **Impact of IoT on Supply Chain Management**

IOT has revolutionized supply chain management systems with various operational efficiencies and revenue opportunities in different sectors.

- ✓ **Asset Tracking:** Tracking numbers and bar codes is the vintage trendy approach for handling goods in the course of the deliver chain. But with application of IoT, new RFID and GPS sensors are now able to track products 'from floor to store'. Manufacturers use the sensors to collect the optimized data for the tracking applications.
- ✓ **Vendor Relations:** The information received from asset monitoring may be very essential as it lets in organizations to make adjustments of their very own production schedules, understand sub-par seller relationships that can be growing their fee.
- ✓ **Forecasting and Inventory:** IoT sensors provide very accurate data related to the inventory with the company. Tracking inventory at the click of a button is now possible. Keeping a record of the supplies in stock for future manufacturing, keeping a check on deadlines and finding trends to make manufacturing schedules more efficient has never been easier. the failure of manufacturing equipment is the most common stumbling block encountered, downtime for which causes ripple effects across entire supply chains. With the next generation of IoT technologies manufacturers can fix issues before they even occur, which will be much more efficient than reactive maintenance. Accurate inventories can drive automated ordering of additional supplies exactly when needed eventually leading to cost reduction.
- ✓ **Improved Last Mile Delivery:** optimizing the last mile delivery processes has now become very important because the delivery experience of a product from manufacturersto end users or customers has profound impacts on the chances of repeat orders. The information gathered with the help of IoT devices in a supply chain will optimizes last mile delivery by identifying potential issues and making changes in auto-delivery systems and truck routes based on information, which can even incorporate current weather conditions.
- ✓ **Studying consumer behaviour:** Studying patron behaviour: RFID-tagged merchandise mixed with closed-circuit TV cameras can be used to monitor client movement and behaviour within the purchasing centres. The linked save can trace how customers pass from one aisle to any other and offer insights about purchaser's shopping for behaviour. This Information will assist to offer the clients with consumer-specific deals; retailers inplanning dynamic pricing, and streamlining operations for typical efficiency.
- ✓ **Connected Fleets:** with the continuous growth in supply chain (upward and outward) the carriers including shipping containers, suppliers' delivery trucks, or the van out for delivery can be connected

- **Companies implementingIoT in Supply Chain Management**

- ✓ **Amazon:** One of the biggest e-commerce company has to go through infinite number of orders on a daily basis in order to meet the client's expectations. Amazon initially relied a lot on the manpower, but with advance in technology of wireless internet and iot connected robots, the process of supply chain has become sufficient. These robots identify products by using built-in cameras to read QR codes. The AI system further assesses the products that are first on priority for Amazon Prime orders and the robots take care of the rest. Humans can focus on packaging an order or restocking shelves. IoT has facilitated synchronization of robots and human's efforts.
- ✓ **Volvo:** Swedish car manufacturer is using internet of things for the manufacturing process of the car products and its components which is making the supply chain and the logistics management of the product efficient and effective. Volvo is making use of cloud-based services and IoT technologies. Last year Volvo developed a relationship with Microsoft for trialling its mixed reality headset HoLo Lens. This will be the step towards transformation of the relationship between cars and customers. Choosing the car type you want – to explore the colours, rims, or

get a better understanding of the features, services and options available with the help of mixed reality.

- ✓ **Nissan:** Nissan is using internet of things to improve its supply chain management and logistics by making the process completely automatic and optimizing the data for the manufacturing process.
- ✓ **Decathlon:** A leading retailer in the sports industry is using the internet of things to improve its supply chain process by making the delivery process effective. Decathlon uses sensors and rfid technology to collect and monitor the data from their stores all across the globe. Company maintains 100% accuracy with their data collection right from the pickup of its products to the checkpoints and to the end customer.
- ✓ **Maersk Line:** Maersk is one of the leading companies in the shipping industry. The company tied up with leading iot based companies to help them optimize their process. The Maersk group has used iot to improve its operations management, thus providing safety and care for its employees and goods on board the ship. The data collected of all the goods on the ship and at the dockyards are monitored, recorded and analysed on a daily basis making the process of supply chain and delivery process effective. The company is also working on integrating iot in end to end delivery process to the consumer; the company is looking at completing the entire loop of delivery right from picking up the goods, storing it in their dockyard, boarding it on the ship, maintaining the record during the transport, off boarding the good into the truck for transportation purpose and finally to the end consumer with an acknowledgement that would be generated automatically online in the system as per the location of the data which has been optimized and collected in the system.

CONSTRAINTS AND CHALLENGES

- **Security:** It is a significant issue for each web associated mechanical framework. In this present reality where cyber-attacks are ending up progressively normal, IOT innovation could be simply one more draw for programmers. Taking a gander at some malware as of late found, for example, IRONGATE, unmistakably the hazard exists like never before. As IOT applications are to be based on numerous sensor hubs, the danger level expands radically without the consideration other external parameters. The organizations working in different sectors need to make sure that their data collected and monitored is well protected of any misuse practices
- **Adaptability:** Alongside unwavering quality comes the topic of versatility. IOT frameworks should be versatile and adaptable enough to give custom fitted answers for numerous enterprises. From an increasingly specialized angle, IOT arrangements should incorporate with existing arrangements through programming or impromptu usefulness. For the most part, usefulness is included by either utilizing seller characterized secret elements, or by structuring restrictive or custom start to finish arrangements. While utilizing seller characterized secret elements gives an answer that can be executed quickly, it is hard to procure and examine the information created. The custom arrangement, then again, takes into account simple access to information, yet the restrictive idea of these arrangements implies the framework itself turns into a black box. In this design, discovery frameworks need to impart appropriately, which speaks to a major test for architects attempting to create custom start to finish arrangements. Be that as it may, the technology postures difficulties as wellbeing, security and productivity. Eventually, the proceeded with development of the innovation requires producers and IOT arrangement suppliers to cooperate to address these difficulties the most ideal way that is available
- **Unwavering quality and Integrity:** The big problem that the companies face while working on their technologies is the integration and quality of its system. The process of integrating with any system, gives a risk of exposing your data collection to the external sources in absence of any encryption. Any lack of storage for the database might affect the entire network. Consequently, modern ventures should unmistakably characterize the objectives and limits of their

IOT ventures. In view of ventures' operational necessities and innovation abilities, IOT arrangements and instruments ought to be characterized and at last applied.

MANAGERIAL IMPLICATIONS

Integration of both IOT and supply chain has lot of challenges like security, robust quality, integrity and its availability. The framework has been very efficient because of the optimized data collected with the help of iot, making it very effective for various applications. Processes can be improved in the field of assets tracking, vendor relations, forecasting and inventory, connected fleets, delivery and customer behaviour. Around 70% of retail and manufacturing companies have already started implementing IOT in their supply chain process. Companies like Amazon, Volvo, DHL, Nissan and Decathlon to name a few are using the benefits of internet of things in supply chain management.

CONCLUSION

Based on the research, it can be concluded that internet of things plays a very important in the supply chain management. The impact has been very positive. Even though there were challenges for both the management of supply chain and internet, the integration of both has seen a lot of applications in various companies. The implementation has been very efficient and effective with the help of analyzed, monitored and optimized data. It has improved the operational approach and the revenue opportunities for the company. The operation management includes the asset tracking which has improved with the help of new RFID and GPS sensors. The data obtained with the help of vendor relations has made the process of collecting data much optimized. Forecasting and Inventory management is very important for any company and internet of things has added value to it. Internet of things has improved the delivery process in various sectors and maintenance schedule using various smart sensors. With the help of various applications, internet of things has also improved the revenue opportunities of the companies. Supply chain has become much more transparent embracing the innovation in technology. As per the report and research done, it has been observed that nearly 70% of retail and manufacturing companies have accepted and started implementing internet of things in the supply chain management

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Does Healthcare System in Kerala Need a Change? Emerging Patterns of Morbidly and Hospitalisation

Sinimole K.R., Bino Paul G.D. and M. Sivakami

Although the 'Kerala Model' is often viewed as a rare combination of higher-order human development and not so discernible patterns of consistent exponential economic growth, it appears that in recent times the health system in Kerala has been facing the emerging crisis in public health. This paper assesses the determinants of morbidity and hospitalisation here using NSSO 71st round data. While we compare the results with the extant literature, drawing cues from the results, we explore public policy options that are appropriate to the context of Kerala. Moreover, the paper also examines the disease profile of hospitalized households.

I Introduction

Indian healthcare sector is wide, intensive and growing rapidly. It is expected to rank amongst the top three healthcare markets in terms of incremental growth by 2020. With this enormous growth, Indian healthcare sector needs to cater to a much higher level of demand for healthcare services which is on a constant rise (Mckinsey and Company 2010), capturing public and private organisations (Gangolli, *et. al.* 2005). Private sector plays a major role in the healthcare delivery. According to World Health Organisation (WHO) report (2013), out of pocket expenditure in India is 85.9 per cent of the Indian healthcare expenditure, which is one of the world's highest rates. However, India remains among the five bottom countries with poor health infrastructure and an inadequate health workforce (Gudwani 2012). Healthcare infrastructure is insufficient to meet the burden of diseases.

According to the constitution of India (7th Schedule, Article 246), health is in the state list. However, the central government is engaged in policy-making, planning, guiding and evaluating healthcare systems across the nation. Moreover, the it allocates funds to states which are responsible for managing the public healthcare system.

Amongst the states Kerala has been reporting consistently noticeable higher magnitudes of human development (Table 1). Since the state was formed in

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1956, the health indicators have been making progressive strides, primarily due to the interplay of progressive socio-political institutions and innovative public actions. According to Niti Aayog report (2017), among the larger states, Kerala, Punjab, and Tamil Nadu ranked on top in terms of overall performance of health outcomes.

Table 1: Profile of Kerala and the Health Indicators (2014)

Profile of Kerala		Health Indicators for Kerala and India (2014)		
			Kerala	India
Number of districts	14	Crude Birth Rate (per 1000 pop)	14.7	21.4
Number of blocks	152	Infant Mortality Rate (per 1000 live births)	12.0	40.0
Number of villages	1018	Crude death Rate (per 1000 pop)	6.9	7.0
Population (2011)	33406061	Life Expectancy at Birth Male	71.4	62.6
Literacy	93.91	Life Expectancy at Birth Female	76.3	64.2
Sex ratio	1084			
Density of population	860			

Source: Census of India 2011 and Health at a Glance 2014- Health Information Cell-Directorate of Health Services, Kerala.

The remarkable progress made by Kerala in the field of health started before the formation of the state itself. Government of Travancore State had made vaccination compulsory for the public, students, government servants and detainees (Panikar and Soman 1984). In order to contribute to the public health activities, it had developed proper infrastructure, started medical colleges, and had a wide network of hospitals and dispensaries all over the state. By the time of independence, it had 140 public health centres, 108 dispensaries and 30 private health centres, funded by the government (Kabir 1997, Sadanandan 2001). In the year 1938, it started separate maternity care centres (Kabir 1997). Modern medicine was introduced by the colonial rulers for the benefit of their own health. Moreover, initiatives by private voluntary organisations and missionaries helped modern medicine to grow and spread amongst the public.

After independence, Kerala government formulated policies to improve the health status of the population through primary, secondary and tertiary level healthcare institutions. From 1961 to 1986 there was rapid expansion of the public health system (Kutty 2000). However, public sector expansion started slowing down in the year 1986, and the public healthcare expenditure decreased by 35 per cent during the time period 1990-2002 (Nabae 2003). The slowdown of public sector expansion, decline in public sector spending, inefficiency of the public facilities and activities of voluntary organisations and charitable trusts resulted in an overwhelming expansion of the private sector (Health and Family Welfare Department, Kerala 2013). This has brought about the commercialisation and commoditisation of healthcare which led to the growing prevalence of cash constrained healthcare systems. However, the phenomenon of growing commercialisation appears to have aggravated the issues of inequalities

in healthcare. While the private sector is a principal actor in Kerala's healthcare system, it seems to have been less aligned with responsible and regulated practices that safeguard the sustenance of healthcare systems (Lekshmi, *et. al.* 2011). Moreover, the growing demand for health services resulting from demographic transition, which results in changing disease pattern from communicable to non-communicable, emergence of new communicable diseases, environmental dilapidation due to poor waste management and contamination, etc., have worsened the crisis.

The 'morbidity' (a state of ill health) and hospitalisation rates in Kerala are very high in comparison with other states (Table 2). The morbidity rate (per thousand) in rural Kerala is 310 and it is 306 in urban Kerala. Other states like Punjab, Tamil Nadu, West Bengal and Goa have morbidity rates which are almost half of Kerala (Table 2). Similarly, the hospitalization rate in Kerala is 117 in rural area and 99 in urban area, which is almost the double of other states like Punjab, Tamil Nadu and West Bengal. A high literacy rate along with extended medical facilities is considered as one of the reasons for increased morbidity and hospitalisation rates in Kerala (Kannan, *et. al.* 1991, Gumber and Berman 1997). However, morbidity can be due to diseases of poverty or diseases of affluence like life style diseases (Panikar and Soman 1984). According to Dilip (2010), non-communicable diseases are more common when mortality is low. However, in such situations malnourishment and communicable diseases will be more common among the deprived than the rich. Some studies report that morbidity is high among socially and economically disadvantaged people than those from good social and economic background (Kannan, *et. al.* 1991). However, recent studies show a high prevalence rate of chronic and acute diseases among the rich population. Researchers consider this as an epidemiological divergence. This indicates that Kerala is on the path of health transition and faces the problems of emergence and re-emergence of communicable diseases (Mosley, *et. al.* 1993). Apart from the burden of communicable diseases, the state is facing the increasing prevalence of lifestyle diseases. Out-of-pocket expenditure in Kerala is the highest in India, and healthcare expenditure places enormous burden on its households (Peter, *et. al.* 1993). This has a negative implication on the hospitalisation pattern, especially among the poor households. Households which are susceptible to precarious socio-economic contexts may refrain from hospitalisation even if they are in need of health care while they may restrict themselves to self-medication. (Dilip 2010, WHO 2006, Garg and Karan 2005, Selvaraju 2003, Borah 2006).

In this context, the paper examines the determinants of morbidity and hospitalisation in Kerala. This is important for developing and reviewing health policies of the state according to its changing requirements. Moreover, as the state is going through epidemiological transition, it is also important to study the disease profile in order to understand the current situation.

Existing studies that tried to examine morbidity and hospitalisation in Kerala are scarce and the few available are generally descriptive. However, the

previous studies that dealt with morbidity and hospitalisation patterns are reviewed below.

Table 2: Per 1000 No. of Persons Reporting Ailment (PAP) and No. Per 1000 of Persons Hospitalized in each state (Rural, Urban)

States	Per 1000 no. of Persons Reporting Ailment		Per 1000 no. of Persons Hospitalized	
	Rural	Urban	Rural	Urban
Andhra Pradesh	155	204	59	55
Arunachal Pradesh	95	49	34	41
Assam	31	47	28	36
Bihar	57	62	34	33
Chhattisgarh	40	44	31	42
Delhi	15	41	15	36
Goa	160	194	44	40
Gujarat	92	103	48	49
Haryana	56	75	42	50
Himachal Pradesh	82	51	57	33
Jammu & Kashmir	64	41	39	37
Jharkhand	52	96	32	35
Karnataka	93	103	52	49
Kerala	310	306	117	99
Madhya Pradesh	53	71	40	44
Maharashtra	80	70	53	47
Manipur	26	4	43	35
Meghalaya	32	26	27	35
Mizoram	26	31	36	41
Nagaland	31	19	17	22
Odisha	103	97	45	51
Punjab	161	170	41	40
Rajasthan	54	83	47	43
Sikkim	34	67	26	33
Tamil Nadu	146	184	57	59
Telangana	97	95	48	49
Tripura	35	51	55	57
Uttar Pradesh	68	91	34	40
Uttara hand	77	111	30	37
West Bengal	161	179	50	51
All	89	118	44	49

Source: NSSO 71st Round Health Report: Government of India.

Recent researches have used self-reported illness or morbidity to measure the health status of the population and considered it as a proxy measure of a patient's health status (Gumber and Kulkarni 2000, Dilip 2002, Ghosh and Arokiasamy 2010). This is because of the direct link between self-reported morbidity and future mortality. Moreover, those who are not sick may not seek health services even if available (Nicholson, *et. al.* 2005, Dilip 2002). Drawing cues from the literature, the data from the NSS was analysed for understanding the morbidity and hospitalisation patterns in India. However, the data collected on perception of 'being ill' and hospitalisation may be affected by healthcare consciousness, standard of living and people's accessibility to healthcare. Despite these drawbacks, morbidity and hospitalisation from large sample surveys seem to be less affected by errors than small sample micro datasets, and therefore are widely used by researchers for measuring the wellbeing and health status of the population (Ghosh and Arokiasamy 2010).

Past studies show a positive association between socio-economic conditions and prevalence of morbidity. The perception of 'being ill' or morbidity depends on socio-economic conditions like access to health services, awareness of healthcare, educational level and economic conditions (Ghosh and Arokiasamy 2010, WHO 2006, Duraisamy 1998, Dilip 2002). The patterns reported from developing countries show that poor people are under more disease risk in their environment in which they live because of inadequate drinking water source, inadequate sanitation facilities and poor housing conditions (Steinhardt, *et. al.* (2009), Njau 2006, Gwatkin 2005). Morbidity is higher amongst the socially and economically disadvantaged people than those with good social and economic background (Kannan, *et. al.* 1991). Moreover, disease burden seems to be sensitive to the area of residence (rural or urban). Some of the studies reported a greater burden among the rural population than among the urban (Duggal and Amin 1989, Sekar 1997, Gumber and Kulkarni 200, Dilip 2002), while others reported the opposite (Sundar 1995, Madhiwala, *et. al.* 2000). Studies also observed gender differences and reported lesser levels of morbidity among women than men in India (Iyer and Sen 2000, Madhiwala, *et. al.* 2000, Nandraj, *et. al.* 2001). There seems to exist a 'J' shaped relationship between age and morbidity with children and elderly people showing high prevalence rate (Kannan, *et. al.* 1991, Shariff 1995, Gumber and Berman 1997, Ghosh and Arokiasamy 2010).

We turn to the second indicator: hospitalisation rate. Researchers posit hospitalisation rate as a proxy measure of a patient's health status. Utilization of hospital care (i.e., hospitalisation rate) tends to increase with age and education (Dilip 2002, and Ghosh and Arokiasamy 2010, Srivastava and McGuire 2015). However, because of the high out of pocket expenditure, poor people avoid or delay hospitalisation due to their inability to spend the required amount (WHO 2006, Dilip 2010). It is important to note that age, sex, place of residence, household size, area of residence, Monthly Per Capita Consumption Expenditure (MPCE) quartile group, health insurance and season are the significant predictors

of hospitalisation and utilisation of hospital care, (i.e., hospitalisation rate) (Dilip 2002, Ghosh and Arokiasamy 2010, Srivastava and McGuire 2015). The availability of new data set from NSSO provides an excellent opportunity to understand the changing morbidity and hospitalisation patterns in Kerala.

II Data

We use the unit level NSSO 71st Round (2014) (Social Consumption: Health) for the analysis. From the unit records, the researchers extracted the data corresponding to the household demographics, morbidity and particulars of medical treatment received as an inpatient of a medical institution during the last 365 days. According to the methodology adopted by NSSO, a stratified multi-stage design was followed. For the rural sector, hamlet blocks were formed as the First Stage Sampling Unit (FSU). From FSUs, households were chosen as the Ultimate Stage Sampling Unit. For the urban sector, Urban Frame Survey (UFS) was selected as the base for sampling. In rural Kerala, 22,74,217 respondents suffered from some ailments during 15 days prior to the day of the survey, while 20,41,424 were hospitalised for at least one during the last 365 days. In the urban area, 15,52,722 respondents suffered from some ailments during 15 days prior to the day of the survey, while 14,06,239 were hospitalised at least once during the last 365 days. Morbidity and hospitalisation are measured as dichotomous variables (Yes/No) in the paper. Morbidity is indicated if the respondent replied 'Yes' to the question whether the person suffered illness. Similarly, a respondent was considered as hospitalized if he had availed of the medical services as an inpatient in a hospital during the last 365 days of survey. The data on the type and nature of ailment was collected using a pre-coded list of 61 ailments.

III Methods

We use bivariate and multivariate methods to analyse the data. First, bivariate analysis presents the prevalence of morbidity and hospitalisation according to household and personal characteristics. Second, multivariate logistic regression models are estimated to understand the effect of predictor variables on morbidity and hospitalisation pattern. Most of the researchers considered the two basic characteristics of the population, namely, household and personal characteristics for deriving the model (Dilip 2002, Ghosh and Arokiasamy 2010, Srivastava and McGuire 2015). Drawing cues from the literature, this study also posits dependent variables as functions of household and personal characteristics.

All the predictor variables are checked for the effect of multicollinearity. The latter is a phenomenon in which two or more variables are correlated. Mean Variance Inflation Factor (VIF) is 1.50, showing some correlation but not enough to be excessively concerned about. Moreover, the reported ailments of the hospitalized cases are cross tabulated with independent variables to understand

the pattern of disease prevalence. For the estimation of logistic models, the statistical software, STATA 13 is used. Significance is set at 0.05.

For the logistic model of morbidity, the binary response variable (Y) is "Whether suffering from any ailment in the last 15 days or not". For the logistic model of hospitalisation, the binary response variable (Y) is "whether hospitalized during the last 365 days or not". The model for $p(Y=1)$ is

$$p = \frac{e^{\phi(x)}}{1 + e^{\phi(x)}}$$

Where $\phi(x)$ is a function of all the predictor variables:

$\phi(x) = f(\text{area of residence, social group, religion, type of latrine, type of drainage, source of drinking water, primary source of cooking energy, sex, marital status, age, log household consumer expenditure, health insurance coverage, education and district dummy})$.

The odds ratio for each category of independent variable indicates the odds of 'reporting suffering from some ailment (or getting hospitalised)' in comparison to the reference category during the reference period, when the effect of all other predictors was kept constant. The odds ratio for the reference category is one.

IV Results

Morbidity: Bivariate Analysis

The bivariate results indicate that household and personal characteristics are significantly associated with morbidity (Table 3). Percentage of persons reporting 'feeling sick' in rural area is 12.7, while, in the urban area, it is 10.6. The category 'scheduled tribe' shows the highest percentage (18.2 per cent) of morbidity and the scheduled castes the least (9.0 per cent). For the variable 'religion', the category 'others' (Buddhism, Jainism and Zoroastrianism) reports the highest morbidity (41.1 per cent). Plotting morbidity by age generates a 'U' shaped pattern with the highest morbidity (16.8 per cent) amongst the age group of 0-14. Education shows a negative association with morbidity with 'not literate' category reporting the highest (21 per cent). It may also be noted that all the social facility predictors (source of drinking water, type of drainage, type of latrine and source of cooking energy) show a significant association with morbidity (Table 3). Overall, the results indicate that morbidity and hospitalisation are significantly associated with household and personal characteristics.

Multivariate Analysis of Morbidity: We estimated logistic regression models to study the independent effect of the predictor variables on morbidity. Table 4 presents the odds ratios of the binary logistic regression model that outlines the determinants of morbidity. Religion shows a significant effect on morbidity. Those who belong to Christianity are 1.31 times more likely to report ailments than the reference category (Hindus). However, the category 'Muslim' does not show any significant difference from Hindus. Resembling the bivariate analysis, the odds of morbidity are very high (8.9 times) in the category of 'others'. However, morbidity does not seem to significantly vary with respect to social group, area of residence, social facilities and health insurance coverage. Coming to personal characteristics, gender does not show a significant variation in morbidity. Quite important, likelihood of morbidity is very high among children (Odds Ratio=2.11) in comparison to the reference category 25-34 age group. Elderly population (65 and above) is 84 per cent more likely to fall ill and report illness than the reference category. Moreover, all other age groups also (15-24, 35-44, 45-54 and 55-64) show odds value above one in comparison with the reference category. With respect to the variable 'Education', odds ratio of morbidity tends to drop as educational attainment increases. Persons with higher educational attainments are less likely to report illness than the not literate persons. Overall, the results indicate that one household characteristic (religion) and two personal characteristics (age and education) cause significant variation in morbidity. Two groups - children and elderly population with lower educational attainment - show discernibly higher morbidity likelihoods than respective reference groups, calling for appropriate public policy interventions. Moreover, drawing cues cross tabulation (Table 3), significantly higher morbidity rate among scheduled tribe triggers off questions on socially inclusive public health provisioning.

Hospitalisation: Bivariate Analysis

The bivariate results indicate that household and personal characteristics are significantly associated with hospitalisation (Table 3). Percentage of people getting hospitalized in rural area is 11.4 and in urban area 9.6. The category STs shows the lowest percentage of hospitalisation, 5.5 per cent. With respect to regions, the category 'others' (Buddhism, Jainism, Zoroastrianism, etc.) shows the least percentage (2.8 per cent) of hospitalisation. The age group 0-14 years shows the least percentage (6.5 per cent) of hospitalisation and the elderly group shows the highest percentage (23.0 per cent). There is a huge gap between the hospitalisation percentages of 'married' (13.6) and 'never married' (5.9) categories. 'Not literate' category shows the highest percentage (13.8) of hospitalisation, while the secondary educated category shows the least percentage (8.8). Overall, hospitalisation is significantly associated with household and personal characteristics.

Multivariate Analysis of Hospitalisation

The binary logistic model (Table 4) shows that all the personal characteristics are significant predictors of hospitalisation. The category 'female' shows a 34 per cent more likelihood of hospitalisation in comparison with 'male' category. The age group 15-24 years shows the highest odds of 1.98 in comparison with the reference category 25-34 years. It may also be noted that the age groups 35-44, 45-54 and 55-64 years are less likely to get hospitalized than the reference category 25-34 years. Children are 74 per cent more likely to get hospitalized than the reference category. Elderly population (65 and above) are 34 per cent more likely to get hospitalized than the age group of 25-34 years. Never married category is 82 per cent less likely to get hospitalized than married category. With respect to the variable 'education', in comparison with the reference group 'not literate' odds ratio tends to inversely vary with the categories of higher educational attainment except graduate and above. The area of residence, religion, caste, social facilities and health insurance coverage are not significant determiners of hospitalisation. Results indicate that gender, age, marital status and education are significant predictors of hospitalisation pattern in Kerala.

Table 3: Distribution of Morbidity and Hospitalisation in Kerala according to Household and Personal Characteristics

Parameters	Percentage- suffering from any Ailment during Last 15 days	Percentage-Hospitalized during last 365 Days	Estimated N
<i>Area of residence ***</i>			
Rural	12.7	11.4	17907224
Urban	10.6	9.6	14648322
<i>Social Group***</i>			
Scheduled Tribes	18.2	5.5	277179
Scheduled Castes	9.0	10.6	3372105
Other Backward Classes	13.0	10.2	20829886
Others	9.5	11.8	8076377
<i>Religion ***</i>			
Hinduism	11.6	10.4	18326464
Muslim	12.0	9.6	9038914
Christianity	11.6	12.9	5177927
Others	41.1	2.8	12241
<i>Drinking water facility***</i>			
Open sources	12.0	11.0	24363733
Bottled/Tap water	11.0	9.5	8191813
<i>Drainage facility***</i>			
Closed drainage	11.0	9.2	14421654
Open drainage	12.4	11.8	18133892

Contd...

Table 3: Distribution of Morbidity and Hospitalisation in Kerala According to Household and Personal Characteristics

Parameters	Percentage- suffering from any Ailment during last 15 days	Percentage-Hospitalized during last 365 days	Estimated N
<i>Latrine Facility***</i>			
Septic tank/ Flush system	10.2	9.3	9598241
Others	12.4	11.1	22957304
<i>Primary Source of Cooking Energy***</i>			
Coal firewood dung cake and others	12.3	10.8	20648916
LPG and others	10.8	10.3	11906630
<i>Health Insurance ***</i>			
Insured	11.2	9.9	12872969
Not Insured	12.1	11.6	19682577
<i>Gender***</i>			
Male	12.2	9.2	15608369
Female	11.3	11.9	16947177
<i>Age***</i>			
0-14	16.8	6.5	7219926
15-24	9.9	8.0	5020733
25-34	6.9	11.0	4834796
35-44	9.3	8.3	4628352
45-54	11.7	11.4	4063250
55-64	13.0	12.8	3494292
65 & above	12.9	23.0	3294197
<i>Marital status</i>			
Ever married	10.5	13.6	19812778
Never married	13.6	5.9	12742767
<i>Education ***</i>			
Not literate	21	13.8	4143919
Literate but not secondary	11.5	10.6	16174450
Secondary	9.4	8.8	9266512
Graduate and above	7.5	11.9	2970665

Source: Computed from the Unit Records of 71st National Sample Survey (***) indicates $p < 0.001$.

Table 4: Odds of Morbidity and Hospitalisation in Kerala - Logistic Regression Model

	Morbidity					Hospitalisation				
	Odds Ratio	z	P>z	95% Conf. Interval		Odds Ratio	z	P>z	95% Conf. Interval	
<i>Area of residence</i>										
Rural ^(R)										
Urban	0.95	-0.73	0.47	0.84	1.09	1.00	-0.06	0.95	0.90	1.11
<i>Religion</i>										
Hindu ^(R)										
Muslim	0.96	-0.48	0.63	0.81	1.14	0.97	-0.41	0.68	0.85	1.11
Christianity*	1.31*	2.81	0.01	1.08	1.58	1.13	1.67	0.05	0.98	1.31
Others***	8.99***	3.12	0.00	2.26	35.79	0.37	-0.97	0.33	0.05	2.73
<i>Social group</i>										
Scheduled Tribes ^(R)										
Scheduled Castes	0.68	-1.38	0.17	0.39	1.18	1.03	0.14	0.89	0.64	1.68
Other Backward Classes	0.81	-0.79	0.43	0.48	1.37	1.19	0.74	0.46	0.75	1.91
Others	0.59	-1.87	0.06	0.34	1.02	1.20	0.75	0.45	0.74	1.94
<i>Type of latrine</i>										
Septic tank/flush system ^(R)										
Others	1.13	1.48	0.14	0.96	1.33	1.08	1.12	0.26	0.95	1.23
<i>Type of drainage</i>										
Closed drainage ^(R)										
Open drainage	1.11	1.45	0.15	0.97	1.27	1.06	1.03	0.30	0.95	1.18
<i>Source of drinking water</i>										
Open sources of water ^(R)										
Bottled /tap water	0.96	-0.46	0.65	0.82	1.13	1.00	0.00	1.00	0.88	1.13
<i>Cooking energy source</i>										
Coal firewood and others ^(R)										
LPG and others	0.93	-0.97	0.33	0.80	1.08	1.03	0.42	0.67	0.91	1.15
<i>Health insurance coverage</i>										
Not insured ^(R)										
Insured	0.99	-0.15	0.88	0.87	1.13	1.11	2.00	0.05	1.00	1.23
<i>Consumer expenditure</i>										
Consumer expenditure	1.00	-1.36	0.18	1.00	1.00	1.00	-0.50	0.61	1.00	1.00
<i>Gender</i>										
Male ^(R)										
Female	1.07	1.11	0.27	0.95	1.21	1.34	5.75	0.00	1.21	1.48

Contd...

Table 4: Odds of Morbidity and Hospitalisation in Kerala - Logistic Regression Model

	Morbidity				Hospitalisation				
	Odds Ratio	z	P>z	95% Conf. Interval	Odds Ratio	z	P>z	95% Conf. Interval	
<i>Age</i>									
25-34 ^(R)									
0-14***	2.11***	4.58	0.00	1.53 2.91	1.74***	3.64	0.00	1.29 2.34	
15-24*	1.42*	2.40	0.02	1.07 1.90	1.98***	6.43	0.00	1.61 2.44	
35-44*	1.43*	2.62	0.01	1.09 1.87	0.49***	-7.79	0.00	0.41 0.58	
45-54***	1.69***	3.88	0.00	1.30 2.21	0.60***	-5.66	0.00	0.50 0.71	
55-64***	1.79***	4.16	0.00	1.36 2.35	0.67***	-4.37	0.00	0.56 0.80	
65 and above***	1.84***	4.21	0.00	1.38 2.44	1.34***	3.15	0.00	1.12 1.61	
<i>Marital status</i>									
Ever married ^(R)									
Never married	0.99	-0.05	0.96	0.77 1.28	0.18***	-14.11	0.00	0.14 0.23	
<i>Education</i>									
Not literate ^(R)									
Literate but not secondary ***	0.65***	-5.34	0.00	0.56 0.76	0.83*	-2.28*	0.02	0.70 0.97	
Secondary***	0.62***	-3.93	0.00	0.49 0.79	0.81	-1.97	0.05	0.66 1.00	
Graduate & above	0.54***	-3.80	0.00	0.39 0.74	1.14	1.07	0.29	0.90 1.44	
<i>Districts</i>									
Kasaragod ^(R)									
Kannur	0.92	-0.55	0.58	0.69 1.23	0.92	-0.55	0.58	0.69 1.23	
Wayanad	0.71	-0.53	0.60	0.63 1.30	0.91	-0.53	0.60	0.63 1.30	
Kozhikode	1.01	-0.26	0.80	0.72 1.29	0.96	-0.26	0.80	0.72 1.29	
Malappuram	0.75	-1.16	0.25	0.64 1.12	0.85	-1.16	0.25	0.64 1.12	
Palakkad	1.19	0.42	0.68	0.79 1.43	1.06	0.42	0.68	0.79 1.43	
Thrissur	0.99	0.48	0.63	0.81 1.42	1.07	0.48	0.63	0.81 1.42	
Ernakulam	1.09	0.58	0.56	0.81 1.46	1.09	0.58	0.56	0.81 1.46	
Idukki*	0.55	2.01	0.05	1.01 1.97	1.41	2.01	0.05	1.01 1.97	
Kottayam	1.61	1.69	0.09	0.96 1.78	1.31	1.69	0.09	0.96 1.78	
Alappuzha	0.74	0.45	0.65	0.79 1.46	1.07	0.45	0.65	0.79 1.46	
Pathanamthitta	0.36	0.78	0.44	0.82 1.58	1.14	0.78	0.44	0.82 1.58	
Kollam	0.84	1.18	0.24	0.89 1.58	1.19	1.18	0.24	0.89 1.58	
Thiruvananthapuram	0.64	0.23	0.82	0.78 1.36	1.03	0.23	0.82	0.78 1.36	
_cons	0.16	-5.56	0.00	0.08 0.30	0.30	-4.30	0.00	0.17 0.52	
Number of obs	11229.00				11229.00				
Wald chi2	271.72				675.91				
Prob > chi2	0.00				0.00				
Log pseudolikelihood	-3827.2				-5312.31				
Pseudo R2	0.04				0.07				
(R) Reference category variable in the logistic regression model									
*** p<0.001, ** P<0.005, * P<0.05									

Source: Computed from the Unit Records of 71st National Sample Survey (***) indicates p<0.001).

Profile of Disease Prevalence

We analyse the data on nature of ailment to study the illness profile or reasons for hospitalisation. Only ailments reported as reasons for hospitalisation are considered for the analysis as these ailments are clinically detected, and therefore are less likely to be affected by reporting bias. The data is grouped on the basis of the International Classification of Diseases developed by the World Health Organisation (WHO 2013). According to this classification, there are four broad categories: Communicable, Maternal, Perinatal and Nutritional diseases, Non – Communicable diseases, Injuries, and Others. The last category includes all types of unidentified ailments. Table 5 gives the distribution of nature of ailments according to all other predictor variables. Among the rural population, communicable diseases and non-communicable diseases account for 32.6 per cent and 38.3 per cent of the persons who were hospitalised respectively. Irrespective of social categories, non-communicable diseases emerge as the principal reason for hospitalisation. Importantly, prevalence of hospitalisation due to maternal and perinatal reasons is the highest (38.4 per cent) among scheduled tribes, while the prevalence is considerably less in other social groups. Disease profile analysis within religion indicates that population which belongs to Hinduism or Muslim is getting hospitalized mainly due to non-communicable diseases (42.1 per cent and 34.4 per cent respectively). However, hospitalisation due to communicable diseases is more prevalent amongst the category 'Christianity' (39.1 per cent) than other categories. Hospitalisation due to non-communicable diseases accounts for a major share among people with health insurance (41.6 per cent). Persons who have health insurance account for a major share in hospitalisation due to non-communicable diseases. This pattern may be because of public funded health insurance schemes and growth of private medical insurance organisations in Kerala. Similar results were reported by Devadasan et al. (2010) for India.

Among males, 40.8 per cent of hospitalisation is due to non-communicable diseases and 36.6 per cent to communicable diseases, while for females the shares with respect to non-communicable and communicable diseases are 37.9 per cent and 24.6 respectively. It is noteworthy that the prevalence of life style diseases appears to be almost the same for males and females, while males are more prone to communicable diseases than females.

It is important to note that children are more vulnerable to communicable diseases (71.6 per cent). Children in age groups of 15-24 and 25-34 years were hospitalised mainly due to maternal and perinatal reasons (45 per cent and 53.1 per cent respectively). The huge difference between the morbidity and hospitalisation in the age group of 0-14 years (Figure 1) may be because of the fact that parents are presumably more sensitive to the health condition of their children, primarily due to communicable diseases.

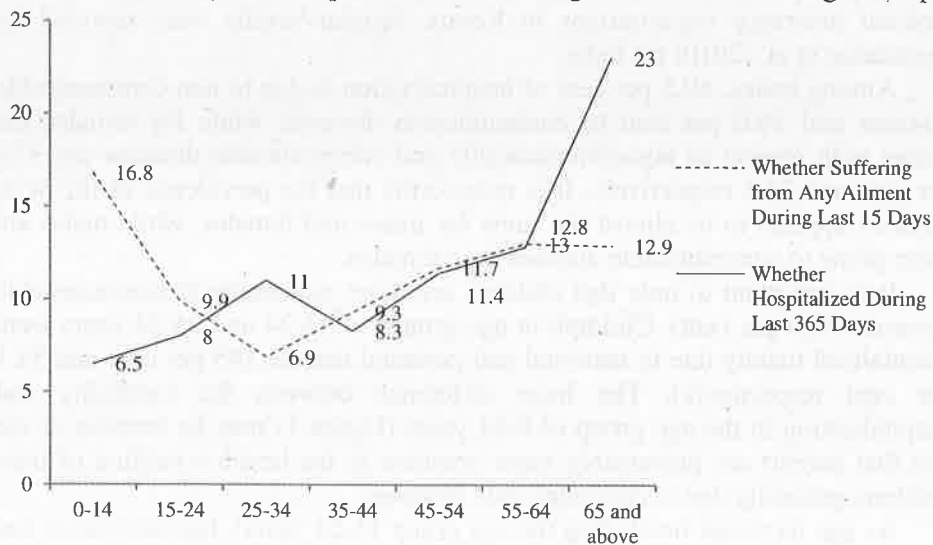
As age increases (excluding the age group 15-24 years), hospitalisation due to non-communicable diseases increases (52.7 per cent in the age group of 45-54

years, 56.4 per cent in the age group of 55-64 years and 61.2 per cent among the elderly people). Quite importantly, prevalence of morbidity and hospitalisation are almost the same in the age group 15-24 years, implying that this age group reports only those illnesses which need hospitalisation. For the aged persons, however, there is discernibly higher prevalence of hospitalisation, mainly due to non-communicable diseases.

For the category 'never married', communicable disease is the major reason (57.5 per cent) for hospitalisation, while with respect to the category 'Ever married' non-communicable disease is the principal reason for hospitalisation (44.6 per cent). It may also be noted that 51 per cent of 'not literate' hospitalise due to communicable diseases, while 51 per cent of 'literate but not secondary' hospitalise because of non-communicable diseases.

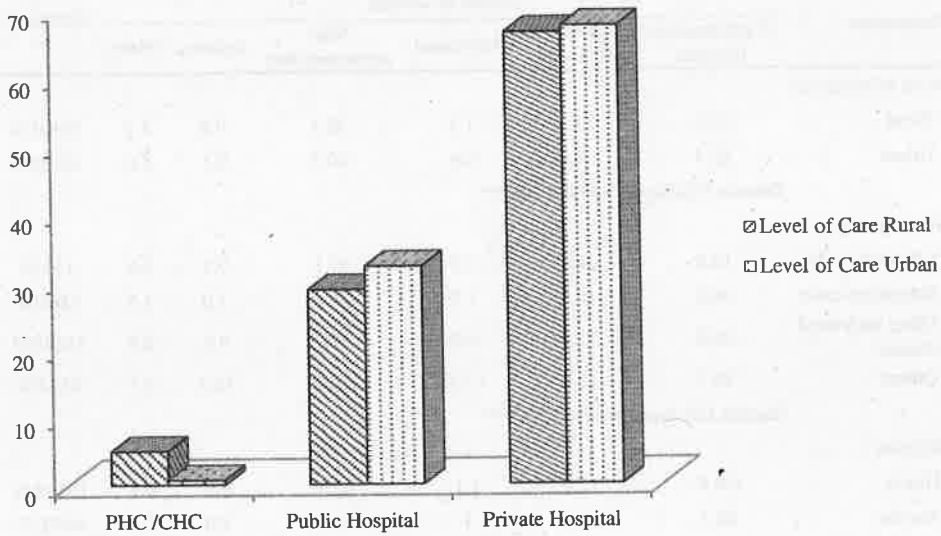
The analysis (Figures 2 and 3) underlines that private hospitals account for a major share of hospitalisation. Distribution of nature of ailment according to the level of care received (Table 6) indicates that hospitalisation in primary health centre (PHC) or community health centre (CHC) or public hospitals is mainly due to communicable diseases, while non-communicable disease is the principal reason to hospitalise in private hospitals. Quite importantly, as shown in Figure 2, both rural and urban population seem to depend more on private hospitals for the treatment (66.3 per cent and 67.2 per cent respectively). Presumably, this behaviour may have emanated from increasing prevalence of non-communicable diseases. This pattern also raises the question regarding institutional capacities of public health infrastructure to cope with non-communicable diseases. Moreover, as depicted in Figure 3, compared with 'haves', the 'have nots' seems to depend more on public health care facilities.

Figure 1: Morbidity and Hospitalisation Percentage within Different Age Groups



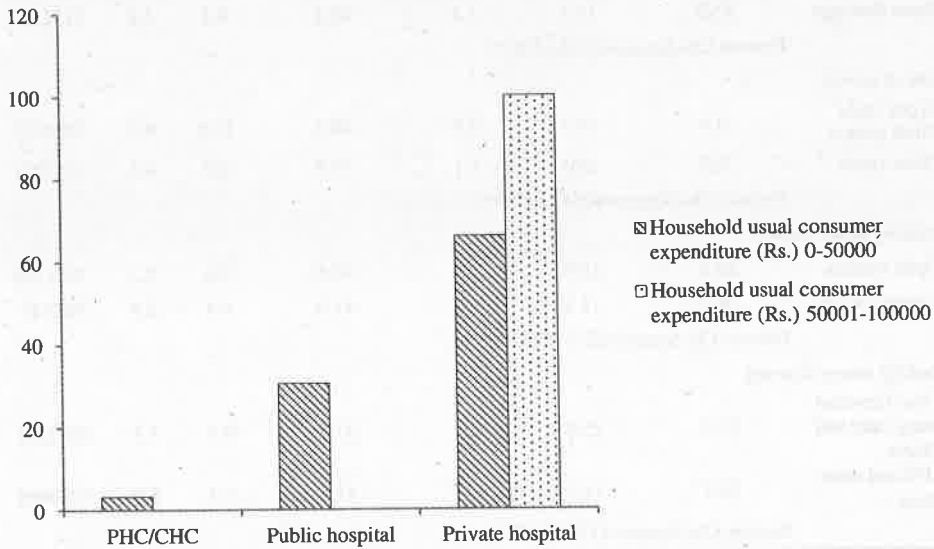
Source: Calculated with data from the 71st National Sample Survey.

Figure 2: Distribution of Level of Care in Kerala with Sector (Rural or Urban)



Source: Computed from the Unit Records of 71st National Sample Survey.

Figure 3: Level of Care and Household Usual Consumer Expenditure (₹) in Kerala



Source: Computed from the Unit Records of 71st National Sample Survey.

Table 5: Nature of Ailment According to the Household and Personal Characteristics

Parameters	Nature of ailment						Estimated N
	Communicable diseases	Maternal & Perinatal	Nutritional	Non-communicable	Injuries	Others	
<i>Area of residence</i>							
Rural	32.6	13.8	1.3	38.3	9.8	4.2	2040354
Urban	25.4	16.0	0.6	40.3	9.1	8.6	1412935
Pearson Chi-Square=48974.106***							
<i>Social group</i>							
Scheduled tribe	15.0	38.4	0.0	37.1	9.5	0.0	15139
Scheduled caste	30.8	10.0	1.9	46.8	7.0	3.5	356101
Other backward classes	26.8	17.0	0.8	39.2	9.6	6.6	2129593
Others	35.7	11.0	1.3.0	36.0	10.3	5.7	952458
Pearson Chi-Square=67947.157***							
<i>Religion</i>							
Hindu	28.8	12.0	1.1	42.1	9.9	6.1	1914446
Muslim	24.3	23.8	1	34.4	8.6	7.9	869323
Christianity	39.1	10.5	0.9	36.6	9.9	3.1	669181
Others	0.0	100	0.0	0.0	0.0	0.0	338
Pearson Chi-Square=123798.667***							
<i>Type of drainage</i>							
Closed Drainage	27.1	17.4	0.9	37.5	9.8	7.3	1321160
Open drainage	31.2	13.1	1.1	40.1	9.4	5.2	2132130
Pearson Chi-Square=22352.378***							
<i>Type of latrine</i>							
Septic tank/ Flush system	21.4	14.7	0.9	48.2	10.6	4.2	895921
Other types	32.5	14.7	1.1	35.9	9.2	6.6	2557371
Pearson Chi-Square=60547.847***							
<i>Drinking water source</i>							
Open sources	30.0	15.6	1.0	38.6	9.6	5.2	2671144
Closed sources	28.2	11.5	1.0	41.0	9.4	8.9	782147
Pearson Chi-Square=22777.758***							
<i>Cooking energy sources</i>							
Coke firewood							
Dung cake and Others	31.2	15.0	1.0	37.7	9.5	5.5	2232321
LPG and other gases	26.7	14.2	1.0	41.6	9.7	6.9	1220969
Pearson Chi-Square=11249.344***							

Contd...

Table 5: Nature of Ailment According to the Household and Personal Characteristics

Parameters	Nature of ailment						Estimated N
	Communicable diseases	Maternal & Perinatal	Nutritional	Non- communicable	Injuries	Others	
<i>Health insurance coverage</i>							
Not insured	26.8	17.7	1.2	37.2	9.4	7.7	1956409
Insured	33.3	10.8	0.8	41.6	9.7	3.8	1496881
	Pearson Chi-Square=67255.736***						
<i>Gender</i>							
Male	36.6	0.8	0.8	40.8	16.4	4.5	1441898
Female	24.6	24.6	1.2	37.9	4.6	7.1	2011391
	Pearson Chi-Square=497457.982***						
<i>Age (years)</i>							
0-14	71.6	5.6	0.8	13.6	5.2	3.3	467523
15-24	20.6	45.0	1.0	12.5	16.7	4.2	400413
25-34	13.1	53.1	0.9	21.8	5.4	5.8	532697
35-44	18.7	4.9	2.1	41.6	18.1	14.6	384222
45-54	30.8	0.0	2.8	52.7	9.0	4.7	461774
55-64	27.5	0.0	0.4	56.4	11.8	3.8	447458
65 & above	26.3	0.0	0.1	61.2	5.9	6.4	759206
	Pearson Chi-Square=1950373.30***						
<i>Marital status</i>							
Ever married	21.9	17.8	1.0	44.6	8.1	6.6	2702202
Never married	57.5	3.5	1.3	19.3	14.7	3.7	751089
	Pearson Chi-Square=465740.514***						
<i>Education</i>							
Not literate	50.9	4.7	0.3	30.8	5.0	8.4	573436
Literate but not secondary	29.1	5.0	1.3	50.6	9.3	4.6	1714283
Secondary	22.2	30.7	0.7	26.5	14.6	5.3	813162
Graduate & above	14.7	41.4	1.5	25.8	6.4	10.2	352408
	Pearson Chi-Square=775118.510***						

Source: Computed from the Unit Records of 71st National Sample Survey (***) indicates $p < 0.001$.

Table 6: Nature of Ailment in Kerala with Level of Care

Nature of ailment	Within level of care			Total
	PHC/CHC	Public Hospital	Private Hospital	
Communicable diseases	62.6	27.3	29.1	29.6
Maternal & Perinatal	10.1	13.9	15.3	14.7
Nutritional		0.9	1.1	1.0
Non-communicable	19.3	37.3	40.9	39.1
Injuries	7.9	13.9	7.6	9.5
Others		6.6	6.0	6.0
Estimated N	111868	1040392	2301030	3453290
Pearson Chi-Square=98518.132***				

Source: Computed from the Unit Records of 71st National Sample Survey (***) indicates $p < 0.001$.

V Discussion

Although Kerala has a unique trajectory of attaining higher order human development through progressive social development processes, there appears to be a massive scope for envisaging an inclusive and sustainable public healthcare system, especially in the context of transition in the health care system. It is noteworthy that outcomes of the healthcare systems, in particular morbidity and hospitalisation, especially in Kerala, appear to have significantly been swayed by socio-demographic heterogeneity. In other words, once known as the affluent class's diseases, i.e., non-communicable diseases are not necessarily confined to people with affluent background in Kerala. Non-communicable diseases are sweeping the entire state including people from poor households, while the poorer section continues to be bordered with communicable diseases as well. This means, drawing cues from the patterns emerging from this paper, public health policy has to internalise these heterogeneities to deal with adverse impacts of falling ill, amply reflected in morbidity and hospitalisation. While morbidity and hospitalisation presumably rise due to awareness about health, these outcomes make population sub-optimally using its capacity to add economic value. Against this backdrop, a healthcare system that substitutes illness by wellness tends to augment the productive human capital base that is inevitable to facilitate sustainable economic development through endogenous human capital processes (Romer 1990). Unequivocally, while more and more people depend on private sector for healthcare needs in Kerala, be it communicable or non-communicable diseases, public healthcare system continues to be the source of healthcare for the socio-economic disadvantaged. It is important to envision a public health policy that creates more capability to the public healthcare system to offer inclusive and sustainable services that transform burgeoning illness scenario to a path of sustained wellness. Perhaps there is a need for innovative strategies to enable a culture of trust and sharing between public and private healthcare systems. Increasingly, people expect public healthcare to deal with

non-communicable diseases as well. For this, there is a need for knowledge and capacity sharing between public and private healthcares.

Kerala's healthcare sector has endured drastic changes in the last few decades and it has achieved health indicators which are comparable with developed countries. However, growing incidence of lifestyle diseases and diseases emerging out of ecological-hygienic issues and the presence of new diseases (like Chikungunya, Dengue Fever and H1N1) from different sources seem to have created a crisis in the state's healthcare sector. This means that an epidemiological transition (from communicable to non-communicable diseases) which is clearly seen in developed countries is not evident in Kerala. It faces the double burden with communicable and non-communicable diseases which put people with immense burden in terms of expenditure. In fact, the state's public hospitals face a severe dearth of doctors, especially in the rural and tribal areas. According to Lekshmi, *et. al.* (2011), reasons for the underutilization of public healthcare facilities by people are the lack of maintenance of the infrastructure resulting in dilapidated conditions, lack of proper infrastructure and basic facilities (water, sanitation facilities, electricity, etc.), shortage of manpower, lack of equipment and furniture (like rusty cots, spoilt mattresses, dirty bed sheets), dearth of clinical investigation facilities, lack of medicines and their irregular supply. Although, increasingly, people flock to the non-public hospitals for health care. Many of these health care units function without adhering to regulations and standards in staffing, infrastructure and procedures (Thomas and Rajesh 2001, Lekshmi, *et. al.* 2011, Basheer 2013). It may also be noted that private hospitals which are well equipped in terms of technical resources are encashing on the life style diseases (Dilip 2010). Moreover, unlike other states, rural and urban population in Kerala shows a similar trend in the pattern of morbidity and hospitalisation, and the burden of life style diseases is almost the same in rural and urban areas. The requirements for delivering care for both types of diseases become increasingly exigent in this context. Therefore, the existing practices need to be reorganized, reoriented and engaged to manage both kinds of diseases simultaneously.

PHCs (currently focused on the prevention and treatment of communicable diseases) are a patient's first point of contact with medical services and may be considered as the most suitable point for screening early detection of non-communicable diseases, providing continuous care for uncomplicated patients and referring the patients to higher centres, if needed. Service delivery in PHCs for patients with non-communicable diseases is mostly unstructured, poorly managed and poorly resourced; access to early detection of non-communicable diseases (a key requirement) is not adequately provisioned to a majority of socially and economically disadvantaged population. Even at the late stage of non-communicable diseases, hospital care becomes a necessity, increasing the burden of out of pocket expenditure and worsening health outcomes. Therefore, it is necessary to strengthen PHCs and develop an atmosphere (like infrastructure development, human resource development, creating awareness about the healthy

life style, etc.) for the treatment of non-communicable diseases in PHCs so that the burden on secondary and tertiary hospitals may be reduced. Moreover, it is important to re-organise PHCs and taluk hospitals to handle the burden of non-communicable diseases and the need for different set of strategies to target different groups separately (Oman and Thorensen 2002).

To deal with the present crisis of emergence and re-emergence of communicable diseases, a rise in non-communicable diseases and high morbidity prevalence, public health sector in Kerala concentrates more on the better utilization of its strengths, in particular for provisioning inclusive health care and wellness, while the private health sector needs to build higher order capabilities and synergy with the health system, and mechanisms in place to regulate and monitor the private sector. It is high time that Kerala takes the lead in embracing the changing disease pattern with innovative health policies and programmes that would help other states to follow suit.

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Integrated Marketing Communication through Strategic Consistency: An Innovative Proposal for Future Marketing

Swatantra Kumar and Sanjay Baijal

Much has been said so far about the integrated management of the tools that make up the communication mix (Integrated Marketing Communication). But most of the related studies are focused on analyzing economic-financial effect of the said management on companies and little effort has been devoted to study the effectiveness of an integrated marketing campaign in this regard. Starting from the strategic consistency as a way of integration, this paper considers the effects that an integrated campaign can have on the processing of information and on the evaluations that the consumer makes of the campaign.

I Introduction

Traditionally different agents that intervene in the communication process have operated in a relatively competitive sector in which most of the communication budget has been destined fundamentally to conventional mass advertising. However, in the last few decades the communication sector has experienced changes that have affected the way of operating of the various agents that intervene in it.

Greater competitiveness in the market and the saturation of advertising have forced advertisers to diversify their communication budget towards other instruments such as advertising reinforcement (Kitchen, Brignell, Li and Spickett 2004), making communication management even more difficult as they have to choose between a large number of alternatives. Likewise, the traditional advertising agencies have been facing greater competitiveness with the emergence of new types of agencies that offer the client specialized services (direct marketing agencies, public relations offices, interactive agencies, etc.), being the specialized agencies in the media that have gained most importance today. This diversity of agencies has meant that communication management is shared with several of them, thus causing greater heterogeneity in the messages and campaigns to be developed.

Conventional media have been fragmented, giving rise to a greater number of media aimed at more specific audiences and the development of new

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MANAGEMENT PRACTICES AND ORGANIZATIONAL PERFORMANCE: EMERGING VIEWS

Dr. Sinimole KR

Abstract

Management practices have long been accepted as a carter of organizational performance and product`ivity and research shows that firms that adopt the best management practices accomplish significantly better outputs than those do not. The purpose of this research is to identify the management practices that play a role in the performance of healthcare systems in India. The study embarks upon an embedded multiple case study approach and is conduct in one of the States in India. Each hospital is the subject of an individual case study, but the study as a whole has covered several hospitals as a multiple case design. The management practices are grouped into practices related to Operations Management, People Management and Target Management. While private hospitals are moving towards more structured and better management practices, public hospitals still have a lot more to accomplish in this regard. This study adds value to the literature by trying to understand the management practices followed in the healthcare organization in India.

Keywords: Management practices, Performance

INTRODUCTION

Management practices have long been accepted as a carter of organizational performance and productivity and is considered as a means for creating value in healthcare (Agarwal et.al, 2016). Studies in the area of management practices shows that firms that adopt the best management practices accomplish significantly better outputs than other firms (Bloom et.al, 2012). It positively influences the employee well-being, performance of the workforce and the performance of the health systems as a whole (Foster et.al, 2008). The role of better management practices in improving the performance of the organizations is getting important day by day and the research in the manufacturing sector shows that there is a link between performance and management practices (Narkhede, 2017). Therefore, this paper tries to identify the key management practices that play a role in determining the performance of the healthcare systems in India. The study throws up interesting insights into the effect of management practices on the perception of patients and the performance of the hospitals and it provides the hospital management with firm evidence about the present state of organization in terms of its existing practices, principles, and expectations.

Management Practices:

The management practices are grouped into three areas: Operations Management, People Management and Target Management (Bloom et al., 2012). Further, there is a positive association between operational best practices and a hospital's performance (McDermott and Stock, 2007). Researchers have highlighted the role of operations management practices in the performance of a healthcare organization (Rotter et. al, 2010). The best operations management practices mentioned in the previous studies are practices related to layout and design, lean system practices, quality management practices, patient pathway management, clinical practice guidelines and standard operating procedures (Vos et.al.,2007; Rotter et. al, 2010; McDermott and Keating, 2011).

Importance of people management needs to be realized and instigated in the right direction with the practical approach (Duncan et.al., 2013) and its success depends mainly on the establishment of the feeling of mutual trust and interdependence and open communication between the authorities and staff (Pestonjee el.al. 2005). Literature on people management practices in healthcare considers well defined recruitment policy, training programmes, appraisal systems, rewards, financial incentives, motivation, teamwork and autonomy as the key practices associated with increased job satisfaction and higher levels of healthcare performance (Brooks et.al. 2002; Patterson et.al. 2012; Agarwal et.al., 2016). Therefore, it is evident that organizations that incorporate the best people management practices show a high level of employee commitment and job satisfaction. Moreover, healthcare organizations which follow these practices to attract develop and hold talent deliver high quality services and care to the patients (Leggat et.al, 2011; Bloom et.al, 2012). A study carried out by Dorgan et.al (2010) recommended that healthcare organizations have to link reward systems with performance appraisal, promotions with merit rather than with seniority and balance financial and nonfinancial rewards in order to achieve high performance.

Researchers have highlighted the role of target management in the overall performance of the healthcare organizations (Dorgan et. al, 2010; Geelhoed & de Klerk, 2012). Best practices in target management include well-defined mission and vision (aligned with operational and financial perspectives), balanced short term and long term goals and well defined performance tracking system (Dorgan et.al, 2010) and its effectiveness depends on the appropriateness of the goals and targets defined and set by the management (Bloom et. al. 2012). A failure to achieve agreed targets needs reskilling the employees in the weak areas or reallocation of the duties and making it appropriate to the individual's talents. Translating long term goals into short term goals and seeing it as a staircase to reach the long term goals also is considered as a best practice in target management (Bloom et. al. 2012). Similarly, best goals

are always sincerely demanding for all and are based on hard economic rationale.

Services provided in a hospital should be appropriate to the health needs of the population (Rechel et.al, 2009). Service quality is considered as a means for achieving increased patient's satisfaction, long-term success and a competitive advantage (Pai & Chary, 2013). It has been researched and confirmed by researchers that high quality of services is directly linked to high profits (Narkhede, 2016; Devlin & Dong, 1994). Moreover, there has been a phenomenal increase in the number of people who visits the hospitals which provide high quality services (Pai & Chary, 2013). Therefore, the role of patients in defining the quality becomes significant (O' Connor et.al. 2000) and their requirements and expectations need to be understood thoroughly. Moreover, the quality of the services indicates the performance of the system (Arasli et.al, 2008) and therefore it is used as a measure of the performance (Rubin et.al 2001; Vanhaecht et.al.2003).

METHOD

This study embarks upon an embedded multiple case study approach to research on management practices because of the dearth of exhaustive information. It required the application of multiple sources of evidence since management practices being contextually defined and multifaceted. An embedded multiple case study design offers the opportunity to explore, in depth, the nature of successful management practices through an inductive, constructivist lens while applying quantitative measures to objectively assess perception of patients.

For this research, each hospital is the subject of an individual case study, but the study as a whole has covered several hospitals as a multiple case design. This study has intended to view management practices through multiple lenses rather than one isolated characteristic. Cases are chosen from three different districts in Kerala, India. The cases are chosen based on the criteria of ownership (public and private). Taluk hospitals and public health centres (PHCs) are considered from the public sector and trust owned and family owned hospitals are considered from the private sector. Participants are selected with a view of understanding the phenomenon at different stakeholder's levels. Hospital authorities, doctors, nurses and patients are selected through stakeholder analysis wherein interviewees with requisite knowledge of the management practices are selected for understanding the practices followed in the selected hospitals.

The tools of data collection employed are in-depth semi-structured interviews, content analysis of secondary data. The survey tool originally developed by Bloom et al (2012) has been followed in order to understand the concept of management practices. However, respondents were allowed to have an unrestricted conversation with rooms for deviations. To get realistic insights, the questions asked had a wider scope than expected (Crane, 1999). The questions even allowed the respondents to comment on the perceptions regarding other stakeholders as such conversations are useful for comparison

(Arenas et al, 2009). In order to get the best results, the interviews were recorded along with points being noted down. Secondary data sources were used to triangulate the findings from interviews and to identify disagreements between the responses and the historical facts (Spence, 1982).

This study has used grounded theory methods to analyse the primary data and to reach at the conclusions. Grounded theory is a qualitative research methodology for developing theory that is grounded in the data and is methodically collected and studied. Theory emerges continuously during the research starting from data collection till final analysis and it is a method of constant comparative analysis (Glaser & Strauss, 1967). In this method, theory may be initially created from the data or if existing theories appear suitable to the exploring area, these may be expanded and revised as collected data are punctiliously played against them and it utilizes interviews, field observations and documents of all kinds as the sources of data. Grounded theory develops theory of great conceptual density. Phenomena are identified before properties of the phenomena and is followed by dimensions of the properties and links between phenomena to create a model (Strauss and Corbin, 1998). The software ATLAS ti helps to apply the concept of grounded theory to data and to develop the conceptual diagram.

RESULTS

The data analysis using coding and building a network led to the formation of a complex conceptual web of inter-connected concepts (Figure 1). The concepts forming the backbone of the network are: overall performance, management practices (operations management, people management and target management), service quality and patient's perception.

The operations management (Table 1) practices are grouped into structure, pathway, accreditation and promptness of the management. The best practices related to 'structure' are in the area of design and size of the hospital, modern technology and equipment, proper allocation of funds, the use of sign boards and the cleanliness maintained in the hospital. 'Patient's treatment journey,' 'waiting time' and the 'general pathway management' are the best practices related to 'pathway management'. The crowd management and emergency management practices are related to 'promptness of the management'.

If the layout of the hospital is not conducive to the patient pathway, it creates problems for patients and declines the performance of the staff. Restructuring of pathways is an important practice emerged in the analysis. Patients and their family members get exasperated with the complicated pathways. It is clear from the analysis that the hospitals have improved their performance by restructuring and remodelling of the pathways.

The use of sign boards is another practice which is emerged during the analysis. Adoption of sign boards and indicators has eased the struggles of the patients. Some of the hospitals have taken measures like token display systems, proper arrangements of outpatient consulting rooms, etc. to reduce

the waiting time of patients. Moreover, hospitals have taken steps to ensure the comfort of patients in the waiting area. Hospitals have provided waiting area with drinking water facility, commode facility, television facility, newspapers and magazines, etc. Best management practices adopted in the area of promptness of the management are related to the crowd management and the emergency management. Hospitals follow different crowd management practices like allocating floor managers and public relation officers (PROs), training the front-end employees, redesigning the reception area, seeking the co-operation of patients etc. A triage system in the emergency department is followed by two of the hospitals in order to increase the efficiency of emergency services. Another important practice is related to the allocation of funds. Public hospitals (Table 2) have taken measures such as the formation of the local management committee, follow proper standards given by the government agencies etc. to effectively utilize the fund. Practices, adoption of technological advancements like new medical devices, new support systems and new medical procedures, etc. are also considered as best practices to improve the performance of the healthcare organizations.

The best practices related to accreditation are in the areas of standardization of procedures, management of records, checklists and quality indicators. Any accreditation or standardization has a significant influence on the management practices followed in the hospitals and it affects the service quality and accordingly shapes the perception of patients. Accreditation helps the organization to identify unsafe practices, reduces risk, standardize the operations and gives importance to continuous quality improvements. Even though, the hospital authorities believe that the accreditation increases the performances of the hospitals, the concepts emerged from the analysis doesn't support this viewpoint. The staff and the patients from the accredited hospital strictly objected the concept.

The network diagram (Figure 1) emerged has grouped the people management practices (Table 1) into the practices related to recruitment and selection, leadership and facilities provided to the staff. The best practices related to recruitment and selection are from the areas of task allocation, remunerations, qualifications of the staff and performance tracking. Allocation of the right staff to the right job ensures that the staff members undertake tasks for which they are qualified and it increases the quality of services provided to the patients. However, most of the hospitals do not have well documented recruitment policy. Some of them follow practices like 'proper definition of qualifications (including the specification of universities or boards)', 'shortlisting of candidates by well experienced senior staff', 'conducting interviews and practical tests (wherever applicable)', 'remuneration as per the government rules', 'filling up vacant positions' etc.

As far as leadership is considered, the best practices are from the fields of teamwork and employee centric approach. The best practices followed in the area of 'facilities provided to the staff' include benefits given to the employees and training

given to them. The employee-centric approach includes the practices related to staff motivation and autonomy. The staff motivation practices followed by them are mainly rewards and monetary benefits. Rewards consist of certificates and shields. Empowered and well-motivated staff are the assets of the hospitals and they can contribute a lot in outlining positive patient's perception. However, from the analysis it is clear that, there are some hospitals who do not prefer monetary rewards. Increments are given yearly and it is not based on the performance. The best practices related to autonomy are the freedom given to the employees and the decision-making power given to them. These practices help to increase the loyalty of employees and it is considered as a success factor.

The network diagram (Figure 1) has grouped the practices related to long term and short term goals, social responsibility, success indicator, ownership and political situation management under target management (Table 1). An important aspect that influences the management practices is the ownership and it shapes a hospital's viewpoint and determines how well hospital operates, manages the people and the performance. This, in turn, influences the hospital's service quality and perception of patients. It is also instrumental in shaping the focus of the hospital (for example, nursing care) and in prioritising the events. It can also be seen from the analysis that patients are concerned only about quality of the treatment, quality of the services, environment and cleanliness of the hospital. Further, the analysis clearly indicates the role of physicians as hospital administrators as the physician-owned hospitals performed well. Leadership influences the hospital's service quality and perception of patients and is also influential in determining the focus of the hospital. The management practices adopted by different types of hospitals are different and the best practices followed by the PHCs, Taluk Hospitals, Trust owned Hospitals and Family Owned Hospitals are given in the Table 2. A concept which is completely new in the area of management practice studies is the role of the social responsibility of the organizations in framing patient's perception. The network (Figure 1) thus formed is contributory in arriving at conclusions in the study. The discussions ahead have been significantly influenced by the interconnections of the concepts arrived in the network.

DISCUSSION

The management practices followed in a hospital are determined by several factors. The operations management in a hospital mainly deals with patient flow beginning with admissions. In order to provide effective, reliable and quality services, hospitals need to have efficient admission, treatment and discharge processes. The way that appointments are booked, routed and implemented can have an intense effect on the efficiency and ultimately it increases the quality of the services provided and reduce the waiting time of patients. Therefore, it is necessary to have an efficient patient focused booking system for appointments. Access to the facilities is an important part of the quality of care received. The patient pathway can also be made efficient by removing 'non-value'

adding steps from the pathway and helping them with signage boards at strategic locations. Moreover, providers may benefit from the marketing aspects of sign boards by openly displaying the services and making the patients as well as the visitors aware about the facilities available in the hospital.

OPDs are the windows to the hospital services. Therefore, it is important to manage the crowd at OPDs in order to provide an excellent service to the patients. KASH (Kerala Accreditation Standards for Hospitals) standards suggests computerization of OP admissions, usage of token display system, separate queues for senior citizens etc. to improve the services. Most of the public health centres in Kerala have a token display system to manage the crowd in the OPD. Patient's OPD number is displayed on the LED display screen in front of the OPD to manage the queue without any chaos. The system is effectively followed by some of the PHCs.

Respondents have discussed about two accreditation standards, NABH (National Accreditation Board for Hospitals and Healthcare Providers) and KASH. NABH provides framework for quality assurance and quality improvements for all the hospitals in India, while KASH provides the framework for the public hospitals in Kerala. Hospital authorities and staff believe that accreditation increases the performance of their hospital and accelerate the standardization of procedures and records. They also believe that accreditation allows them to follow the standard checklists and to define and measure the quality indicators so that they can advertise themselves. Employees are keen on accreditation because they expect that accreditation will give them a chance to learn good practices and standards, enhance professional development and will give them a new career path in the area of quality management. The other advantages of accreditation include: improved work environment, improved satisfaction levels of employees, improved employee safety and development of leadership skills. One of the hospital is accredited out of the selected hospitals and this hospital is in the process of renewing its accreditation status. However, discussions with the staff and the patients of the accredited hospital revealed the challenges and issues faced by them while continuing with accreditation. They have mentioned about the terrific amount of work which was assigned to them in order to continue with accreditation. This raises concern about the accredited hospital's present scenario. Are the staff satisfied with the process of accreditation? Do they have to work overtime to continue with the accreditation status? Accreditation is an extensive review process and in order to maintain and earn accreditation, all the organizations have to experience a wide on-site assessment. This increases the pressure on employees and they have to work overtime. Studies related to accreditation and related stress on employees shows that the employees experience an increased stress associated with site visit of accreditation bodies. Further it creates health problems like depression and anxiety on employees and overall job satisfaction decreases after the visit. Another matter of concern is about the impact of the stress on the quality of care provided during the preparation process. Therefore, there is a need for hospital authorities to initiate activities to

help the staff to cope with the increased levels of stress, to minimize the physical and mental tiredness and to preserve job satisfaction. In spite of all these drawbacks, the hospitals consider accreditation as a method to increase its performance and to streamline its work. Patients also enjoy the benefit of accreditation as accredited hospitals follow a patient centric approach and give a very high importance to patient safety.

The best practices in the area of operations management are different for different kinds of hospitals (Table 2). PHCs give importance to proper signage boards, token display system, drinking water facility in the waiting area etc. However, PHCs are a patient's first point of contact with medical services. Therefore, it is essential to develop an atmosphere including the best practices and the infrastructural developments for the treatment of communicable and non-communicable diseases in PHCs.

Healthcare systems are trapped in web failed accountability (World Development Report, 2004). On one hand employees need motivation and an employee centric environment for working with full involvement and on the other hand, patients, rich or poor, wish for a compassionate and approachable behaviour and a certain degree of kind and empathetic approach from the staff and the management. This is the challenge that the authorities face in the management of hospitals or any healthcare organization. These thoughts provide a base for the conceptualization of well-structured human resource management system in healthcare organizations.

It is evident from the interviews that most of the hospitals selected for the study do not have well-documented recruitment policy. Public hospitals have an advantage of getting experienced and knowledgeable staff through the government selection processes but they face the shortage of staff. This affects the job allocation schedule of public hospitals and thereby their performance. One of the drawbacks of public recruitment policy is the 'promotion based on the number of years of experience' which can adversely affect the quality of the care provided. Private hospitals face problems in the selection and recruitment of qualified and experienced staff. Because of these reasons, the attrition rates are high in many of the private hospitals.

According to Oliva (2011), training and development has a twofold effect in the healthcare sector. First, it helps in developing and managing the human expertise and thereby achieving the employee satisfaction. Second, to improve the service quality and thereby patient's comfort. As per the respondent's opinion, one of the advantages of 'on the job training' is its low-cost approach. Moreover, 'on the job training' ensures employee loyalty and it gives high returns. All the employees unanimously agreed to the motivational effects of rewards (financial and non-financial) and monetary benefits and they believe that rewards and recognitions increase the commitment to the job, increase the loyalty of the employees, enhance the performance of the employees and keep them motivated. Hospitals follow the practice of giving small gifts, certificates, cash prizes or shields on the occasion of their

annual day celebrations. Undoubtedly, private hospitals score high on these areas whereas public hospitals can't do much because of the external constraints. As far as autonomy and the role in decision making in work, the public hospital employees are happy with the level of freedom they get in the work.

Generally, performance appraisal is done to evaluate the performance of an individual with the objective of assessing the talent and behaviour and it helps to align the individual and organizational objectives (Trebbe et.al, 2014). Some of the respondents were uninformed about the performance appraisal system of the hospital in which they work. Some of the hospitals follow an annual evaluation of the employee performance and some others follow 'the continuous evaluation system'. 'The continuous evaluation system' includes regular informal, one to one discussions and tracking of performance, identifying the performance issues and addressing the issues as and when it occurs. However, it can be noted that, irrespective of ownership, hospitals neither have a well-defined appraisal system nor have rewards or incentive system. Overall, the result indicates that, private hospitals (Table 2) follow the best practices like technical training, orientation programmes, on the job training, staff meetings, rewards, recognitions and incentives for employees etc.

Political situation influences the targets or the goals of the hospitals, especially of the public hospitals. Healthcare delivery in public hospitals is hindered by several policy and management constraints like deficiency of staff, problems in referral systems, the shortfall of funds, lacks of responsibility for the quality of service and deficit of medicines and drugs etc. (Mavalankar et.al, 2003). Therefore, the role of the political atmosphere is crucial in deciding and achieving the goals of public hospitals. The issues faced by the public health systems are the lack of financial and material resources and glitches in the implementation of health policies in a pluralistic environment. The pluralistic environment creates problems in the effective utilization of funds and is an important issue that has to be addressed by the government.

Success factors are generally associated with a target and are measureable. If the goals or targets associated with these factors are not achieved, the organization will fail (Rockart, 1979). The success factors vary across the types of hospitals because of the differences in objectives, the way in which objectives are achieved and the staff who work for it. It is noted from the analysis that the success factors like patient-centric approach, giving importance to nursing care, freedom given to the employees as far as decision making is concerned, social responsibility of the organization, personal relationships, etc. are all related to the ownership. For example, public hospital's goals depend on the government's policy and decisions and they are unlikely to go for profit maximising. Trust owned hospitals may prefer to give importance to charity. There are possibilities of for-profit hospitals not aiming at maximization of revenues. One of the reasons for this could be that hospital depends for its existence 'on making profits' but does not target to maximise the profit. Secondly, it could be because of the

presence of the groups of professionals, the influential decision makers who have autonomy over patient care decisions. In order to understand the success factors of the hospitals of the different type, a broader conceptualization is necessary.

Efficient utilization of the resources is needed to improve the quality of services provided. According to the analysis, it is clear that many of the hospitals do not have such practices and they depend on the 'well-qualified and experienced' physicians as their success factor. However, patients not only give importance to quality treatment but they also give importance to the services and the environment of the hospital. Therefore, the hospitals need to think and implement the best practices rather than depending only on well-qualified physicians.

Because of the significant threat of communicable diseases, insufficient attention has been paid to health promotion and health policies related to non-communicable diseases. Therefore, the challenge is to identify the best practices for handling non-communicable diseases which goes hand in hand while tackling the burden of communicable diseases. Importantly, there is a need to keep apart the best practices according to the disease type (communicable and non-communicable) and to develop the competencies of the workforce accordingly. It is necessary for the public and private hospitals to have separate targets related to the treatment of communicable and non-communicable diseases. The effectiveness of these policies depends on the context and therefore, different strategies and policies are needed for PHCs, Taluk Hospitals and Private hospitals. Since the Kerala health system is going through a transition state, these best practices become potential pathways towards the health system reform.

PRACTICAL IMPLICATIONS

The research has explored the manner in which management practices are followed in the Kerala healthcare institutions. The study has found that the management practices vary from hospital to hospital in the Kerala healthcare sector and it varies from public to private hospitals. On the whole, while private hospitals are moving towards more structured and better management practices, public hospitals still have a lot more to accomplish in this regard. Hospitals have internal and external challenges that they need to overcome before implementing the best management practices. Moreover, as Kerala experiences a rapid health transition, there is a mismatch between healthcare needs and resources. The requirements for delivering care become increasingly exigent as health transition proposes a new agenda for healthcare in Kerala. Therefore, the existing practices need to be reorganized, reoriented and engaged to manage communicable and non-communicable diseases simultaneously.

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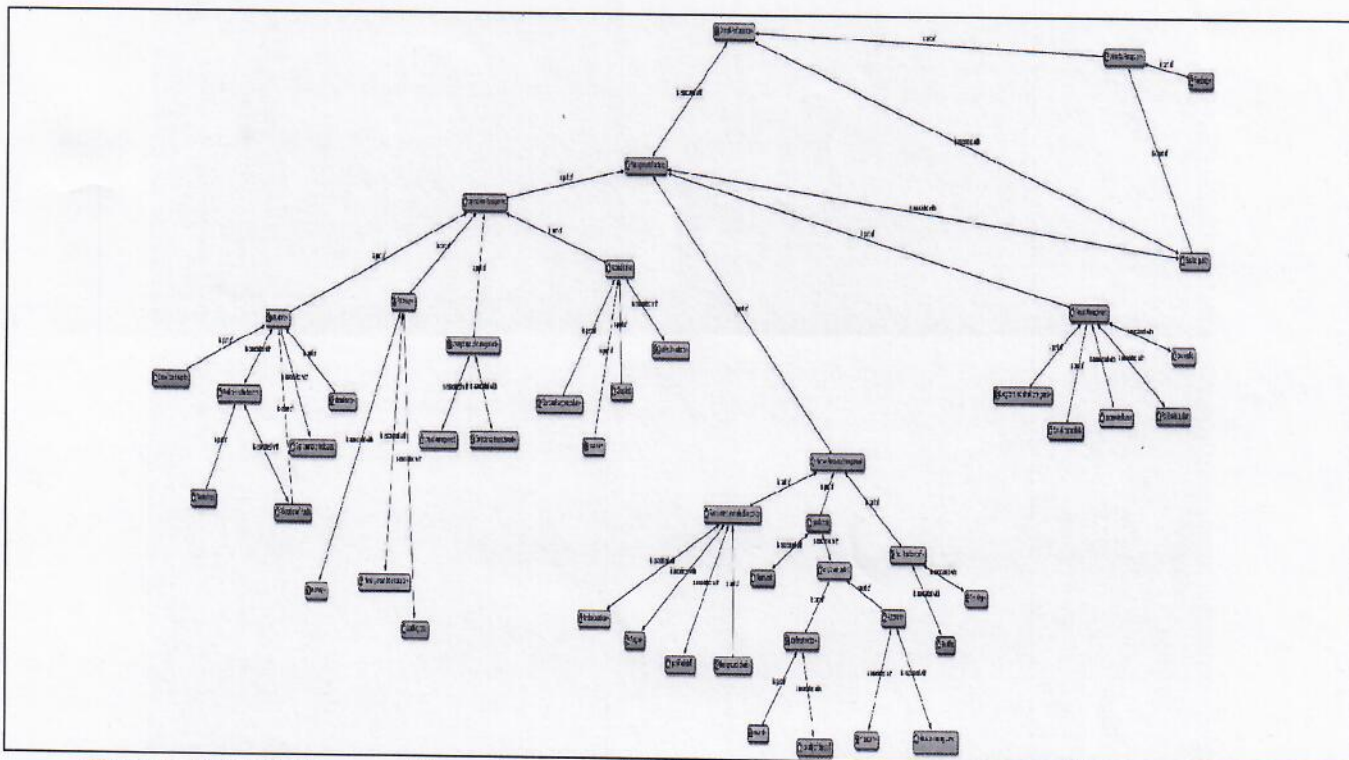


Figure 1- Network diagram of the performance of the healthcare systems as the outcome of the data analysis.

Management Practices		
Operations Management	People Management	Target Management
Structure	Recruitment selection and Retention policy	Long term goals
Design and size of the hospital	Recruitment and selection procedure	Short goals
Facilities like modern technology and equipment	Task allocation	Social responsibility
Proper allocation of funds	Wages	Political situation management
Use of sign boards and	Qualified Staff	
Cleanliness	performance tracking	
Pathway	Leadership	
Patient's treatment journey	Team work and	
Waiting time	Motivation (rewards, benefits etc.)	
General pathway management	Freedom given to the staff	
Accreditation	Decision Making power	
Standardization of procedures	Facilities provided to the staff	
Management of records	Benefits given to the employees	
Checklists	Training given to them.	
Definition of quality indicators		
Promptness of the management		
Crowd management		
Emergency management		

Table 1: The list of Management Practices derived from the interviews

Best Management Practices in PHCs		
Operations Management	People Management	Target Management
Proper indicators or signage boards	Training (Technical) provided to the employees	Fulfilling the government targets
Token Display System	Annual evaluation of performance (Records)	Creating health awareness
Computerized OP admission process (in progress)		Conducting camps
Drinking water facility in the waiting area		Providing affordable healthcare
		Providing quality care
		Ethical practices
		Local Management Committee -Political situation management
Best Management Practices in Taluk Hospitals		
Proper indicators or signage boards	Training (Technical) provided to the employees	Fulfilling the government targets
Accreditation of hospitals	Annual evaluation of performance	Creating health awareness
Defining the quality indicators	Self-Appraisal System	Conducting camps
Emergency management	Duty handover system	affordable healthcare
	National awards	providing quality care
		Ethical practices
		Local Management Committee -Political situation management
Best Management Practices in Trust Owned Hospitals		
Triage system for emergency management	Training (Technical and soft skills) provided to the employees	Well defined mission and vision

Patient focused booking system	Orientation programs	Stretching targets
Proper structure and facilities	On the job training	Conducting camps
Crowd management practices (OPD arrangements, floor managers, PROs etc)	Duty handover system	Better nursing care
Computerized OP admission	Staff meetings	CSR activities
Accreditation of hospitals	Rewards and recognitions	Ethical practices
Separate queues for senior citizens	Annual evaluation of performance	
	Providing exemplary emotional and spiritual care	
Best Management Practices in Family Owned Hospitals		
Proper indicators or signage boards	Recruitment policy Autonomy in the job	Well defined mission and vision
Computerized OP admission	Role in decision making	Stretching targets
Defining the quality indicators	Approachable environment	Conducting camps
Patient focused booking system		Handling emergency situations
Triage system for emergency management	Seminars on new developments	Providing quality care
Crowd management practices (OPD arrangements, floor managers, PROs etc.)	Training (Technical) provided to the employees	Better nursing care
Separate queues for senior citizens	Short meetings of nurses before resuming their job	Accomplishment of certain government given targets/ schemes
Accreditation of hospitals	Orientation programs	
Standard Operating procedures and checklists	On the job training	
	Duty handover system	
	staff meetings	
	Rewards and recognitions	
	Annual evaluation of performance	

Table 2: Best Management Practices followed in Different Hospitals (Extracted from the Interviews)

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A Study on Innovative Healthcare practices in India- The Hidden Opportunities in the Indian Healthcare Industry



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The Healthcare sector is growing rapidly and has become one of major sectors in India. However, regardless of some developments, India's healthcare sector deals with a surfeit of challenges. India's competitive gain lies in its large pool of well-trained medical professionals and the government policy to help the innovations that will focus on an Indian model for inclusive growth. There has also been an emergence of "frugal innovation" in the private sector that successfully makes use of the pool of well-trained medical professionals. Therefore, this paper attempts to understand the robust, innovative design adopted by Indian hospitals to improve the quality, affordability, and coverage of healthcare

1. Introduction

The Healthcare sector is growing rapidly and has become one of major sectors in India both in terms of income and service. The health sector in India is growing at a brisk pace due to its strengthening coverage and services. The expenditure by the public as well as private players are also increasing, and the sector is expected to grasp \$372 billion by 2022 (National Investment Promotion and Facilitation Agency, 2019).

However, despite some advances, India's healthcare sector deals with a surfeit of challenges. In spite of vigorous fiscal growth over the past few years, the infant mortality rate is much higher than the other developing countries (World Bank Data). India currently spends a little over 1% of GDP on health (National Health Profile, 2018; World Bank Data), and 67.78% of total expenditure on health in India was paid out of pocket (WHO, 2017). India's competitive advantage lies in its large pool of well-trained medical professionals and in the number of doctors, India meets the global average. However, 74 % of its doctors cater to a third of the urban population, and is short of doctors at village community health centers (CHCs) (KPMG report, 2017).

There are, however, potential catalysts to improve the quality of healthcare in India. The incentives are in terms of innovative models and government policies. With nearly four billion people (or almost two-thirds of the world's population) living at the below poverty line, innovation to support affordable access to quality healthcare services is particularly essential. Moreover, necessity progenies innovation (Govindarajan & Ramamurti, 2013). Challenged with the limitations of deficiency and a severe shortage of resources, the Indian healthcare institutions have had to operate more agilely and creatively to serve the vast number of people (Shi and Singh, 2017). Because the out of pocket expenditure is high in India, healthcare organizations must deliver value. Thus, the Indian healthcare system have devised new ways of providing world-class health care affordably. Moreover, the National Innovation Council encourages a culture of innovation in India and helps the changes that will focus on an Indian model for inclusive growth. Subsequently, value-based care is not a hallucination but a reality in India. Therefore, this paper attempts to understand the powerful Indian models for inclusive growth and the innovative designs adopted by the healthcare institutions to improve the quality, affordability, and coverage of healthcare.

2. Data Sources and Research Methodology

The present study is an exploratory analysis based upon secondary data. Sources of data collection are Published Peer Reviewed Research Papers, News Articles in reputed journals, Ministry of Health and Family Welfare, Government of India, National Human Development Report, Planning Commission, Government of India and Population Census of India, World Health Organization Reports and World Health Statistics.

3. Innovative Models Adopted by the Indian Healthcare Institutions

Healthcare institutions function in an industry characterized by continuous change. The change is due to the convergence of numerous influences from both within and outside of their given establishments (Jamison. and Martin, 2001; Shi and Singh, 2017). To successfully navigate through a free environment of innovative designs in healthcare, healthcare providers should be proficient in multiple areas, including how they organize and deliver services ((Porter & Lee, 2013; Govindarajan & Ramamurti, 2013; Devarakonda, 2016). To read on their dual commitments to high quality and ultralow cost, the Indian healthcare institutions developed robust, innovative designs like a hub-and-spoke design, task-shifting and frugal innovation (Govindarajan and Ramamurti, 2013). These models majorly have helped the Indian healthcare institutions to cut costs while still improving their quality of care.

3.1 A Hub-and-Spoke Design

The hub-and-spoke model provides a network comprising of the main campus and one or more satellite campuses, and it

offers a high potential for serving patients well (Ahlquist et al. 2012; Porter & Lee, 2013; Govindarajan & Ramamurti, 2013). The Indian healthcare institutions adopted the method of airlines to reach out to remote areas, and they created hubs in major metro areas and designed small clinics in rural areas that directed patients to the main hospital. The hub and spoke model is a highly synchronized network which lessens the cost. The cost-cutting is achieved by centralizing the costliest equipment and specialists in the hub, instead of replicating it in all the spokes (Porter & Lee, 2013). The model is highly scalable, with satellites being added as needed or desired (Ahlquist et al., 2012; Roney, 2012). When physical distance makes satellite-to-hub access unworkable, an extra hub can be formed, providing a multi-hub network (Govindarajan and Ramamurti, 2013). According to Dunn (2017), it is much more efficient than organizational designs that reproduce operations across multiple sites. The success stories of Indian hospitals like Vaatsalya Healthcare, Aravind Eye Care System, Narayana Health, HCG - Healthcare Global Enterprises Ltd etc. prove that the well-designed hub-and-spoke network satisfies the patients. The model assures and nurtures resource maintenance, profit, service excellence, and enhanced market coverage (Devarakonda, 2016; Ahlquist et.al., 2012; Roney, 2012).

3.2 Task-Shifting

Task-shifting is the process of delegating appropriate tasks to less specialized health workers with shorter training and fewer qualifications. It helps to improve health care coverage by making more efficient use of the human resources already available. It also increases capacity while training and retention programs are expanded and helps to address the current shortages of health workers (WHO, 2008). This model helps to overcome the deficit of highly skilled specialists by allowing specialists to handle only the most critical technical procedures. These hospitals have become incredibly productive, and they maximize their efficiency by increasing the number of support staff, fundamentally extending the reach of specialists. Another form of task-shifting is self-service, where patients and family members take over tasks traditionally performed by hospital staff. The task-shifting models are present in the public sector as well as in the private sector.

3.2.1 NGO (Non- Governmental) Models

Community Health Workers (CHW): - CHWs serve as an important link between underserved societies and large health systems (Lehmann and Sanders, 2007). They serve as an extension of the existing workforce, or they serve as intermediaries strengthening community participation in accessing, demanding, and engaging with health systems. This model helps to shift the primary health services from specialist doctors to CHWs. (Saprii, et.al., 2015; Witme, et.al., 1998).

Search (Society for Education, Action, and Research in Community Health): -SEARCH is a non-governmental organization set up in 1985 renowned for its pioneering work in home-based neonatal care, and it operates through its 'Shodh Gram' hospital. The model entirely depends on the members of the community performing health interventions that are specific to issues identified by the community. (Bang et al., 2005). It empowers village women to use basic medical knowledge and skills to look after their newborns and it is well known example of task-shifting model (Bang and Bang, 2005).

Mahan: -MAHAN is a registered non-governmental organization(NGO) working in Maharashtra, India, established in the year 1998, and it works to provide health care service to the people of Melghat, especially to the tribal communities. They have started a rural hospital, home-based childcare, community-based management of malnutrition, mortality control program for chronic diseases, blindness control program, and a counselor program. The home-based childcare program trains tribal women to diagnose and treat the leading causes of under-5 mortality (Bang & Bang 2010, WHO, 2008). Their training program includes two years of rigorous training for four days a month and a two-day refresher course every two months (Balsari et al., 2017). MAHAN also helps to shift the basic health services from specialist doctors to less skilled tribal women.

SANGATH: -It is a non-governmental, not-for-profit organization in Goa committed to serving the community as lay mental health counselors to treat depression, addiction, and youth development. The Sangath Volunteers undergo training of three weeks, followed by a six-month internship in identifying, addressing, and providing solutions to those suffering from moderate to severe depression. (Chowdhary et al., 2016) These types of task-shifting models in mental health can address both the workforce and cultural barriers effectively and are cost-effective and cost-saving (Patel, 2015).

Swayam Shikshan Prayog (SSP) or Arogya Sakhi Model: - It is non -profit organization in western Maharashtra, which trains women (known as Arogya Sakhis) who have primary education and are interested in healthcare to conduct basic medical tests using mobile health devices and to capture and upload the data by using a tablet for expert opinion. Based on the test reports, these women guide the patients, and if needed, they refer the patients to specialist doctors and hospitals (Balsari et al., 2017). Arogya Sakhi model is a well-known task-shifting model.

3.2.2. Government Models

India's community based public healthcare includes three crucial programmes: Anganwadi worker, ASHA worker, and the auxiliary nurse-midwife (National Rural Health Mission Report, 2012). All these programs have leveraged women from the community to close delivery gaps, especially for maternal and child health.

Auxiliary Nurse Midwife (ANM): -They are the multipurpose workers attending to child health and basic curative care for villagers. They are trained in a variety of clinical skills, including recognizing high-risk pregnancies, conducting regular deliveries, assessing and caring newborns, contraception counseling, cervical cancer detection, and primary care and resuscitation of the newborn (Mavalankar and Vora, 2008, NRHM, 2012).

Anganwadi Worker (AWW): - Their role is to address child health needs in the 0-6 age group (Ministry of Women and Child Development, 2012). They work through a network of over one million Anganwadis and government-sponsored childcare centers across India, serving a community of 58 million children and over 10 million pregnant or lactating women (Desai et al., 2014, Anganwadi website). In contrast to the ANM, the AWW has no formal education requirements.

Accredited Social Health Activist (ASHA): - They are the women volunteers who serve as health activists, community mobilizers, and essential care providers (National Health Mission Guidelines, 2013). ASHA's undergo a 23 day nationally endorsed training course to acquire basic competencies to educate communities on health practices. The services include mobilizing communities to use existing health services, conducting home visits to identify complications and illness, and distributing vitamins, dietary supplements, and certain medications (National Health Mission, 2010). They work closely to collaborate on mobilization and awareness-raising campaigns. According to Desai et al. (2014), the ASHA program had an overall positive impact on rural healthcare utilization.

Mid- Level Providers: -The government encourages the task shifting of higher-level skills through the creation of a new cadre of mid-level providers and the re-training of existing staff in specialized skills. Mid-level caregivers are quickly deployable and a less expensive option to train while not sacrificing the quality of care (National Health Mission, 2013).

Comprehensive Rural Health Project (CRHP):- Founded in 1970, CRHP, the Jamkhed model is a holistic approach to primary health care at the community level. It guides the public to use simple tools, adapted to the local context, to address priority health needs. The innovation of this approach lies in involving the communities themselves, especially those who are poor and marginalized, in designing their health and development programs. Moreover, the 'health messengers' (known as arogyadoots) visit the remote villages and train and help them. Hence they pass on their knowledge to others and empower the entire community (National Health Mission, 2016).

3.2.3 Hospital-based Models

Apart from the models described above, to effectively serve people who do not have access to specialized care, some private hospitals implemented the task-shifting models.

Aravind Eye Care: - They have used task-shifting to expand business operations and increase reach (Aravind Eye Care System: Activity Report, 2016; Rangan and Thulasiraj, 2007). The unique cadre of "Ophthalmic Assistants" (young women from surrounding villages who had a few years of formal schooling) helped the hospital to maximize the efficiency and reduce the cost of surgeries by shifting specific responsibilities from surgeons to "Ophthalmic Assistants" (Scott, 2013). These women were trained to evaluate eye function, perform panels of tests, prepare patients for surgery, finish post-operative procedures, and educate the patients about the care and follow up. (Natchiar, 2001).

Narayana Health (NH): - NH uses surgical care task-shifting to provide high quality affordable and efficient cardiovascular solutions and also to drive down costs (Richman et al., 2008). NH trains the junior surgeons to conduct several steps of the complex heart surgery, allowing the senior surgeon performing the critical steps. Moreover, the co-location of simultaneous operations enables the specialist to be involved in more than one surgery at a time. Through this system, the junior doctors get excellent training, and also it reduces the cost considerably (Richman et al., 2008).

3.3 Frugal Innovation

Though, frugality may be considered an ancient concept, the term frugal innovation was coined only recently in the management literature (Bound & Thornton, 2012; Hart & Christensen, 2002; Kanter, 1999; Petrick & Juntiwarakij, 2011; Prahalad & Mashelkar, 2010; The Economist, 2010). A significant driver for these innovations is the considerations of un-met customer needs faced in developing markets with large populations, pertinent health issues, and low income per capita (Lim, Han, & Ito, 2013; Anderson & Markides, 2007; Kanter, 1999; Prahalad & Mashelkar, 2010; Svensson, 2001). Moreover, Inefficiency is seen as fundamentally contributing to rising costs and the need for more economically efficient solutions (Christensen, Bohmer, & Kenagy, 2000; KPMG, 2012). Rather than mere efficiency improvements, such models represent radical reconceptualization of the provision of services that are informed by principles of affordability to even the most unfortunate consumer. It also represents adaptability to local cultural conditions, availability through easily accessible channels, and promotion by educational awareness building (Anderson & Markides, 2007; Hart & Christensen, 2002; Kanter, 1999; Prahalad & Mashelkar, 2010). The efforts to prolong the working life of expensive technology through careful maintenance and repair and the 'reuse of medical devices sold as single-use products' (such as steel clamps employed during beating-heart surgeries) are all examples of frugal innovation. The successful hospitals who had adopted the frugal innovation to increase the efficiency are discussed in the following paragraphs.

Aravind Eye Care: - A senior surgeon executes 6-8 surgeries every hour with the help of two nurses (Vickers & Rosen, 2011). This kind of efficiency is achieved by the systematic arrangement of the workflow of the surgeon and the nurse (Rangan and Thulasiraj, 2007). With the help of standardized operations and a highly efficient assembly line method, an Aravind surgeon performs about 2,000 surgeries annually in comparison to the 200 elsewhere in the country on an average. (Natchiat et al., 2008; Vickers & Rosen, 2011). Aravind has signed a technology-transfer agreement with the Florida-based IOL International and set up a company in southern India, Aurolab, to manufacture intraocular lenses, comparatively at a lesser cost (Vickers & Rosen, 2011).

Moreover, Arvind follows better human resource practices than others and has a disciplined and motivated set of staff who supports vertical integration well (Rangan and Thulasiraj, 2007). The human resource practices at Arvind include structured in-house training, 'training and empowering' women from villages who have only primary educations as mid-level ophthalmic personnel and 'continuous learning' to widen the skills (Rangan and Thulasiraj, 2007; Rani, 2011). According to Rani (2011), Arvind also follows the target management practices like the unique service-oriented model in which free treatment is provided to those who cannot pay. An affordable treatment is provided to others. Moreover, they follow a unique recruitment process. The hospital never advertises commercially, but they announce the personnel needs during camps and recruits personnel through the referrals of employees.

Narayana Hrudalaya: - NH focused on process innovation and used already available information technology tools like telemedicine to reach out to the masses and make treatment faster and cheaper. NH's joint venture with Indian Space Research Organization (ISRO) gets them satellite connectivity, which connects over 100 telemedicine centers across the country and receives 250 ECGs everyday from remote locations in India and Africa (Singh et al. 2011). Moreover, instead of purchasing expensive diagnostic equipment, NH made a deal, "pay-per-use" with equipment providers. Since the volume of patients is enormous, the providers are happy to offer such schemes. NH infuses cost awareness across the organization in many ways. It also motivates the doctors to suggest ideas and best practices for cost savings and process improvements (Richman et al., 2008). NH Heart Hospital, meanwhile, has developed an efficient turnover of operating rooms and cardiac catheterization facilities, allowing for much higher volumes of services with an only modest investment in capital equipment.

LifeSpring Hospital: - Hospital adopted systems re-engineering to achieve profitability within two years of inception, and it provides affordable maternity care. One of the best practices adopted by them is the scale downing of beds. Life Spring orders smaller and simpler beds for its maternity wards but does not skimp on the delivery tables for operating rooms in its 12 hospitals in Hyderabad.

Vaatsalya Hospital: - Vaatsalya Hospital's frugal innovation includes lower resolution ultrasounds and lower parameter patient monitors in its 18 branches.

Apollo Hospital: - To reduce waste, Apollo Hospitals asked suppliers to shorten the length of sutures in each packet—and to lower the price accordingly, after it found that its doctors were routinely discarding one-third of each suture after procedures.

CARE Hospital: - CARE has developed low cost and high-quality stents that perform as well as imports that cost ten times as much. It has set up a subsidiary to manufacture the stents, along with catheters and other devices. Moreover, it develops physician leadership at each facility with a "servant leadership" model that empowers physician-led initiatives (Richman et., al., 2008). Also, they have adopted "multi-tariff", the practice of price discrimination (differential pricing) to target multiple segments of the ever-changing Indian population (Richman et., al., 2008). CARE reengineered their service delivery model to maximize the use of capital equipment. For instance, CARE maximized the usage of radiology equipment, by continuously using it. They use the equipment for outpatient studies during the day and inpatient radiology studies overnight, avoiding periods of downtime for capital equipment.

Fortis Hospital: - Physicians and senior administrators at Fortis view themselves as a collaborative leadership partnership. This model enables "owner-operator" innovations that are agile and patient-focused. Moreover, Fortis has managers with experience in the burgeoning hotel industry. The application of management routines and capabilities from the hotel industry helps Fortis manage patient care in the context of customers' experiences and patients' expectations.

Government Initiatives: - E-RaktKosh, Swastha Bharat mobile application, and ANMOL are few initiatives taken by the Government of India to reach out to remote areas. The Swastha Bharat mobile application was introduced on World health day 2016 for information on diseases, symptoms, treatment, health alerts, and tips. ANMOL- is an ANM online tablet application for health workers & e-RaktKosh is a blood-bank management information system. Moreover, Individual States are adopting technology to support health-insurance schemes.

4. Discussion

It can be noted that the innovative models adopted by the Indian healthcare institutions provide high expectations on the idea of innovation as the solution to the high cost of healthcare services. Moreover, private hospitals like Aravind Eye care, Narayana Health, and Vaatsalya Hospital have proved that their low-cost models achieve better performance than the existing

standards, and it created value for both investors and consumers. It can also be noted that these private hospitals have successfully adopted all the possible robust, innovative designs like hub-and-spoke design, task shifting, and frugal innovations. The careful analysis of their success stories indicates that the adoption of better management practices primarily in the areas of operations management, people management, and target management helped them to achieve success in providing low-cost, high-quality healthcare to a wide range of people. The Table 1 represents the management practices in all the three areas: operations Management, Human Resource Management and Target management.

The physician leadership and servant leadership practices, the "multi-tariff" practices, and the practice of effective utilization of machines by robust job scheduling helped Care hospital to achieve success. Some notable practices which Apollo adopted are 'collaborative leadership practices,' appointing managers who have got experience in managing the hotel industry to improve patient satisfaction, TeleHealth, and Telemedicine for specialized consultations. All these practices are the indications of creative thinking, and it is clear that by creating innovation in technology, strategies, methods, and policies, we can take on local and global healthcare challenges.

Similarly, Aravind Eye care has followed unique human resource practices like in-house training operations to develop ophthalmologists, paramedics, eye care managers, and support service personnel. Therefore, the study indicates that the adoption of innovative management practices would improve quality and patient satisfaction. This, in turn, would generate demand which could be met by providing a low-cost service through optimal use of the limited available resources.

5. Conclusion

Affordability is the key to accessibility. The study shows that, in the economic reality of a developing country, innovative ideas, cheaper drugs, optimized processes, and low-priced healthcare infrastructure models can work wonders. However, inexpensiveness is not simple to put into effect; it requires creative, out-of-the-box thinking like frugal innovation. Such innovative ideas and practices can help a complex and resource-constrained country like India to address challenges in healthcare delivery. For this, the nation's innovation capability needs to be enhanced through the right kind of fiscal incentives, policy support, financing mechanisms, human capital, and best-in-class infrastructure. Moreover, daunting challenges in healthcare delivery throw up unlimited opportunities to innovate and creative solutions. India has the chance to leapfrog a lot of the healthcare problems that developed nations are grappling with, through the implementation of innovative low-cost models.

Table 1 Best Practices Adopted by the Hospitals

Operations Management Practices	Human Resource Management practices	Target Management Practices
Adoption of better maintenance and repair practices	Structured In-house training	Differential pricing
Reuse of medical devices sold as single-use products	Motivates the doctors by including the doctors in decision making	Owner-operator innovations
	Training and empowering women from villages who have only primary educations as mid-level ophthalmic personnel	
	continuous education to widen the skills	
The systematic arrangement of workflow	Physician leadership	Collaborative leadership partnership
Standardized operations	Servant leadership	infuse cost awareness
Highly efficient assembly line method	Innovative recruitment process	unique service-oriented model.
Technology-transfer	Recruiting personnel who have experience in the hotel industry to boost patient satisfaction.	
Telemedicine centers		
"pay-per-use" of costly equipment		
Systems re-engineering		
Scale downing of beds		
Usage of lower resolution ultrasounds and lower parameter patient monitors		
Shortening the length of sutures in each packet		
Scheduling the timing of machines for optimized usage		

Source: Compiled from the Literature

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A Study on Bottom of the Pyramid Marketing

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Abstract: The Indian rural market with its vast size and demand base offers great opportunities to marketing firms. Rural India represents 50 percent of India's GDP (but 70 percent of its people) and 50 percent of rural GDP is non-agricultural: it comes from the self-employed in all kinds of services (Bijapurkar, 2007). It is only natural that rural markets form an important part of the total market of India. According to the National Council of Applied Economic Research (NCAER), with about 74 percent of its population living in its villages, India has perhaps the largest potential rural market in the world. It has as many as 47,000 haats (Kashyap, 1998), compared to 35,000 supermarkets in the US. Plus of the total FMCGs demand in India, nearly 53 percent comes from the rural market, for consumer durables, the figure is 59 percent. C.K. Prahlad in his book 'The Fortune at the Bottom of the Pyramid', speaks about the need for companies to design and develop innovative products and services which help the poor prosper by partnering and engaging with them. He goes on to say that there is huge consumer potential in rural India and addressing this segment is a win-win partnership for both – companies and people. Under this backdrop, the paper highlights how companies are developing innovative products and services to tap the rural population, the strategy adopted by the companies to tap the rural market, and further how focusing at the bottom of the pyramid will create a competitive situation for both the company and its customers.

Key Words: Rural market, Self-employed, Bottom of the Pyramid, win-win partnership, innovative, competitive

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I. Introduction

India would continue to have the largest rural population in the world until 2050. This is as per the report titled "2007 Revision of World Urbanisation Prospects" released on 27th February 2008 by the United Nations (See Table showing: India -Demographic Profile (2010-2050) - Projection by United Nations). Both in terms of population and potential, Indian rural markets will play a crucial role in the overall Indian economy for at least the next forty years.

A change in consumption patterns and access to communication media have made the rural market a vital cog in the sales-growth wheel, especially with demand for many categories plateauing in the urban markets. If marketing organizations have to sustain, the starting point has got to be the concern for the human being, who must be sufficiently empowered to consume by entering in to exchange relationship with them. Responsible and inclusive approach to marketing cannot neglect 72 percent of a country's population.

Marketing Management always deals in the ever changing marketing environment. The rural environment is in paradigm shifts and management needs to deal with the changing consumer behavior. The basic challenge in front of the rural marketer is to deal with the rural consumer who is undergoing transformation. Many marketers perceive that the rural markets are the protrusions of the urban slums or poor markets. The truth is that the rural consumer's concept of value is different from the urban consumers. The culture of rural is not of display of the wealth and modality. The symptoms of modernity are different than the urban counterparts. The rural consumer purchases willingly when it is extremely needed by them, not because of tempting promotional offers. The rural market in India is quite charming and demanding in spite of all the difficulties existing. The potential is enormous. Even though, these markets have imperfection, they also have tremendous opportunities which should be availed by the marketers.

II. Objectives

- To analyse how companies are developing innovative products and services which help the rural population
- To analyse the strategies companies are undertaking to tap the rural market
- To analyse how focusing at the bottom of the pyramid will create a competitive situation for both the company and the people

III. Review Of Literature

The market dynamics are changing fast. New markets are emerging rapidly and are becoming attractive destinations for marketers. These markets open up a plethora of possibilities for experimentation and opportunities to move away from the convention.

Bhatia Tej K (2000), conducted a research on article titled, “Advertising in Rural India: Language, Marketing Communication, and Consumerism, The article highlights that due to globalization, economic liberalization, IT revolution, and improving infrastructure, middle class rural India today has more disposable income than urban India

Kannan S (2001) conducted a research on article titled, “*Rural market- A world of opportunity*”. The article highlights that a rural consumer is brand loyal and understands symbols better. The rural audience has matured enough to understand the communication developed for the urban markets, especially with reference to FMCG. Today, the ultra bright shine of Colgate or some other international brand of toothpaste holds more appeal than the traditional methods of cleaning teeth (*Bhatia, 2000*).

Sivakumar S (2002) conducted a research on article titled, “*Collaboration Works*”. The article highlights that rural market is quite different in terms of the price-value equation, product usage pattern and service coordinates because the meaning of ‘convenience’ differs with market segments

The real market promise in the future is expected to come not from the developed markets and the sophisticated market segments but from the underprivileged segments and the tier IV markets across the world which, though largely untapped till now, have the potential of exhibiting a substantial rate of growth if catered to properly. “Managers who focus on gross margins will miss the opportunity at the bottom of the pyramid; managers who innovate and focus on economic profit will be rewarded” (*Prahlad and Hart, 2002*).

DavarNiraj N and Chattopadhyay Amitava (2002), conducted a research on the article, “Rethinking Marketing Programs for Emerging Markets”, The article highlights that an effective penetration into the emerging markets calls for a rethinking of the marketing programs directed at these markets

KanjilalAbir, Das Indranil and SrivastvaRohitash (2005), conducted a research on the article, “Media Effect and its Measurement in Rural India”. The article highlights that different brands sponsor different events and shows in villages, which are actually a cost-effective way to advertise with the participatory strategy and advertisements touching the emotions of the rural folks could drive a quantum jump in sales.

Anderson Jaime and Markides Costas (2006), conducted a research on the article, “Strategic Innovation at the Base of the Economic Pyramid”. The article highlights that innovations targeted at the bottom of the pyramid markets are less about discovering the new ‘Who’s’ and much more about discovering a new value proposition (a new What) and a new value network (a new How).

As in the bottom of the pyramid market, an effective penetration into the rural market also requires a judicious use of innovation. Innovation must be used in such a way so as to avoid undesirable inclusion or undesirable exclusion. In order to effectively survive in the rural market and to bring about a sustainable growth, it is important that the neglected rural lot are not merely treated as consumers but as strengthened producers (*Jaiswal, 2008*). Thus, sustainable growth in the newly discovered rural markets requires the use of innovation not only to penetrate into these markets as sellers but also to ensure a simultaneous exploitation of the resources in these segments, develop business propositions around these resources and sell the resultant produce in the other markets. Such use of innovation to bring about a balanced growth in the rural markets and develop these markets both as producers and consumers would also ensure survival for the practicing companies. Some entrepreneurs from these underprivileged markets have started evolving and moving towards the international markets riding on some sort of innovation. Studies show that entrepreneurs from emerging economies are increasingly using innovation to enhance their customer support capabilities with the aim of efficiently serving their important international customers and penetrating the global markets in an effective way (*Khavulet al., 2010*).

MARKETING CHALLENGES AT THE BOTTOM

Availability: India's 627,000 villages are spread over 3.2 million sq. km. Approximately 110 million Indians live in rural areas, and reaching them is not easy, especially given the poor road infrastructure. Hence, operations costs increase and sometimes it is even higher than that in urban markets. Therefore, companies are finding it increasingly difficult to protect their margins in the BOP market.

Affordability: Given the low disposable income of BOP consumers, pricing is key to higher product penetration among rural consumers. Further, people in rural areas are not only price sensitive, but also quality conscious. Therefore, producing quality products at lower price points has posed a challenge for companies trying to protect their margins in the backdrop of monumental cost pressure.

Acceptability: In the BOP market, product functionality is a key success parameter. Therefore, a product form that has worked well in traditional markets may not be acceptable to BOP consumers if the product functionality is not in line with their unmet needs.

Awareness: India is home to people speaking several languages and dialects. Further, the cultural heterogeneity makes it difficult for marketers to create awareness among BOP consumers. In addition, low literacy rates, coupled with limited reach of the electronic media, are likely to act as a barrier to promotional efforts. It has been identified that the best places to promote products or services are local haats and melas or promotional campaigns during local festivals. However, organising such affairs is not easy because of the high costs involved.

RURAL MARKETING STRATEGIES

With a population already in excess of one billion people, India has caught the eye of multinational corporations across the globe as a place of opportunity for exploring new markets. While India has portions of their population that would be considered wealthy or middle class by Western standards, a much greater percentage of India's population is low income. As a result, they spend money, live and use products differently than the countries where most multinational corporations originate.

Rural areas, in particular, exemplify these differences. Understanding the characteristics that make the people and the market in rural India unique can help corporations to enter this market with success.

Products which are needed can be produced and in their economic range only should be tried. This is the reason why smaller packages, low value models and items are to be tried in the rural market. The attributes like design, colour, size, shape, taste and packaging should be of the rural people's liking. HLL, a subsidiary of Unilever, initiated 'Operation Bharat' to tap rural markets. It came out with low-priced sample packets of its toothpaste, fairness cream, Clinic Plus shampoo and Ponds cream, targeting 20 million households.

The rural people should not feel that they are made to pay more than what is available in urban markets. Hence, what is sold to them in the rural market should be a slightly lower price or same price as in urban markets. For this if required, the cost can be saved in packing and discount pattern. Cavin Care introduced INR 0.50 sachet packs of Chik shampoo at a time when penetration of hair care products in rural India was quite low. The strategy was highly successful and Chik shampoo's market share grew from 5.61 percent in 1999 to 23 percent in 2003. The sachet strategy creates "artificial price differential" and drives volume sales.

After taking care of product and price aspect, the next important category is distribution. The product should be made available to the rural consumer at convenient places/points. Wherever the agents or leaders are not available, the good old hawker method will work. The bigger companies who make huge profits due to selling in cities and urban areas can afford to invest more to develop sales distribution in the rural sector. Even if adequate returns are not available, they can appoint agents who distribute the goods through the hawkers. The only risk is that transactions are in cash and hence accountability is difficult. There is scope to increase the distribution pattern with reasonable risk factors attached to it.

Promotion is a back-up function for the sales force. It is essential to communicate the merits and advantages of products through various methods of promotion. Companies face a daunting task in communicating information about their products to the consumer due to lack of literacy and the failure of traditional media to penetrate in the rural households. Hence, the promotion mix has to be more towards non-conventional yet effective medium like Puppetry, Folk Theater & Song, Wall Painting, Demonstration and Posters.

Cross-functional coordination: Coordination among different functions in an organisation is key to formulating effective BOP marketing strategies. Further, companies should also focus on efficiency. For example, HLL, through its Project Shakti launched in 2000, encouraged rural women to spread awareness about HLL personal care products. The project was test-marketed in Andhra Pradesh and was aimed at creating "income-generating capabilities for underprivileged rural women by providing a small-scale enterprise

opportunity, and improving rural living standards through health and hygiene awareness". The project, besides being an initiative to help rural women, helped enhance the company's distribution network at a low cost.

BUYING BEHAVIOUR IN RURAL MARKET

Due to the differences in the needs, buying behavior, values and aspirations of the customers the marketing concepts have to be modified to be successful. Buying behavior is different among urban and rural customers in the same income bracket as the rural mind is troubled by uncertainties which may be irrelevant in the urban context. The rural consumer is socially, psychologically, economically different from their urban counterparts. Therefore, companies need to understand the social dynamics and attitude variations within each village though nationally it follows a consistent pattern.

One of the main influencers in the rural market is the retailer. He is the person who pushes a brand to the consumer, as the consumer is unaware of different brands existing and has no choice or preference.

The rural consumer only asks for the generic product from the retailer and the retailer pushes a particular brand according to the availability and the returns he gets out of that brand. Hence, educating, training and networking with these retailers should be emphasized.

IV. SUCCESSFUL COMPANIES IN RURAL MARKET

HUL's initiatives in the rural India- Project Shakti, which not only helped their company attain some revenue but also helped the poor women of the village to attain some money which is surely going to increase their purchasing power. Also this will increase their brand loyalty as well as recognition in that area. Shakti is HUL's rural initiative, which targets small villages with population of less than 2000 people or less. It seeks to empower underprivileged rural women by providing income-generating opportunities, health and hygiene education through the Shakti Vani programme, and creating access to relevant information through the Shakti community portal. In general, rural women in India are underprivileged and need a sustainable source of income. NGOs, governmental bodies and other institutions have been working to improve the status of rural women. Shakti is a pioneering effort in creating livelihoods for rural women, organised in Self-Help Groups (SHGs), and improving living standards in rural India. Shakti provides critically needed additional income to these women and their families, by equipping and training them to become an extended arm of the company's operation. Started in 2001, Shakti has already been extended to about 80,000 villages in 15 states - Andhra Pradesh, Karnataka, Tamilnadu, Maharashtra, Gujarat, Madhya Pradesh, Chattisgarh, Uttar Pradesh, Rajasthan, Punjab, Haryana, West Bengal, Orissa, Bihar and Jharkhand. The respective state governments and several NGOs are actively involved in the initiative.

Shakti already has about 25,000 women entrepreneurs in its fold. A typical Shakti entrepreneur earns a sustainable income of about Rs.700-Rs.1,000 per month, which is double their average household income. Shakti is thus creating opportunities for rural women to live in improved conditions and with dignity, while improving the overall standard of living in their families. In addition, it involves health and hygiene programmes, which help to improve the standard of living of the rural community. Shakti's ambit already covers about 15 million rural populations. Plans are also being drawn up to bring in partners involved in agriculture, health, insurance and education to catalyze overall rural development.

ITC's E-Choupal, was the single-largest information technology-based intervention by a corporate entity in rural India. Transforming the Indian farmer into a progressive knowledge-seeking netizen. Enriching the farmer with knowledge; elevating him to a new order of empowerment. E-Choupal delivers real-time information and customised knowledge to improve the farmer's decision-making ability, thereby better aligning farm output to market demands; securing better quality, productivity and improved price discovery. The model helps aggregate demand in the nature of a virtual producers' co-operative, in the process facilitating access to higher quality farm inputs at lower costs for the farmer. The e-Choupal initiative also creates a direct marketing channel, eliminating wasteful intermediation and multiple handling, thus reducing transaction costs and making logistics efficient. The e-Choupal project is already benefiting over 3.5 million farmers. By 2013, the e-Choupal network will cover over 100,000 villages, representing 1/6th of rural India, and create more than 10 million e-farmers.

Another example that provides a good insight into the integration of the 'bottom of pyramid' producer into the corporate production is that of the supply chain and production process of **McFries**. This innovative method of introducing an exotic variety in India and the innovative method of cultivation yielded results in 2008 when 70% of the potato used for making **McFries by McCain India** was sourced from the Indian fields. Integrating the agricultural producer at the bottom of the pyramid with industrial production in this way not only increases the earning potential of the neglected lot but also enhances their exposure to modern means of production, and value-added products and brands and makes them vibrant customers and a lucrative market for all sorts of products.

Coca-Cola was one of the first global majors to have spotted the potential spin offs from the country's rural market. It has perfected a unique supply chain to cater to India's vast rural markets hinterland. The results are working and coca-cola India rural penetration increased from 13% in 2001 to 25% in mid 2003. Over that period, the numbers of company's increased from less than 4000 to 5500. Coke's, being fast moving consumer good, hold enormous potential from a manufacturer like the coca-cola company. The biggest reason for this is the low per capita consumption, which coke estimates at 3.7 bottles person per year compared to 10 bottles per person per year for all India. Breaking to this market required innovative thinking and a new strategy. Rural India meant reaching 6.27.00 square Km; it meant getting distributors to travel 200 kms to reach five shops with drop sizes of than a case. A typical village retail environment consists of 4-5 kirana shops (stripped down version of mom and pop shops), the size of such stores varies depending on the size on population density of village where it serves. It also tapped local forms of entertainment like annual haats and fairs and made huge investments in infrastructure for distribution and marketing. Coke realised that the communication media used in cities and urban areas would not work in villages because of low penetration of conventional media. Coca Cola India also launched television commercials (TVCs) targeted at rural consumers. In orders to reach more rural consumers, Coca Cola India increased its ad-spend on Doordarshan. The company ensured that all its rural marketing initiatives were well-supported by TVCs. When Coca Cola launched Chota Coke in 2002 price at Rs. 5, it bought out a commercial featuring Bollywood actor Aamir Khan to communicate the messages of the price cut and the launch of 200 ml bottles to the rural consumers. The commercial was shot in a rural setting. In the summer of 2003, Coca Cola India came up with a new commercial featuring Aamir Khan, to further strengthen the Coca Cola brand image among rural consumers. The commercial aimed at making coke a generic name for 'Thanda.' Of the reason for picking up the word 'Thanda', Prasoan Joshi, national creative director – McCann Erickson, the creator of the commercial, said, "Thanda is a very North India-centric phenomenon. Go to any restaurant in the north, and attendants would promptly ask, 'thandayagaram?' Between March and September 2003, Coca Cola India launched three commercials with the "ThandaMatlab Coca-Cola" tag line. All the three commercials aimed to make rural and semi-urban consumers connect with Coca-Cola. The first ad featured Aamir Khan as a 'tapori' (street smart); in the ad he makes the association between Coca-Cola and the word 'Thanda'. The second commercial in the series featured Aamir Khan as a "Hyderabad shop- keeper"; here again he equates the word 'Thanda' with Coca-Cola. The third commercial featured Aamir Khan as a 'Punjabi Farmer' who offers Coca Cola to ladies asking for Thanda. This ad was a huge success and this helped Coke to tap the rural market.

ICICI Bank formulated a comprehensive channel strategy for rural markets with multiple channels catering to all segments of the rural population. This involves setting up an ICICI Bank touch point with in ten kilometers from any customer, using a combination of branch and non-branch channels. Hybrid low cost distribution network is established by partnering with corporate, micro-finance institutions, franchisees and rural marketing agents, setting up branches at strategic locations and leveraging the distribution network of other banks. The Bank is using technology to tie- in all the channels and products to reduce costs. The number of rural internet kiosks was increased to about 4,300 in March 31,2006 from about 2,000 in March 31,2005. The total number of partner micro finance institutions / nongovernment organization was scaled to 102 (March 2006) from 45 (March 2005). This has lead to an outreach of about 3.2 million low-income clients with an outstanding asset of Rs.23.5 billion. To make technology more user friendly for rural consumers and to implement inclusive banking, ICICI bank is planning to introduce biometric ATMs. Using thumbprint and voice guidance in ATMs reduces literacy requirements to a considerable extend. Thus, establishing the identity of a rural depositor through biometrics makes it possible for illiterate or barely literate consumers to become part of the banking user community.

Corporation Bank took technology to rural areas by introducing RFID/Smart Card based authentication devices that are operated by the business correspondents (BCs) at identified villages. The BCs serve as literal extension counters of the bank at these villages by providing basic banking services to people in rural areas. The bank also tied-up with a leading technology vendor for providing standardized infrastructure to banks. This helps identify the customer and to establish credit worthiness profiles. Using this information banks can take financial and non-financial products and services to the rural areas.

Having timed out the competition in the urban markets, **Titan Industries**, the country's largest watch maker also moved to the rural consumers. Their 'Sonata', brand is aimed to both "satisfy and stimulate" rural demand. Titan sees rural India as a market waiting for the marketer. Titan managers believe that the rural market needs a completely different communication exercise to be effective.

Ericsson India, connected 18 villages and 15 small towns in Tamil Nadu through the Gramjyoti Rural Broadband Project, entered into tie-ups with various domain experts to offer services and information relevant to its target audience. Ericsson tied up with Apollo Hospitals to offer telemedicine and mobile healthcare services.

It has also tied up with Bangalore-based Edurite Technologies to offer E-learning services, while E governance will be offered to Gramjyoti villages and towns through a tie-up with the local government.

Going rural is not exactly a new mantra for India's marketers. Even within the auto industry, every manufacturer worth its horsepower has been traversing the highways and bylanes of the hinterland. Non urban markets account for 32% of the sales for India's second largest automaker, Hyundai. General Motors tool sells 30% of its cars –mainly the Chevrolet Spark, Beat and Tavera – in rural India. At the centre of **Maruti's** communication strategy is a roadshow and a film screening inside a truck kitted with a big Samsung LCD television, a split AC and push-back chairs. The short film tells a simple story of an average villager who, after getting taken in by the persuasive skills of his Wagon R-owing friend, ends up buying one for himself. Its driven by a single plot and identifiable characters. In the year 2011-2012, Alto has accounted 36% of rural sales, Omni has accounted 13.6% of rural sales and WagonR has accounted 12% of rural sales. In 2010-11, Maruti's rural sales as contribution to total sales was 20% which has increased to 26% in the year 2011-1012.

Nokia launched its first dual-Sim handset last June- two and a half years after the likes of Micromax and GFive made a splash. But in less than a year it has dethroned the first movers. According to Gfk, a market research firm, Nokia led with a 23% share in the dual SIM segment in January 2012. Samsung, GFive and Micromax followed with shares of 12.7%, 9.8% and 8.7% respectively. Nokia has gone all out to prove it still has the marketing chops to create a big impact. Even as its bikers generated buzz in the small towns of Punjab, Rajasthan, Himachal Pradesh and Uttarakhand, it relied on street plays and torch rallies at night for consumer engagement. For instance, the company undertook a massive NukkadNatak (street play) activity in 575 towns and village across six North Indian states. A group of stage artists would enter a crowded market area and enact a comedy play, which smartly weaved the benefits of dual-SIM handsets into the script. This was followed by demonstrations of the device and also prizes for those who purchased on the spot. So even if Nokia has not delivered the proverbial 'i-Phone/Android killer' with Lumia, it's been busy harvesting the proverbial fortune at the bottom of the pyramid. Venturing several years late into the crowded dual SIM market, the brand has become a category leader in less than a year.

V. CONCLUSION

Rural markets, as part of any economy, have untapped potential. There are several difficulties confronting the effort to fully explore rural markets. The concept of rural markets in India, as also in several other countries, is still in evolving shape, and the sector poses a variety of challenges, including understanding the dynamics of the rural markets and strategies to supply and satisfy the rural consumers. Companies have started following C K Prahalad's idea of Fortune at the bottom of the pyramid and they have started designing and developing innovative products and services which will help the poor prosper by partnering and engaging with them. If companies are able to tap this huge potential in the rural arena in the true sense, then it would be win-win situation for both the company and the customer.

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Literature Review:

Indian Commodity Market in Its New Awakening: Possibilities and Obstacles

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ABSTRACT

In India, the partaking of Indian farmers in the commodity derivative market is almost absent. It is primarily because of lack of education, awareness, policies, poor Infrastructure, lack of foreign investment, and lack of confidence. The Indian commodity derivative market can be very useful in providing fair price to the farmers. The major concern is the long chain of intermediary from the field-to-fork (farmers to the consumers), who eats away a great deal of margin from the farmers profit. Another bottleneck is that the commodity market in India is not self-sufficient to provide delivery base trading platform. Warehousing and transportation facility, are also very poor due to which the framers have to sell their crops below market price, this in turn makes the commodity trade technically difficult. The Chinese and US market has made significant progress over the years and even India has the potentiality to grow similarly.

Commodity Market Pre-Liberalization:

Mr. Rohit Bansal (2014), comments that by 1960 the government of India banned commodity trading for four decades due to which the development became slow. He also highlighted that the part of government is very vital in encouraging the commodity market in India. This is very imperative because government dogma is the pillar for economic growth and without government consideration, the commodity market cannot develop. Shaik Masood & T Satyanarayan” (2015) the commodity trade completely shut down in India by the end of 1960, before that the commodity trade underway in the year 1875 with the Introduction of (Bombay Trade Association). Injunction on commodity trade until 2002 retained the future commodity trade in Indian future market in its sleeping mode. Later after the economic liberalization, the commodity market resumed and the market experienced a reawakening in the bullion market. Ever since then, the bullion market has, experienced progress but still new instruments are required. A lot of possibility is still there in the field of research and investigation concerning the aspects that are effecting the market.

Nonetheless, the Indian commodity market is attending an important role of price discovery instrument. The Indian commodity market is still much unfledged as paralleled to the other countries commodity market. The market suffers from serious infrastructural gap that is required for supporting full-fledged delivery base trading. Among the infrastructural accommodations, the most important is warehousing facilities that needs serious consideration. In addition, risk-hedging mechanism needs to be developed, option trade on

more commodity needs to introduce. The foreign investors are restricted to trade in Indian commodity derivative market. However, SEBI has allowed foreign investment under EFE's (Eligible Foreign Entities) but the ban has sustained on agricultural product.

Infrastructural Challenges:

Mr. Angad Singh Maravi (2015) has voiced that the commodity market plays a significant part in handling price risk for the farmers. He also stressed the part of agricultural marketing and warehousing in price risk management. He is of the view that the commodity market in India has experienced some progress in the recent past. He held that India is fifth largest producer of commodity in the world market. This is significant because this displays that India has growth potential to outshine in the field of commodity trading. "H K Sathisha" (2018) India is an agricultural economy and 70% of the population is reliant upon agriculture. *Despite being a one of the prime agriculture economy, the farmers in India are poor and they are not receiving fair price of their crops.* In lieu of appropriate infrastructure in commodity trading the Indian farmers have no alternative other than to sell their crops to the local traders, who purchase their yield at an excessive cut-rate price. Due to the want of proper education and training, the theory of hedging is unfamiliar and most of the traders who trade are speculators and not farmers. India is amongst the topmost five producer of Meat and livestock; also, it is one of the major producer of cash crops. Still besides all these accomplishment, the country aches for basic agriculture facilities like irrigation, Road, Transport, Electricity etc. unless the Indian commodity market accomplishes with basic infrastructure the miseries of our farmers will not finish. There is an abundant possibility for our country to exploit the idle opportunity of commodity market, also there is a limitless potential in the commodity derivative market to address the farmers low profitability issue.

Lack of Farmers Participation:

There have been numerous government ingenuities to inspire the farmers; in the year 2015-16, around 872 wakefulness camps in all over country were organized. The global commodity trade is a benchmark for India to achieve. Other developed countries are gaining the benefits of their commodity market with the instrument like future, swaps, options, spot and cash trade for immediate delivery. The attitude of Indian farmers is to avoid risk they lack risk-taking boldness. The reason behind lack of risk appetite among the farmers is their financial status, most of the farmers in our country are poor, and they are hesitant to undertake any investment adventure. There is very little information about the commodity market among the Indian farmers. Female farmers are very ignorant. Only those who are informed are between 30-40 age group and with educational background and higher income. This is revealing that the poor farmers especially old age farmers are mostly unaware about the commodity market. The broking houses are also of the belief that farmers do not invest in their broking houses; all those who are investing in commodity market are short-term traders. The broking house also revealed that the Indian famers are poor and consequently they lack risk-taking boldness. Most of the farmers are educated as found in the sample surveyed also they can read and write in English. Moreover, 61% of them have internet connections and 60.8% uses smart phones. However, the computer literacy is only 27.2% and 21.5% own laptops, there is positive correlation between computer literacy and educational background. This displays that the ground for the commodity market is very fertile and there are numerous possibilities for the farmers, and they can take advantage of it.

SEBI with a New Vision:

Mr. KRS Sharma (2013) mentioned that India should have made noteworthy progress in the field of commodity trading, as it is an agro-based economy. Still India is lagging behind in commodity trade, which is not a good economic indicator. The reasons for the slow growth is; poor Govt policy, ban on future trading of certain commodity due to the fear that the commodity price will rise. The merger of FMC with SEBI is a reformist step now that the Govt. of India has taken. Exchange Board of India (SEBI) has already taken regulatory sight at a new level. Opening option trading in bullion market is the first step in this direction. Other areas are regulation of warehouses and recognition of all exchanges in India as stock exchanges. SEBI is also planning to allow the commercial bank to take positions in the commodity market; it is indeed dubious as RBI is not in support of this decision. SEBI has also suggested allowing of mutual funds in the commodity market through commodity base mutual funds; indeed the department of economic affairs has reserved its comments on the issue.

"Mrs. Isha Chhajed & Mr. Sameer Mehta" (2013) emphasizes that the important role of commodity market is price discovery, she further emphasized that for an effective price discovery the farmers, Intermediary, whole sellers, and infrastructure has to work with proper coordination and synergy. This is crucial because all these are the primary constituents of commodity market and are the most vital organs of it. For fair price discovery, it is important that all the stakeholders actively participate in the commodity market. If the farmers are not participating in the commodity market, then the commodity market cannot operate in full efficiency. Commodity market is a great instrument in the hands of gov. and the policy makers. The commodity market helps to ascertain the unfavorable price movement beforehand and helps them to take corrective actions. Apart from the basic function, the commodity market helps control black marketing by promoting transparency and liquid market. Kushankur Dey, Vasant P Gandhi, Kanish Debnath (2019) the real time price display system can be very helpful for the farmer to abreast themselves with the current price of the market, as the farmers sell their crops to the local traders at a great discounted price because they are unaware of the current market price.

Kanushka Dey, Vasant P. Gandhi, Kanish Debnath (2019), Commodity exchanges need to make the farmers aware about the usefulness of commodity market to them. It is indeed a particle issue that in India most of the farmers have small farm land, hence they do not produce so much that it could be taken up to the market. Therefore, the role of farm producing organization (FPO) become integral in this regard. *The FPO members can pool the yield and dispatch it to the nearest exchange notified delivery centers.* Mandi needs to modernized, and a single national level market be constituted by integrating all the market under one hood. This will help in speeding up the price disseminating and prevent asymmetric pricing in the market. *The effective price discovery will help the farmers decide which crop they want to sow in their field.*

Artificial holding of the commodity by the speculator also disturbs the market efficiency and creates artificial demand; this gives rise to the problem of inflated price of the commodity. The price discovery purpose of the market gets defeated due to speculation. SEBI and FMC merger must together address this issue, and strictly oversee the speculative movements in the market. It would be prudential that voluntary organizations may come up to connect the producers and bulk buyers. The financial institutions may also promote pledged-commodity based negotiable instruments against the warehouse receipt. This will increase the liquidity in the commodity market and speed-up the trade volume.

Major Players and scope for India:

The Chinese future market is the one of the largest future market in the World⁹. The interesting part of Chinese commodity market is that it was established recently in the year 1990. However, the market is very new comparatively but it has grown exponentially over the period, and now it among the largest. There are currently four exchanges operating in China. Zhengzhou Commodity Exchange (ZCE), Dalian Commodity Exchange (DCE), Shanghai Future Exchange (SHFE), and China Financial Future Exchange (CFEX). The US Commodity Market is the second largest in the world. The Chinese future market is an inspiration for us as the agriculture base of India is similar to that of China.

CME group of US is the largest future exchange in the world. The CME consists of Chicago Mercantile Exchange, Chicago Board of Trades (CBOT), New York Mercantile Exchange (NYMEX), Commodity Exchange Inc. (COMEX), Kansas City Board of Trade (KCBT) and NEX Group. India has all the resources and the prerequisites, which can make it, rub shoulders with other nations but with proper encouragement and govt. support.

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An overview of indexing agencies: A special reference to WOS and SCOPUS

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ABSTRACT

For a researcher publishing an article is a must. In this juncture it is imperative to have knowledge about the different indexing agencies. Through this research article researcher has made an effort to do an overall analysis of different indexing agencies. The researcher in this article has examined the 2 indexing agencies including SCOPUS and Web of Science. Researcher has also spoke about different parameters of indexing and different indexing measures followed by indexing agencies like i10, H index and SC Imago Journal Rank etc. This research is secondary in nature and data require for this article has been taken from secondary sources like websites and research article. All the sources are been cited in the article. This research article will be a guide for the budding researcher to know more about different indexing agencies and their parameters.

Key words: *i10, H index and SC Imago Journal Rank*

Introduction

In general indexing is the process of arranging data in a systematic way. There are other terms which are used to describe indexing as well like, arranging data in a most presentable and accessible way. Example of indexing are as follows a databases indexing is an indexing service where there is process which involves creation database to help expedite information retrieval in the future.(*Indexing*, no date).

Even before the invention of the books, the oldest civilization like Greeks and romans were using indexing process to organize information. One of the first forms of information retrieval source found was papyrus scroll. This scroll was not the efficient way of information retrieval. The first use of “index” referred to the slip attached to the scroll which contained the title and the authors of the book. The next system used is “index” is what we know as table of content. After many years Greeks found out alphabetization(‘A History of Index Creation’, no date).

Indexes go way back beyond the 17th century. The Gerard’s Herbal of the 1590s had several fascinating indexes according to Hilary Calvert. Barbara Cohen writes that the alphabetical listing of the earliest ones only went as far as the first letter of the entry... no one thought at first to index each entry in either letter-by-letter or word-by-word order. Maja-Lisa writes that Peter Heylyn's 1652 *Cosmographie in Four Books* contains a number of tables at the end. They are alphabetical indexes and he prefaces them with "Short Tables may not seem proportion able to so long a Work, especially in an Age wherein there are so many that pretend to learn, who study more the Index than they do in the Book."(*History of Information Retrieval*, no date)

Printed book indexes appeared in 1460. That was the time of beginning of the printing. Development in medicine was aided by indexes to medical texts and herbals. The first printed proper indexing is Biblical concordances and was published in 1544. The publisher was burned for heresy. In the 19th century there were moves to codify indexing. The society of indexing was formed in 1877 with an aim of creating “a general index of universal literature” followed by the foundation of the Society of Indexers in 1957, the American Society of Indexers in 1968, the Australian and New Zealand Society of Indexers in 1976 and the Indexing Society of Canada in 1977(‘A History of Index Creation’, no date). The 1877 society continued to exist till 1890. Later in the year indexer was formed in Great Britain in 1957(Simkin, no date)

Table of contents

Pliny the Elder (died 79 A.D.) wrote a book namely “The Natural history in 37 books”. To make the readers feel easy he used table contents. Out of 37 books one book was entirely consisting of table of content. He even appended to each list of items for each book his list of Greek and Roman authors used in compiling the information for that book(*History of Information Retrieval*, no date)

Alphabetization

One form of indexing. This form is much neglected. This form was followed by the Greek scholars at the library of Alexandria in Egypt. We still use this method of indexing in the books, but this method is neglected by the readers(*History of Information Retrieval*, no date).

Indexes in the modern days, giving exact locations of names and subjects in a book. This system has been made before the age of printing. There are several reasons for this. First, as long as books were in the form of scrolls, there were neither page nor leaf numbers not line counts. Also, even had there been such numerical indicators, it would have been impractical to append an index giving exact references, because in order for a reader to consult the index, the scroll would have to be unrolled to the very end and then to be rolled back to the relevant page. Second, even though popular works were written in many copies, no two of them would be exactly the same, so that an index could at best have been made to chapters or paragraphs, but not to exact pages. Yet such a division of texts was rarely done. Only the invention of printing around 1450 made it possible to produce identical copies of books in large numbers, so that soon afterwards the first indexes began to be compiled, especially those with books of reference, such as herbals.

Index entries were not always alphabetized by considering every letter in a word from starting to end, as people do today. Most early indexes were arranged only by the first letter of the first word. The rest being left in no particular order at all. Gradually, alphabetization advanced to an arrangement by the first syllable, that is, the first two or three letters, the rest of entry still being left unordered. Only very few indexes compiled in the 16th and early 17th centuries had fully alphabetized entries. But by the 18th century full alphabetization became the rule.(*History of Information Retrieval*, no date)

Objective

1. To learn the indexing parameters of SCOPUS and Web of Science
2. To learn about the history of indexing
3. To learn the metrics of SCOPUS and WOS

Methodology

This study is qualitative in nature. Information for the study has been taken from web source and the due credit has been given.

Statement of the problem

In the modern world for a researcher knowledge about indexing is a very important. It is compulsory for a researcher to publish article in a well indexed journal. In this context it gives need for knowing the indexing procedure, parameter and the indexing agencies present. Through this research researcher is trying to collect information about indexing through different sources.

Indexing is an important parameter for any journal to increase the visibility of the journal at the international level. Indexing is the process by which a journal will maintain its record(*INTERNATIONAL INSTITUTE OF ORGANIZED RESEARCH (I2OR)*, no date). In a traditional way of indexing an indexer will include people, places, events and concepts selected by the indexer. Here in this case the indexer may be an outsider, author, an editor, or may be an indexer working as a professional indexer(*Index (publishing)*, no date).

Evaluation Criteria for a journal

1. Journal must have ISSN address
2. Minimum one issue should be published
3. Articles published should be in the research paper template
4. Quality in terms of figures and graphs should be maintained
5. Regularity of the journal in publishing issues is mandatory
6. Published paper should be available for further research

Journal must have ISSN address

International standard serial number is the uniquely designed eight digit serial number , which is given specifically to a magazine published at the international level(Wikipedia, no date). ISSN number gives the impression of quality of the Article presented in the particular book or quality of the content in the particular book.

Advantages of ISSN Number

1. It gives unique identity to the article presented regardless of the country or the language presented.
2. It has a global identity
3. It identifies accurate and immediate identification
4. It helps to locate specific work. ISSN assigned book carries unique number which will help to find the work
5. It will help the researcher to recognize the researcher to quote his work in the future

Disadvantages of ISSN

1. ISSN is not unique. ISSN is for same work in different journal may be different number. In these cases a URN will help to identify correctly
2. ISSN does not have resolving mechanism like URN or DOI(For example a DOI can be search using internet but not ISSN
3. ISSN number is just another number for a common man
4. ISSN number doesn't guarantee quality work, as some of the journal publish with the false data
5. ISSN number doesn't guarantee quality

Minimum one issue should be published

To get the journal indexed on reputed journal, Journal must have at least one publication.

Advantages

1. Having one issue published will helps journal to gain trust and respect
2. A journal will have do lot of background work to get the article published and get the journal published. In turn the will raise the quality of the journal.
3. A journal and the author will get into limelight when it publishes the works given by the researchers
4. A journal may can become famous with its first publication, if it has break through type of research
5. Quality can be improved as the article is new and no previous benchmarks are existing for a new article

Disadvantages

1. A one issue of an journal doesn't guarantee the journal is a quality one
2. Now a day getting a journal published is easy task, and because of which predatory journals issue come to the forefront.
3. A first time journal may not always carry a quality work, as it may not have the experience as the old journal or board.
4. Minimum one issue should not be a criterion for selecting a journal for indexing. As first published may not be always of quality on in nature
5. Quality of content received is poor in a newly published article

Articles published should be in the research paper template

A research article unlike a newspaper article has its own value and the framework to follow. A research article is believed and read by the researcher and sometimes further research carried on by the person on the basis of this. It's always better and a researcher ought to follow the research format to get the work published in an established journal

Advantages

1. It gives the researcher to learn how to publish
2. It also helps the researching community to read the content easily
3. A research paper template keeps the work clean and neat in terms of looks
4. A research paper template will show case the knowledge of a researcher towards the research
5. A framework will make the work easier

Disadvantage

1. Research format may not be understood by a common person
2. Research format tends to change
3. Research format is not uniform for all the disciplines
4. Researcher has no clear view about which format is followed
5. Research format differs from country to country

Journal selection for WOS

Web of Science journal indexing agency is run by the principles of Dr. Eugene Garfield. C

He is known as the inventor of the first citation index. His principles were objectivity, selectivity and collection dynamics, but also adapt and respond to technological advances and changes in the publishing landscape (Group, no date)

Web of Science Journal Evaluation Process and Selection Criteria

The selection procedure of WOS is unique. The selection procedure is curated by the in-house editor. Each editor is focused on a specific field and they are expert in that field. The basic principles of selection process remain the same: objectivity, selectivity and collection dynamics. They use a single set of 28 criteria to evaluate journals; these are divided into 24 quality criteria designed to select for editorial rigor and best practice at the journal level, and four impact criteria designed to select the most influential journals in their respective fields using citation activity as the primary indicator of impact. Journals that meet quality criteria enter Emerging Sources Citation Index (ESCI) and Journal that meets additional impact criteria enter Science Citation Index Expanded (SCIE), Social Science Citation Index (SCI) and Arts and Humanities Citation Index (AHCI). There is concept of Journal Citation Report (JCR). Journals that are accepted in SCIE and/or SSCI before January 1st and that remain covered in one of these collections when JCR production is started in March, are eligible to appear in the June release of the JCR data and receive a Journal Impact Factor (JIF) (Group, no date)

The 24 quality criteria are sub-divided. Those criteria are given below.

Quality Criteria (24)

Initial Triage	Editorial Triage	Editorial Evaluation
Registration with the ISSN	Scholarly Content	Editorial Board Composition
Journal Title	Article Titles and Article Abstracts in English	Validity of Statements
Journal Publisher	Article Titles and Article Abstracts in English	Peer Review
Journal URL	Clarity of Language	Content Relevance
Content Access	Timeliness and/or Publication Volume	Grant Support Details
Presence of Peer review policy	Timeliness and/or Publication Volume	Adherence to Community Standards
Contact details	Presence of Ethics Statements	Author Distribution
	Editorial Affiliation Details	Appropriate Citations to the Literature
	Author Affiliation Details	

Editorial Evaluation (impact) (4)

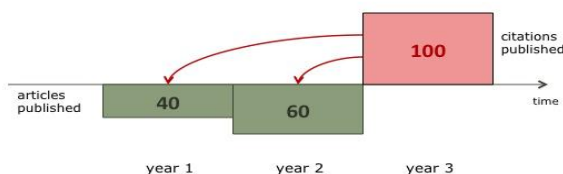
Editorial Evaluation (impact) factors
Comparative Citation Analysis
Author Citation Analysis
Editorial Board Citation Analysis
Content Significance

Impact Factor, SC Imago Journal Rank (SJR), h-index, i10-index**Impact factor**

The impact factor of an academic journal is a metric which reflects the yearly average number of citations to recent articles published in the journal. The impact factor was coined by Eugene Garfield, the founder of Institute of Scientific Information (ISI). Calculation of impact can be traced back to 1975 for journal listed in JCR (Journal Citation Report). In any given year, impact factor is the number of citations, received in that year, of articles published in that journal during the two preceding years, divided by the total number of "Citable items" published in that journal during the 2 preceding year (*Impact factor*, no date).

The Impact Factor

Introduced in 1950's by Eugene Garfield: ISI



$$IF(\text{year 3}) = 100 / 40 + 60 = 1$$

(Curtrice, no date)

SC Imago Journal Rank (SJR)

SJR weights citations based on the source they come from. The subject field, quality and reputation of the journal have a direct effect on the value of a citation. SJR also normalizes for differences in citation behavior between subject fields. Further, SJR is calculated by SC Imago Lab and developed from Scopus data (Beatty, no date)

H-index

The H index is a number intended to represent both the productivity and the impact of particular scholar or scientist. The H index is calculated by counting the number of publications for which an author has been cited by the other author's at least same number of time. For instance, an h-index of 17 means that the scientist has published at least 17 papers that have each been cited at least 17 times. If the scientist's 18th most cited publication was cited only 10 times, the h-index would remain at 17. If the scientist's 18th most cited publication was cited 18 or more times, the h-index would rise to 18 (Gann, no date)

I10 index

Created by Google Scholar and used in Google's My Citations feature. I10-Index = the number of publications with at least 10 citations. This very simple measure is only used by Google Scholar, and is another way to help gauge the productivity of a scholar.

Advantages of i10-Index

Very simple and straightforward to calculate

My Citations in Google Scholar is free and easy to use

Disadvantages of i10-Index

Used only in Google Scholar (*Measuring your research impact: i10-Index*, 2019)

Conclusion

A researcher to publish his work will largely depend on the quality journal. A journal can be said of good quality when it is listed by the famous publishing house or research house. This article talks about the general parameters of indexing and it also talks about advantages and disadvantages of those parameters. In the article researcher has also made an effort to talk about different indexing parameters and different indexes followed by in the agencies. For a researcher publication is an important challenge. Researcher needs to have prior knowledge about the above mentioned works. Very often we see some of the term like impact factors, H index are been used by different journals, but are unknown to a researcher. H index is becoming part of researcher's life. A researcher is respected based on the H indexes and impact of journal which researcher will publish. For number of reasons Indian researching agencies are following Indexing parameters created by the international agencies. It is a high time for all the Indians to have our own indexing parameter. This can be a topic for the future research

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UNEMPLOYMENT AMONG EDUCATED WOMEN IN INDIA

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ABSTRACT

The rate of unemployment among women in India is more than twice of that of men with same potentials. There are countless elements that influence a woman's choice and capability to find work, the gender slit in the unemployment rate beside with ILO (International Labour Organization) research suggest that women, particularly highly-educated ones, face supplementary obstacles as compared to men in retrieving professions. Women are retreating from the work force in large numbers and today India's women are less active professionally than women in our own neighboring countries. The rational link between education and employment is seems to be broken in India. In rural India, 67% of girls who are graduates do not have any jobs. In towns and cities, 68.3% of women who graduate don't have paid jobs, says a 2015 report by the United Nations Development Programme (UNDP). Across the globe, refining women and giving them the ability stand on their feet has been a priority. However, day by day as modern people in India understand that without the growth and development of women, development of country is not attainable.

Keywords: *unemployment, obstacles, education, development*

Introduction

The study on the concept of employment and unemployment has lot of influence in the global scenario as well as in India. The unemployment among educated women and its influence on the economy is something that need great amount of courtesy and should be studied intensely. The Labour Force Survey (LFS) describes an employed person as someone aged 16, or over, who has completed at least one hour of work in the period being measured, or are provisionally away from his or her job, such as being on holiday. The term unemployment is defined by the Bureau of Labour Statistics as people who do not have a job, have vigorously looked for work in the past four weeks, and are currently available for work. In order to study the unemployment problem of women we should be very much concerned about their educational attainment in our country. Education is the most major instrument for human resource advancement. Education of women, therefore, inhabits top priority amongst various measures taken to expand the status of women in India. It is considered to be the most effective weapon for instigating social change. In recent years, the emphasis of planning has shifted from training women for their traditional roles as house wives and mothers to recognising their worth as producers, making a major input to family and national income. The Indian development model has yet to fully integrate the important role played by women for boosting the socio-economic growth of the country.

The education among the women in India is moderately high yet the figures show that fewer of them are working. The difference is existed between the rural and urban areas .From India's census data and government surveys conducted by various agencies it has been established that in urban areas to every 54.6% employed men there were just 14.7% working women. In 2017, the labour force participation rate for women was 28.5% compared to 82% of men despite of their educational gains. In fact, almost 20 million women had fell out of the workforce between 2005 and 2012. Valuing girls and women is critical factor in making societies more prosperous. Women economic empowerment is highly linked with poverty reduction as women also tend to invest more of their earnings in their children and communities. Now we have to analyse the educational status of women in our country. The indicator which is used to analyse the educational attainment is literacy rate. The literacy rate can be measured in percentages. Literacy levels of the population constitute one of the most important elements of the quality of population and literacy rate is generally accepted as one of the basic

indicators of its progress. The literacy assessment survey (2016) defines the literacy rate as the ability to identify, understand, interpret, communicate and compute using printed and written materials associated with varying interests. Literacy involves a continuum of learning in enabling individuals to achieve his or her knowledge and potentials and participate fully in the community and wider society.

The following table shows the literacy rate in India from the year 1951 to 2011.

Census year	Persons (%)	Males (%)	Females (%)	Male-female gap in literacy rate (%)
1951	18.33	27.16	8.86	18.30
1961	28.3	40.4	15.35	25.05
1971	34.45	45.96	21.97	23.98
1981	43.57	56.38	29.76	26.62
1991	52.21	64.13	39.29	24.84
2001	64.83	75.26	53.67	21.59
2011	74.04	82.14	65.46	16.68

Source: Census of India

Note: 1981 Literacy rate exclude Assam where the 1981 census could not be conducted 1991 census literacy rate exclude Jammu and Kashmir.

The above table shows the literacy rate among both the males and females from the year 1951 to 2011. The male female gap in literacy rate is also shown in the table. In 1951, the rate of literacy among males is 27.16% and females are 8.86%. After that in consecutive years the literacy rate was increased at a diminishing rate both among males and females. During 1981, the male – female gap in literacy rate is highest. According to 2011 census, the literacy rate in India is 74.04% in which 82.14% among males and 65.46% among females. The literacy gap was also decreased to 16.68%.

In every year, the literacy rate among males is greater than the females. Low female literacy rate means an overall sluggish growth of India, as it impacts every arena of development. India is struggling hard to soothe its growing population through family planning programmes. But if females are illiterate, then this has a direct and negative impact on these initiatives. The female literacy rate is low in India because of huge number of reasons. One of the important reasons is the negative attitude of parents towards the girl child and her education is one of the major reasons of low female literacy rate in India. Many parents do not consider girls as earning members of their family, as after marriage they have to leave their parents home. But in spite of all reasons, women understand and realise that education can actually end the vicious cycle of poverty, their misfortune so that they can live a life with pride.

Rate of unemployment among women in India

Unemployment is a daunting problem for both the developed and developing countries. India is one of those developing countries which remain to have the problem of unemployment and underemployment despite continuous policy emphasizes and programmes to eradicate the problem. The unemployment rate in India is measured in three ways based on national sample survey data i.e. based on Usual Status (US), Current Weekly Status (CWS), and Current Daily Status (CDS). The unemployment rate based on the usual status indicates the magnitude of the persons unemployed for a relatively longer period and approximates to an indicator of the chronically unemployed. The current weekly status includes both chronic and intermittent unemployment of workers characterized as usually employed, caused by seasonal variations in the labour market. The current daily status concept gives an average picture of unemployment on a day during the survey year. Unlike US and CWS, which refer to unemployed persons, CDS refers to the persons days unemployed.

Measurement of unemployment is a process of quantifying the rate of unemployment within a region in a given period. A comparison of unemployment measurement of different countries would clarify the understanding of the measuring process in a better way. Usually the unemployment rate is expressed as percentages. It is calculated by using the following formula:

$$\text{Unemployment rate} = \text{Unemployed workers} / \text{Total labour force}$$

The unemployment rates are based on the usual status and expressed in percentages. The distinction has been made between the rural and urban areas. From the table it can be shown that compared to the rural areas, the unemployment rate is higher in the urban areas. The rate of unemployment among the women is higher in both the urban and rural area. During the 27th round of NSSO, the rate of unemployment is less compared to the successive years. The rate of unemployment among females and males is highest during the 32nd round of NSSO. The fluctuations are experienced among the males and females unemployment rates.

The unemployment rates among different states are different in nature. The various states of India experienced fluctuations in the rate of unemployment both in male and female. The distinction is also existed between the rural and urban areas. The following table shows the state wise unemployment rates during the year 2011-12. The unemployment rates are expressed in percentages.

State wise unemployment rates (%):2011-12

State	Rural			Urban		
	Female (%)	Male (%)	Total	Female (%)	Male (%)	Total
Andhra Pradesh	0.5	1.7	1.2	5.4	3.9	4.3
Arunachal Pradesh	1.6	1.7	1.7	8.7	3.6	4.8
Assam	5.7	4.3	4.5	7.0	5.4	5.6
Bihar	8.2	2.7	3.2	16.5	4.5	5.6
Chhattisgarh	0.3	1.1	0.8	4.7	4.1	4.3
Goa	0.8	6.6	5.1	9.7	2.9	4.6
Gujarat	0.2	0.4	0.3	1.7	0.6	0.8
Haryana	1.7	2.6	2.4	5.0	4.0	4.2
Himachal Pradesh	0.8	1.1	1.0	9.9	1.9	4.0
Jammu and Kashmir	3.0	2.2	2.5	19.0	4.1	7.0
Jharkhand	2.8	1.8	2.1	8.9	4.6	5.1
Karnataka	0.4	1.2	0.9	4.4	2.4	2.9
Kerala	14.2	3.1	6.8	13.9	2.7	6.1
Madhya Pradesh	0.0	0.6	0.4	3.5	2.4	2.6
Maharashtra	0.3	0.9	0.7	3.8	1.8	2.3
Odisha	2.0	2.3	2.2	2.0	3.9	3.5
Punjab	1.3	2.2	1.9	3.6	2.6	2.8
Rajasthan	0.4	0.9	0.7	2.5	3.2	3.1
Sikkim	1.0	0.9	1.0	0.0	3.2	2.3
Tamil Nadu	1.9	2.1	2.0	4.5	2.1	2.7
Uttar Pradesh	0.7	1.0	0.9	3.7	4.2	4.1
Uttarakhand	2.1	2.7	2.5	20.0	2.5	5.3
West Bengal	2.4	2.8	2.7	6.4	4.3	4.8
India	1.7	1.7	1.7	5.2	3.0	3.4

Source: NSSO, 68th round, July 2011-june 2012

Note: Figures relate to usual status principal and subsidiary (all) workers.

The above table shows that in rural area, the unemployment rate among females is higher in Kerala i.e. 14.2% followed by Bihar i.e. 8.2% and in urban area; the unemployment rate is highest in Jammu and Kashmir i.e. 19.0% followed by Bihar i.e. 16.5%. Kerala has experiencing the largest rate of unemployment both in rural and urban area during the period 2011-12. In total, India experienced 1.7% unemployment in rural and 3.4% in urban areas during the period 2011-12.

Rising income levels and stability in families are disincentivising women from joining the labour force, according to "Reassessing patterns of female labour force participation in India", a march 2017 report by the world bank, which analysed the government data from 2004-05 to 2011-12. Even more inexplicably, women went missing from the workforce at precisely the same time that girls

were making massive advances in education. The enrolment rate of girls in elementary education is nearly 100%. In higher education; it's nudged up from just 7.5% in 2002-03 to 20% in 2012-13.

Trends in female labour force participation

Labor force participation rate is defined as the section of working population in the age group of 16-64 in the economy currently employed or seeking employment. The participation rate refers to the total number of people or individuals who are currently employed or in search of a job. Female labor force participation is a driver of growth therefore the participation rates indicate the potential for a country to grow more rapidly. However, the relationship between women's engagement in the labor market and broader development outcomes is complex. The participation of women in the labor force varies considerably across the developing countries and emerging economies far more than in the case of men. This variation is driven by a wide variety of economic and social factors including economic growth, increasing educational attainment, falling fertility rates and social norms. Besides labor market, gender gaps are more pronounced in developing countries and disparity is highest in south Asian countries.

Falling labor force participation in India

The trend in female labour force participation is something which is worth analysing. The longer term trend suggests that female labour force participation rates in India have been puzzling. Female participation rates declined from 34.1% in 1990-2000 to 27.2% in 2011-12, and wide gender differences in participation rate also persists.

India's female labour force participation (FLFP) rate has remained visibly low and the international labour organisation ranks India's FLFP rate at 121 out of 131 countries in 2013, one of the lowest in the world. India had the lowest FLFP rate in South Asia, with exception of Pakistan. Globally, only parts of the Arab world have a lower FLFP rates than India. The decision of and the ability for women to participate in the labour force is the outcome of various economic and social factors that interact in a complex fashion at both the household and macro level. In India, the falling labour force participation among women is focused on four key explanations.

1. Rising educational enrolment of young women
2. lack of employment opportunities
3. Effect of household income on participation
4. Measurement

Among males, Sikkim has the highest work force participation followed by Tamil nadu and Karnataka. Among females, the highest rate is experienced by Himachal Pradesh followed by Sikkim. All the rates are expressed in percentages. Among all these states, the lowest workforce participation both in males and females are experienced in Bihar i.e. 33.36% and the highest is in Sikkim. The workforce participation may determine the growth and development of a country in such a manner that it will help to increase the national output and also the economy's growth potential. The women participation in employment scenario may fuel the growth of an economy to become one of the major economic powers and it may also help to increase the self esteems and privilege also the economic independency of women.

It has been observed that one year of unemployment reduces the life expectancy by five years. Hypertension, cardiac problems, psychoneurosis, depression, suicide are rising among youth as also other behaviors including joining anti-social groups. Alcoholism, drug addiction, smoking, and rash driving behaviors have increased. These behaviors are to take revenge against the society which has made the youth develop low self-esteem due to unemployment or not being able to be a productive member of the society. In recent decades, India has enjoyed economic and demographic conditions that ordinarily would lead to rising female labor-force participation rates. Economic growth has been high, averaging 6-7% in the 1990s and 2000s; fertility has fallen substantially; and female education has risen dramatically, albeit from a low level. The growth of educated unemployment in India is a matter of huge concern as the youth constitutes a large chunk of the population, and the new entrants to the job market bear the larger burnt of unemployment problem. After the independence it is believed that the problem of unemployment would become a myth of the past and that not a single educated son or daughter of free India would suffer from the plight of unemployment. The defective education system that produces graduates and post graduates like pins is one of the main cause for the problem of educated unemployment. In 2012, only 27% of adult Indian women had a job, or were actively looking for one compared to 79% of men.

Since unemployment is a serious macroeconomic problem and an indicator of macroeconomic instability, the state must take measures to fight it. However, ways to overcome unemployment are directly depend on the unemployment types, because they are caused by different reasons. In our view, the factor-based policy is one of the most effective, as it interprets unemployment in the full range of its manifestations. In particular, measures to deal with frictional unemployment primarily include the improvement of the information supply system for the labor market and creation of special services for this, while structural unemployment involves the provision of wide opportunities for training and retraining of the unemployed, as well as economic diplomacy measures aimed at

domestic market protection and attraction of investments. Cyclical and hidden unemployment could be prevented through the mechanism of administrative regulation, development of social partnership system and creation of additional jobs in the public sector.

At the same time, individual events cannot completely eliminate the risk of unemployment and its growth: this can be achieved only in the overall improvement of the economic situation in the Country. Therefore, the national policy to combat unemployment should focus on the long term, providing not only population employment, but also stable economic growth.

Remedies and solutions to educated unemployment among women

The educated unemployment among women is a serious issue that should be analysed very comprehensively. There must be some efforts which should be taken in order to curb the problem of educated unemployment. The efforts should be taken by not only the individuals but also the government should make serious efforts to tackle the problem of educated unemployment. The efforts can be made by the individuals himself or with the help of government. There are various remedies or solutions to this serious problem which should be made in a large manner. Some of the remedies for the educated unemployment can be expressed as follows;

□ **Efforts Made by Individual**

After 10 + 2 comes a very crucial period where we almost get puzzled to what stream to go into. This is the time we should sit down and think what will be best for us. We will not find carpenters, shoemakers, tailors or even barbers in this queue of employment searchers. This clearly shows the failure of modern educational system and insolvency of our policy makers. So if we really want to solve the unemployment problem, the educational system must be made job oriented. Now our country does not need only clerks, it is in need of persons who can serve her by their physical and mental skill.

□ **Earn while you learn**

Skills based education- One of the biggest problems that India faces towards eradicating its unemployment problem is the inter-temporal issue of making a living versus learning a skill. Rather than the traditional 12+4 years method of schooling there needs to be a different stream where skills are taught to those who need them to earn a living.

□ **Career Decision and Unemployment**

Career guidance helps people to reflect on their ambitions, interests, qualifications and abilities. It helps them to understand the labor market and education systems, and to relate this to what they know about themselves. Comprehensive career guidance tries to teach people to plan and make decisions about work and learning. Career guidance makes information about the labor market and about educational opportunities more accessible by organizing it, systematizing it, and making it available when and where people need it.

If career guidance is both to develop important skills for life and work and to assist with immediate decisions, there are significant implications for schools. They must adopt a learning-centered approach, over and above information and advice approach. This means building career education into the curriculum.

Remedies and Solutions to Educated Unemployment

1. The main remedy lies in the rapid industrialization.
2. The need of faster economic growth to generate more jobs.
3. The need of improvements in the education and training provided to the youths with a greater focus on vocational skills and self-employment.
4. The Government support to struggling industries is necessary to try to save jobs.
5. Promoting education especially female education and motivating people to have small families.
6. Enhanced focus on entrepreneurial, communication, and inter-personnel skill development
7. Increased cross-talk between public-private, formal/informal educational enterprises
8. Integrated counseling, evaluation, and career guidance initiatives

Effort Made By Government

1. Prime Minister's Rozgar Yojana (P.M.R.Y) for educated unemployed youth
2. Scheme for Educated Unemployed for employment generation in urban localities (SEEGUL)
3. Scheme of Self-Employment for Educated Unemployed Youth (SEEUY)
4. Schemes for the State Governments (Educated Unemployed Youth)
5. Scheme for "New Initiative in Skill Development through PPP" by Planning Commission of India
6. Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA)

Conclusion

Women have been recognized as the most vital section of the societies across the world and yet they continue to be marginalized and to be unequal. Women and girls, who constitute one half of the world's population and perform nearly two-thirds of the work hours, do not get paid for much of their work as majority of their contributions belong to the informal sector. As such, it is not valued in the formal sector that defines employment only as salaried jobs. Women perform the dual role of taking care of the family and competing for jobs which are hard to come by in a male dominated society. Though men too are often unemployed, they do not always have to face the same hurdles in a modern society in which women are caught between unemployment and traditional beliefs and practices. Women's economic activity is found to be very much affected by whether they are household heads or not, and by the number of children they own. The great difference in females' economic active rates between urban and rural areas may come from the difference in the industrial structure and job opportunities and from the income disparity between urban and rural areas. Therefore, the effects of the social and economic development plans currently being implemented need to be evaluated or reviewed based on these statistics as much and as often as possible. The unemployment among the educated women is something that needs to be analyzed deeply. Women as an earning member of a family will increase their economic independence and also the power to decision making. The role of the government as well as the women itself is very much important to achieve the goal of an economic independent society. The government must introduce various policies and programmes which will help the women to come forward and increase their standard of living. Various organizations and institutions can also have an important role to make the women as a productive member of the economy. If the women are able to serve the society then the development of the society is something which can be achieved very easily.

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PUBLIC PRIVATE PARTNERSHIP: A PERFORMANCE MEASUREMENT OF INFRASTRUCTURE SECTOR

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ABSTRACT

Public – private partnerships (PPP) are widely used to deliver a series of infrastructure projects in the world. A PPP is a partnership between public sector and private sector for the purpose of delivering a project or service traditionally provided by public sector. The PPP approach increases the economic value of infrastructure outputs and facilitates the overall development of infrastructure. This study aims to review the existing PPP research to explore the status quo, trends, and gaps in research for PPP infrastructure projects. This article examines the public and private partnerships (PPPs) in investments in infrastructure of provision of public goods in India beset with institutional failures at several fronts. It draws insights from institutional (transaction costs) and information economics. Many of the studies has significantly contributed towards summarizing the PPP research history, reviewing the status quo, and outlining trends of research in this area. Concerning the research methods employed, research area, research origin, and geographic scope, among others. Despite their useful contributions, most of these studies rely on subjective judgment in their assessments of status quo and research trends.

Keywords: public private partnership, BOT, BOO, Critical successful factors

Introduction:

According to the National Public Private Partnership Policy 2011, a Public Private Partnership (PPP) means an arrangement between the government/statutory entity government owned entity on one side and a private sector entity on the other, for the provision of public assets and or public services, through investments being made and/or management being undertaken by the private sector entity, for a specified period of time, where there is well defined allocation of risk between the private sector and the public entity and the private entity receives performance linked payments that conform (or are benchmarked) to specified and pre-determined performance standards, measurable by the public entity or its representatives .PPPs are aimed at increasing the efficiency of infrastructural projects by means of long term collaboration between the public sector and private business. A PPP is a partnership between public sector and private sector for the purpose of delivering a project or service traditionally provided by public sector. It recognizes the both sides have certain advantages and by allowing each to do what it does best, public services and infrastructure can be provided at the most efficient manner. The collaborative ventures are built around the expertise and capacity of the project partners and are based on a contractual agreement a, which ensures appropriate and mutual agreed resources, risk, and returns.

This approach of developing and operating public utilities and infrastructure by private sector under terms and conditions agreeable to both government and private sector is called PPP. These are typically medium to long term agreements between the public and private sectors whereby some of the service obligations to the public sector are provided by the private sector. PPP offers monetary and non-monetary advantages for the public sector. It addresses the limited funding resources for local infrastructure or development projects of the public sector thereby allowing the allocation of public funds for other local priorities. It is a mechanism to distribute project

risks to both public and private sector. PPP is geared for both sectors to gain improved efficiency and project implementation processes in delivering services to the public. Most importantly, PPP emphasizes Value for Money – focusing on reduced costs, better risk allocation, faster implementation, improved services and possible generation of additional revenue.

Infrastructure Sectors Covered Under PPP

Infrastructure refers to the creation of long term capital assets and essential services which have large sunk cost and long gestation periods and which has significant socio – economic benefits to the State. Under this policy the following sectors are considered.

- i. Agriculture Infrastructure
- ii. Development of Minor Minerals
- iii. Drinking and Industrial Water
- iv. Education related Infrastructure
- v. Fisheries
- vi. Gas and Gas Works
- vii. Health Infrastructure
- viii. Housing Development
- ix. Industrial Parks and SEZ
- x. IT related Projects
- xi. Inland Waterways
- xii. Irrigation
- xiii. Land Reclamation Projects
- xiv. Ports
- xv. Power Systems
- xvi. Road and Bridges Final Draft (2/14) 5
- xvii. Solid Waste Management
- xviii. Sports & Recreation Infrastructure
- xix. Tourism and Hospitality Projects
- xx. Urban Transportation Systems
- xxi. Waste Water, Sewerage systems.
- xxii. Any other long term asset as may be included by the Government from time to time.

Performance Measurements for PPPs

The concept of performance measurement shall be clarified by reckoning the differences between performance measurements, critical successful factors, and project success criteria. Critical successful factors (CSFs) are referred to as the key indicators directly affecting the project performance in terms of given project objectives. Quite a number of studies have been done on the identification of CSFs of PPP projects, including a serial of sub indicators within the broad categories of political, financial, technical, managerial, environmental, human, and cultural factors. Most of those studies on CSFs argue that the identification and management of CSFs along the project delivery stages, especially at the early design stages, are essential to the project success. Project success in the construction management area emphasizes meeting the project objectives, and the project performance measurement system is required to quantify the level of project success. Tabish and Jha found the positive relationship between project management traits and project success, and advocated the value-addition-oriented project progress performance management in order to ensure the final project success. It is a complex and challenging task to design an efficient and effective performance measurement system for infrastructure projects. In the context of PPP projects with long project life, the interests of a variety of stakeholders shall not be ignored by the project management team. Otherwise, projects cannot be successful. Particularly, the evaluation of benefits to the project team, end users, and local society are frequently proposed to refine performance measurements. For PPP projects, governments usually set up formal performance measurements at the operation. The insufficient emphasis of long-term project performance could

result in unexpected disputes and frictions among certain stakeholders in PPP projects throughout the project life cycle, particularly the end users and/or owners.

PPP in Indian Context

In the Indian context the term PPP is used very loosely. According to Ministry of Finance, Government of India, the PPP project means a project based on a contract or concession agreement, between government or statutory entity on the one side and a private sector company on the other side on delivering infrastructure service on payment of user charges. Before the launching of economic reforms in the country, the infrastructure project was mainly developed by the Government. Since the initiation of economic reforms, the development of infrastructure has been given thrust through varied means. Along with the initiation structural reforms in the country, GOI has announced new industrial policy in 1991 to develop the industrial and infrastructure sectors, which gave more emphasis on private participation. The Ministry of Finance centralizes the coordination of PPPs, through its Department of Economic Affairs' (DEA) PPP Cell. In 2011, the DEA published guidelines for the formulation and approval of PPP projects. This was part of an endeavor to streamline PPP procedures and strengthen the regulatory framework at the national level to expedite PPP projects approval, reassure private parties and encourage them to enter into PPPs in India. This was one of the main roles of the Public Private Partnership Appraisal Committee (PPPAC) which is responsible for PPP project appraisal at the central level. The Government also created a Viability Gap Funding Scheme for PPP projects to help promote the sustainability of the infrastructure projects. This scheme provides financial support (grants) to infrastructure projects, normally in the form of a capital grant at the stage of project construction (up to 20 percent of the total project). The Government has also set up India Infrastructure Finance Company Limited (IIFCL) which provides long-term debt for financing infrastructure projects. Set up in 2006, IIFCL provides financial assistance in the following sectors: transportation, energy, water, sanitation, communication, social and commercial infrastructure.

To help finance the cost incurred towards development of PPP projects (which can be significant, and particularly the costs of transaction advisors), the Government of India has launched in 2007 the 'India Infrastructure Project Development Fund' (IIPDF) which supports up to 75% of the project development expenses. Finally, the PPP Cell has produced a series of guidance papers and a 'PPP Toolkit' to support project preparation and decision-making processes. The objective is to help improve decision-making for infrastructure PPPs in India and to improve the quality of the PPPs that are developed. The toolkit has been designed with a focus on helping decision-making at the Central, State and Municipal levels. In short private sector participation in the infrastructure building have broadly been taken place through corporatization of existing PSUs (e.g.: GAIL, ONGC, IOC etc.), Greenfield investment for development of new projects, PPP in the form of BOT or BOOT model in the road sector and concession agreements with the private sector such as rehabilitate, operate and transfer; or rehabilitate, lease or rent and transfer; or build, rehabilitate, operate and transfer basis. Recently, established joint venture structure of institutions to develop and modernize the Delhi and Mumbai airports is an apt form of PPP.

PPP in Kerala Context

It is based on the rationale that Private Sector can operate more efficiently as lower overheads; innovative technology, managerial effectiveness etc. are more likely in the private sector. Nevertheless, since a PPP Project deals with provision of public goods and services, government has a key and strategic role - government owns the asset, structures the project keeping public interest in view, regulates standards of delivery and fixes user charges. The other important features of PPP are allocation of risks to the partner best able to manage them thus minimizing the cost while improving the performance. Public sector normally assumes social, environmental and political risks whereas the private sector bears financial, construction and commercial risks.

In Kerala various models including the **CIAL (Cochin International Airport Ltd)** has been considered as PPP. The CIAL is a PPP company with 26% GoK share and rest of the shares is widely distributed. The management of the company vests with GoK. Such an arrangement does not bring in private sector efficiencies in management. As far as possible, the GOI definition of PPP will be kept in mind while structuring PPPs. This will enable GoK to avail of VGF and other Financial Assistance from the Centre. According to GOI, PPP means an arrangement between a government or statutory entity or government owned Final Draft(2/14) 4 entity on one side and a private sector entity on the other, for the provision of public assets and/ or related services for public benefit, through investments being made by and/or management undertaken by the private sector entity for a specified time period, where there is a substantial risk sharing with private sector and the private sector receives performance linked payments that conform(or are bench marked) to specified, pre- determined and measurable performance standards. Private Sector includes any non-Governmental organization including co-operatives and community groups.

Five-Dimension Performance Measurement System for PPP

Taking a PPP social infrastructure project for example, the involved stakeholders mainly include the end users, the private sector (banks, real estate developers, contractors, subcontractors, etc.), and the public sector (government departments of planning, transportation, environmental protection, etc.). The private sector emphasizes the primary goal of economic profit, business capabilities, and future opportunities, while the public sector goes beyond the economic concerns but also the social "net" benefits,

i.e., maximizing the positive environmental and social impacts and minimizing the negative ones. Comparatively speaking, the public sector is more long-sighted than the private sector about the project outcomes in the long term, and the balance between them shall be coordinated throughout the whole project life. Based on the previous research on project performance measurement of PPP projects, a system of five-dimensional sustainable performance measurements for PPP is summarized first. Throughout the operation and maintenance phase, benefits to the private and public sectors shall be periodically evaluated to ensure that the PPP project is on the right track, while the benefits of end users shall also be guaranteed. After transfer, the essential relationship will be between the public sector and the end users, of how to sustain a PPP project for the future shall be emphasized and periodically evaluated.

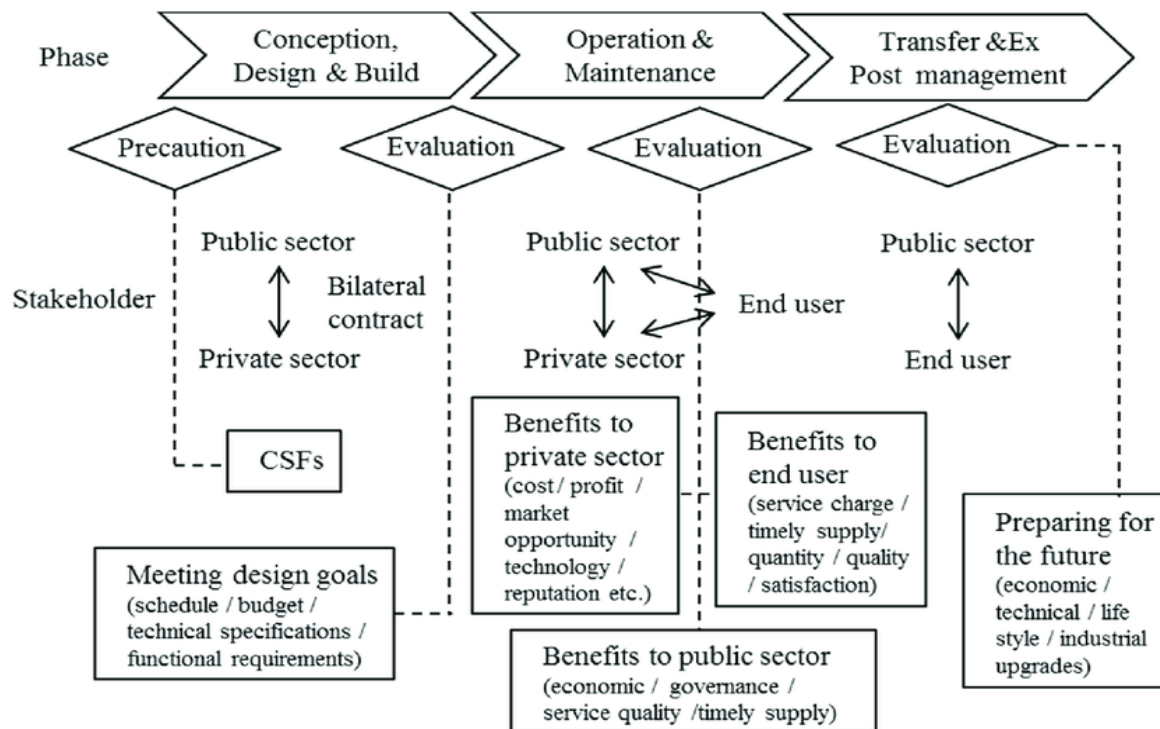


Fig.1 Five-Dimension Performance Measurement System for PPP

The **first dimension** entitled “*meeting design goals*” addresses the fundamental objectives. The **second dimension** “*benefits to the end user*” is designed to include five aspects from the perspective of end users in terms of reasonable service charge, timely supply, quantity, quality, and overall satisfaction. The **third dimension** entitled “*benefits to private sector*” is constituted of eight items, including cost management, marginal profit, investment return, market opportunities, technical advance, experience and knowledge gains, reputation improvement, and competitiveness enhancement. The **fourth dimension** entitled “*benefits to public sector*” includes four items of economic benefits, government reputation, service quality, and timely supply of public works. The **fifth dimension** entitled “*preparing for the future*” includes four items of the long-term contributions to economic development, technical innovation, lifestyle shifting, and industrial upgrades.

General Forms of PPP

Generally, there are two common forms of PPP structure: availability and concession-based PPPs. The two forms could be distinguished from each other based on what the public or private parties assume within the partnership, e.g. rights, obligations, and risks.

1. Availability PPP

A form of PPP wherein the public authority contracts with a private sector entity to provide a public good, service or product at a constant capacity to the implementing agency (IA) for a given fee (capacity fee) and a separate charge for usage of the public good, product or service (usage fee). Fees or tariffs are regulated by contract to provide for recovery of debt service, fixed costs of operation and a return on equity.

While there are no usage fees in this project, an example is the PPP for School Infrastructure Project (PSIP) Phase I wherein the private sector is responsible for making available classrooms (consisting of design, financing, construction and maintenance) for a contract fee with the Department of Education (Dept. of Ed).

2. Concession PPP

A form of PPP wherein the government grants the private sector the right to build, operate and charge public users of the public good, infrastructure or service, a fee or tariff which is regulated by public regulators and the concession contract. Tariffs are structured to provide for recovery of debt service, fixed costs of operation, and return on equity.

An example of a concession PPP is the Ninoy Aquino International Airport (NAIA) Expressway (Phase II) wherein the Department of Public Works and Highways (DPWH) granted the private sector the right to build and operate the expressway. Under the contract, the private sector was given the right to collect a toll (user charge) from the users of the expressway.

Types of PPP

There are several different types of public-private partnership contracts (often known as PPPs, or in the UK, Private Finance Initiative, or PFIs) depending on the type of project (for example, a road or a prison), level of risk transfer, investment level and the desired outcome.

Build – Operate – Transfer (BOT): A BOT model is generally used to develop a discrete asset rather than a whole network, for example a toll road. This simple structure provides the most freedom for the private sector partner during construction and the public sector bears the equity risk.

Build – Own – Operate (BOO): This is a similar structure to BOOT (below), but the facility is not transferred to the public sector partner. A BOO transaction may qualify for tax exempt status and is often used for water treatment or power plants.

Build – Own – Operate – Transfer (BOOT): The private sector builds and owns the facility for the duration of the contract, with the primary goal of recouping construction costs (and more) during the operational phase. At the end of the contract the facility is handed back to the government. This structure is suitable when the government has a large infrastructure financing gap as the equity and commercial risk stays with the private sector for the length of the contract. This model is often used for school and hospital contracts.

Design – Build: The contract is awarded to a private partner to both design and build a facility or a piece of infrastructure that delivers the performance specification in the PPP contract. This type of partnership can reduce time, save money, provide stronger guarantees (as the work is with a single entity rather than a consortium) and allocate additional project risk to the private sector.

Design – Build – Finance: The private sector constructs an asset and finances the capital cost during the construction period only.
Design – Build – Finance – Operate (DBFO): A variation of the design-build-operate P3 includes the component of general financing supplied by the private contractor. With a design-build-finance-operate arrangement, the private party provides financing and design, then builds, possesses, and operates the facility. The public partner provides funding only while the project is being used or is active.

Design – Build – Finance- Maintain (DBFM)

Design – Build – Finance – Maintain – Operate (DBMFO): Similar to BOOT, DBFO (and its variations) is more used in the UK for PFI (Private Finance Initiative) projects. The private sector designs, builds, finances, operates an asset, and then leases it back to the government, typically over a 25 – 30 year period. Public sector long-term risk is reduced and the regular payments make it an attractive option to the private sector.

Design – Construct – Maintain – Finance (DCMF): Design, Construct, Maintain and Finance is very similar to DBFM. The private entity creates the facility based on specifications from the government body and leases it back to them. This is generally the convention for PPP prison projects.

O & M (Operation & Maintenance): In an O&M contract, a private operator operates and maintains the asset for the public partner, usually to an agreed level with specified obligations. The work is often sub-contracted to specialist maintenance companies. The payment for this contract is either via a fixed fee, where a lump sum is given to the private partner, or more commonly a performance-based fee. In this situation, performance is incentivized using a pain share / gain share mechanism, which rewards the private partner for over-performance.

Elements of Public-Private Partnership

- Strategic mode of procurement
- A contractual agreement between the public sector and the private sector
- Shared risks and resources
- Value for Money
- Outcome orientation
- Acceleration of infrastructure provision and faster implementation or induces a penalty payment for work which has fallen short

SOLICITED V/S UNSOLICITED PROPOSALS

Solicited proposal

A solicited proposal refers to projects identified by the implementing agency (IA) from the list of their priority projects.

In a solicited proposal, the IA formally solicits the submission of bids from the public. The solicitation is done through the publication of an invitation for interested bidders to submit bids, and selection of the private proponent is done through a public competitive process.

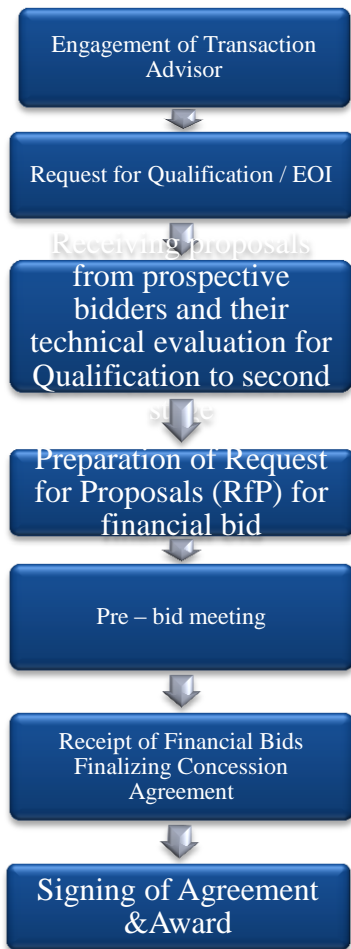
Unsolicited proposal

In an unsolicited proposal, the private sector project proponent submits a project proposal to an IA without a formal solicitation from the government. An unsolicited proposal may be accepted for consideration and evaluation by the IA, provided it complies with the following conditions:

1. It involves a new concept or technology and/or it is not part of the list of priority projects in the Philippine Investment Program (PIP) [Medium Term Public Investment Program, Comprehensive and Integrated Infrastructure Program (CIIP)] and the Provincial/Local Investment Plans;
2. It does not include a Direct Government Guarantee, Equity or Subsidy;
3. It has to go to ICC for the determination of reasonable Financial Internal Rate of Return (FIRR) and approval to negotiate with the Original Proponent; and
4. After successful negotiation, proceed to publication and request for competitive proposals according to Swiss Challenge Rules.

Stages of PPP Approval

Generally Main Stages in the Procurement Process Would Include (See Flow Chart)



The following are the main differences between Conventional Procurement PPP

Differences between Traditional Procurement and the PPP

At this juncture, it is pertinent to understand the differences between these procurement systems.

Basis	Conventional Procurement	PPP
Ownership	The asset belongs to the government.	The asset belongs to the private ownership for a period and will be transferred back to the government by the end of the contract term
Financing	The government would finance the investment and services through tax system and public debt.	The private companies bear the cost of financing of the whole-life project, but in some circumstances, the government may provide financial assistance
Risk	The government bear all the risk	The private company and public sectors will share the risk of the project.
Responsibility	The government is responsible for the whole project	The responsible of planning and outcome of PPP projects is usually belongs to the government while the private sector will responsible in another area of the projects
Fiscal condition on government budget	The cost of the project is a public expenditure that will affect the government budget and national debt.	There is no effect on the national budget and national debt during the investment period by the private sector. It will only affect the budget and national debt at operational stage

The following tables shows the summary of PPP infrastructure projects in India from the Department of Economic Affairs PPP cell, Infrastructure Division

Department of Economic Affairs
PPP Cell, Infrastructure Division



Table no.1 Government Infrastructure Projects (PPP) State Wise Summary Report

Sl No	State	Number of Projects	Total Project Cost (in Rs Crore)
1	Andaman & Nicobar Islands (UT)	10	1,593.77
2	Andhra Pradesh	498	343,203.54
3	Arunachal Pradesh	179	301,716.69
4	Assam	186	65,738.46
5	Bihar	517	233,790.32
6	Chandigarh (UT)	2	954.00
7	Chhattisgarh	234	266,798.78
8	Dadra & Nagar Haveli (UT)	3	172.53
9	Delhi (UT)	60	62,392.74
10	Goa	44	19,827.68
11	Gujarat	549	354,710.88
12	Haryana	126	100,101.46
13	Himachal Pradesh	188	117,303.77
14	Jammu & Kashmir	60	71,057.49
15	Jharkhand	328	103,490.76
16	Karnataka	706	315,816.02
17	Kerala	154	61,332.53
18	Madhya Pradesh	863	343,518.34
19	Maharashtra	1179	749,951.79
20	Manipur	13	19,380.85
21	Meghalaya	17	13,236.54
22	Mizoram	4	6,609.09
23	Multi State/ Centre	388	1,433,841.76
24	Nagaland	7	5,988.58
25	Odisha	462	237,643.17
26	Pondicherry (UT)	6	3,166.42
27	Punjab	149	59,261.70
28	Rajasthan	591	212,586.82
29	Sikkim	31	44,784.02
30	Tamil Nadu	468	340,603.19
31	Telangana	222	241,516.02
32	Tripura	37	17,429.03
33	Uttar Pradesh	549	392,601.96
34	Uttarakhand	131	51,684.80
35	West Bengal	451	182,908.65
	Total	9412	6,776,714.14

Source: <http://www.pppindiadatabase.com>, Public Private Partnership, India database, Department of Economic Affairs, Ministry of Finance, Government of India

Table no.2 Government Infrastructure Projects (PPP) Sector wise Summary Report

Sector/sub sector	Number of project	Total project cost(in crore rs)
Communication	62	902,116.76
Telecommunication Network and Services	60	875,934.76
Telecommunication towers	2	26,182.00
Energy	3564	3,142,857.06
City gas distribution	3	432.00
Electricity Distribution	20	28,586.72
Electricity generation (grid)	377	1,654,145.26
Electricity transmission	1380	432,870.12
Gas pipelines	54	103,983.02
Oil pipelines	43	22,893.80
Oil/ Gas/ LNG Storage	44	46,365.90
Renewable energy (grid)	1643	853,580.24
Social and Commercial Infrastructure	329	94,823.94
Cold Chain	13	3,858.33
Common infrastructure for industrial parks, SEZ	190	81,308.49
Education	37	468.81
Health Care	14	1,412.61
Post-harvest storage infrastructure for agriculture and horticulture produce including cold storage	21	678.02
Tourism	54	7,097.68
Transport	3884	1,930,376.42
Airports	79	59,509.77
Inland waterways	8	5,167.90
Ports (excluding captive)	167	184,841.01
Railway track, tunnel, viaducts, bridges	595	488,423.92
Roads and bridges	2917	960,084.69
Urban public transport (except rolling stock)	118	232,349.13

Water Sanitation	1573	706,539.97
Irrigation (dams, channels, embankments, etc.)	623	509,588.57
Sewage collection, treatment and disposal system	280	46,198.35
Solid waste management	74	8,931.68
Storm water drainage system	69	9,241.45
Water supply pipeline	483	125,361.99
Water treatment plants	44	7,217.93
Total	9412	6,776,714.14

Source: <http://www.pppindiadatabase.com>, Public Private Partnership, India database, Department of Economic Affairs, Ministry of Finance, Government of India

Table no.3 State Wise Summary: Projects recommended by the Public Private Partnership Appraisal Committee (PPPAC)

Department of Economic Affairs

PPP Cell, Infrastructure Division

www.pppinindia.gov.in

State Wise Summary : Projects recommended by the Public Private Partnership Appraisal Committee (PPPAC)

Sl.No.	State	Number of Projects Approved	Total Project Cost (In Rs. Crore)
1	Andaman and Nicobar Islands	1	379
2	Andhra Pradesh	22	21220.48
3	Assam	5	4078.53
4	Bihar	13	12262.44
5	Chhattisgarh	4	3466.07
6	Delhi	8	9492.58
7	Goa	5	4936.3
8	Gujarat	16	21692.01
9	Haryana	12	16046.2
10	Himachal Pradesh	5	6419.73
11	Jammu & Kashmir	8	20927.55
12	Jharkhand	3	3777.43
13	Karnataka	23	20501.62
14	Kerala	12	10869.44
15	Madhya Pradesh	20	20758.9
16	Maharashtra	29	51176.94
17	Meghalaya	1	536
18	Multiple State	14	27955.76
19	Odisha	20	22411.82
20	Punjab	12	10981.37
21	Rajasthan	21	18839.77
22	Tamil Nadu	26	21879.95
23	Uttar Pradesh	25	31248.81

24	Uttarakhand	2	1021.61
25	West Bengal	13	14072.41
	Total	320	376952.72

Table no.4 Authority Wise Summary: Projects recommended by the Public Private Partnership Appraisal Committee (PPPAC)

Department of Economic
Affairs
PPP Cell, Infrastructure
Division
www.pppinindia.gov.in

Authority Wise Summary : Projects recommended by the Public Private Partnership Appraisal Committee (PPPAC)

Sl.No.	Authority	Number of Projects Approved	Total Project Cost (In Rs. Crore)
1	Airports Authority of India	6	9017
2	Department of Economic Affairs (Currency and Coinage Division)	1	148.87
3	Ministry of Civil Aviation	4	0
4	Ministry of Home Affairs	8	7299.17
5	Ministry of Home Affairs	1	379
6	Ministry of Railways	1	8500
7	Ministry of Road Transport and Highways	257	302388
8	Ministry of Shipping	37	49220.68
9	Ministry of Youth Affairs and Sports (MoYA&S)	5	0
	Total	320	376952.72

Table no. 5 Year Wise Summary: Projects recommended by the Public Private Partnership Appraisal Committee (PPPAC)

Department of Economic Affairs
PPP Cell, Infrastructure Division
www.pppinindia.gov.in

Year Wise Summary : Projects recommended by the Public Private Partnership Appraisal Committee (PPPAC)

Sl.No.	Financial Year	Number of Projects Approved	Total Project Cost (In Rs. Crore)
1	2018-2019	8	9730.38
2	2017-2018	4	7851.78
3	2016-2017	9	12401.28
4	2015-2016	17	28674.1
5	2014-2015	18	29070.77
6	2013-2014	25	55326.29

7	2012-2013	25	25641.53
8	2011-2012	52	53248.6
9	2010-2011	33	26010.24
10	2009-2010	53	57854.97
11	2008-2009	48	53381.78
12	2007-2008	13	11227.46
13	2006-2007	15	6533.54
	Total	320	376952.72

Table no.6 Sector Wise Summary: Projects recommended by the Public Private Partnership Appraisal Committee (PPPAC)

Department of Economic Affairs

PPP Cell, Infrastructure Division

www.pppinindia.gov.in

Sector Wise Summary : Projects recommended by the Public Private Partnership Appraisal Committee (PPPAC)

Sl.No.	Sectors	Number of Projects Approved	Total Project Cost (In Rs. Crore)
1	Airports	10	9017
2	Housing	9	7633.55
3	Ports	36	48886.3
4	Railways	1	8500
5	Roads	257	302388
6	Sports	5	0
7	Tourism	2	527.87
	Total	320	376952.72

Table no .7 Overall Summary: Projects recommended by the Public Private Partnership Appraisal Committee (PPPAC)

Department of Economic Affairs

PPP Cell, Infrastructure Division

www.pppinindia.gov.in

From 20th December, 2005 - 11th July, 2019

Table no .8 Overall Summary: Projects recommended by the Public Private Partnership Appraisal Committee (PPPAC)

1	Number of Projects	320
2	Total Project Cost	Rs. 376,952.72 Crore
3	Number of Meetings held	88

CONCLUSIONS

From the study, it is apparent that the performance measurements approaches differ as they are influenced by unique project complexities the main consideration being the intention for which the project was started. This in turn informs the design, structure, deliverables/factors and ultimately the measurement criteria. The main considerations in ensuring efficient and effective performance measurement include transparency in performance monitoring, which refers to the way in which the design, initiation of projects, the selection process ought to be organised. The process needs to consider the interests of all stakeholders. As much as effectiveness and transparency is an important aspect in public-private partnership or any project it is necessary for organizations to agree on some form of arrangements for risk sharing without which some disagreements will come up as a result of any failure of projects or partnerships. Any success or failure of a project revolves around many issues not limited to financial efficiency. Non-financial aspects in project are as important as financial measures. The researcher therefore concludes that environmental and social impact assessments, project social benefit, appropriate allocations of resources as well as compliance with technical specifications of tie quality and functionality are important.

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GENDER DIFFERENCES IN FEEDING PRACTICES OF SEXUALLY DISCORDANT TWINS – A BLESSING IN DIGUISE TO FEMALE INFANTS

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ABSTRACT

BACKGROUND: Appropriate feeding practices are essential in infancy for achieving proper nutrition. Lack of knowledge, false perception of breast milk inadequacy poses serious threat to adequate breastfeeding. Twin delivery feeding is fraught with significant challenge including gender discrimination. **OBJECTIVE:** To analyse the reasons for disparity in feeding practices of sexually discordant twins. **STUDY DESIGN:** Prospective observational study. **SETTING:** Well Baby Clinic, Tertiary Care Hospital, Karaikal, Between June 2016 to June 2018 **PARTICIPANTS:** 37 mothers with sexually discordant twins. **RESULTS:** Among the 37 discordant pairs of babies, 24 pairs were started on supplementary feeds with infant formula by 2 months of age. Early introduction of supplementary feeding was more in boys than in twin girls and frequency of breastfeeding was higher among girls in 21 of the 24 pairs (87.5%) at this age. Among the 13 pairs of babies who were exclusively breastfed beyond 2 months, the frequency of feeding was more for boys and demand feeding for girls. Among the factors cited for adoption of different feeding practices, influence by senior family members was evident in all (100%). The reasons mentioned were male babies not gaining weight (83%), formulae feeds give more nourishment (81%), unaware of benefits of breastmilk (78%), influenced by customs (43%), inadequate milk production (40%), maternal health problem (2%). **CONCLUSION:** This study reveals crossing of two centiles in weight and length chart among male babies than girls in early infancy irrespective of type of feeding practice which may pose a future risk of obesity. A higher frequency of breastfeeding among girl babies was attributable to the incorrect perception of superiority of formula feeds- “BOTH THESE A BLESSING IN DISGUISE” TO GIRL BABIES.

Key words: Discordant twins, gender selective, feeding practices

INTRODUCTION:

Appropriate feeding practices are essential in infancy for maintaining proper nutrition and growth in the correct centile. World Health Organization (WHO) and Infant and Young Child Feeding (IYCF) guidelines recommend exclusive breastfeeding in first six months of life. After completion of six months, optimal complementary feeding should be started [1,2]. According to NFHS-4 data, about 54.9% of total children under age six months are exclusively breastfed. Early initiation of breastfeeding (within 1hr of birth) is 41.6% which remains low even now [3]. Only 21% of breastfeeding and non-breastfeed children are fed in accordance with IYCF recommendation [1]. Lack of knowledge on the importance of breastfeeding [4], false perception of inadequacy of breast milk pose serious threats to adequate breastfeeding [5].

AIM OF THE STUDY: Present study analyses the reason for disparity in feeding practices of sexually discordant twins (one boy and one girl in twins).

METHOD: STUDY DESIGN: Prospective observational study. **PLACE OF STUDY:** Well Baby Clinic, Vinayaka Missions Medical College. **DURATION:** June 2016 to June 2018. **INCLUSION CRITERIA:** 37 sexually discordant twin babies. Birth weight between 2.5 -3.5Kgs with uneventful antenatal and birth histories **EXCLUSION CRITERIA:** Twins graduated from NICU. Mothers with medical ailments **MATERIALS AND METHODS:** Uniform feeding guidelines of exclusive breastfeeding in the 1st 6 months & vitamin D3 supplements of 400IU/day was given and were followed during every vaccination schedule. A pretested, structured questionnaire was used to assess feeding practices and immunization at every visit. Gender selective feeding practices, caring person, dressing pattern, stimulation if given, child care practices followed (both good and bad) were noted at

each appointment. Assessment of growth with anthropometric parameters of weight, length and head circumference was carried out. Developmental evaluation was done using standard developmental charts for gross motor, fine motor, social, language and cognitive fields. Outcome was assessed as positive scores of +1 for each of the correct practices of demand feeding, exclusive breast feeding, burping after each feed, correct positioning during feeding and +1 for correct centile growth in weight, length and head circumference. A maximum score of +7 was given. A score of "0" for each of the incorrect feeding practices, crossing of two centiles in the growth curves either in the positive or negative side. Data was statistically analysed with manual p value generation. A p value of <0.05 was considered statistically significant.

RESULTS:

Among the 37 discordant pairs of babies, 89% of mothers were above 20 years. 59% were graduates and 41% postgraduate. Most of the mothers belonged to middle socio-economic status (81%). Religion of mothers were Hindus (23%), Muslims (9%), Christians (2%), others (3%). Primigravida were 30 (81%) and multigravida 7 (19%). Only 5% of mothers were working and 95% mothers were homemakers (Table 1).

Table 1: Demographic profile of mothers

Parameter	Number	percent
Age		
>20 years	33	89%
< 20 years	4	11%
Educational status		
Non graduate	Nil	-
Graduate	22	59%
Post graduate	15	41%
Socio- economic status		
Low	1	2%
Middle	30	81%
Upper	6	17%
Religion		
Hindu	23	62%
Muslim	9	24%
Christian	2	5%
others	3	9%
Gravida		
Primigravida	30	81%
Multigravida	7	19%
Working status		
Working	2	5%
Housewife & discontinued working	35	95%

Among the 37 discordant pairs of babies, 24 pairs were started on supplementary feeds with infant formula by 2 months of age. Early introduction of supplementary feeding was significantly more in boys than in twin girls and frequency of breastfeeding was significantly higher among girls in 21 of the 24 pairs (87.5%) at this age. Beyond 4 months of age, though there was a higher % of supplementary feeding, it was almost equal in both the sexes. (Table 2)

TABLE 2: BREASTFEEDING RATES

PARAMETER	0-2 MONTHS	2-4 MONTHS	>4 MONTHS
TWIN BOYS	37	24	29
TWIN GIRLS	37	18	25
p VALUE		< 0.05	=0.1

The nature of supplementary feeds showed significant difference between the sexes with twin boys being offered more of formula and girls cow's milk. Among the 13 pairs of babies who were exclusively breastfed beyond 2 months, the frequency of feeding was more for boys than girls in 11 pairs and the correct practice of demand feeding was higher in girls. (Table 3)

TABLE 3: NATURE OF SUPPLEMENTARY FEEDING

PARAMETER	BREAST FEEDING	COW'S MILK FEEDING
TWIN BOYS	13	2
TWIN GIRLS	19	11
p VALUE		<0.05

TABLE 4: NATURE OF FEEDING

PARAMETER	DEMAND FEEDING	TIMELY FEEDING
TWIN BOYS	6	31
TWIN GIRLS	36	1
p VALUE	<0.05	<0.05

In both the groups weight and length were significantly beyond the expected centiles in boys than girls. There was no significant difference in head circumference increase. (Table 5)

TABLE 5 : GROWTH PATTERN

PARAMETER	WEIGHT	LENGTH	HEAD CIRCUMFERENCE
TWIN BOYS	112%	109%	87%
TWIN GIRLS	82%	93%	89%
p VALUE	<0.05	<0.05	=0.7

The caring person for the twin boy was most often the elder woman in the family (grandmother, great grandmother or aunt) and mother for the twin girl. The stimulation, dressing pattern, child rearing practices were not significantly different in either of the sex.

Among the factors cited for adoption of different feeding practices, influence by senior family members was evident in all (100%). The reasons mentioned were male babies not gaining weight (83%), formulae feeds give more nourishment (81%), unaware of benefits of breastmilk (78%), influenced by customs (43%), inadequate milk production (40%), maternal health problem (2%). (table 6)

TABLE 6: FACTORS RESPONSIBLE FOR BREAST FEEDING

Sno	Factors	No. of mothers who didn't give EBF to female infants	Percentage	Decision taken by		
				Maternal grandmother	Paternal grandmother	Aunt
1	Inadequate milk production	15	40.54 %	13	15	None
2	Advice of others	37	100 %	17	23	4
3	Formula feeds give more nourishment	30	81.08%	25	30	18
4	Male child not gaining weight	31	83.7%	27	30	16
5	Influence by family customs	16	43.2%	9	11	4
6	Unaware of benefits	29	78.37%	None	12	1
7	Maternal health problems	1	2.70%	None	None	None
8	Didn't want a female child	0	0 %	None	None	None

DISCUSSION:

There are several factors that have reported to affect breastfeeding of baby. Some factors like concern for baby's nutrition, soreness of nipples, perception of mother on producing enough amount of milk, return to work, twin preferences, false beliefs that if mother is sick the disease would spread through breast milk, colostrum is unhealthy for child, child's mouth would be dry without water^[4,6,7]. Twin deliveries interfere with continuation of exclusive breastfeeding, although it is always possible to adequately feed both the twins with breast milk alone. The feeding practices are also influenced to a great extent based on gender of the twin baby^[5]. In India households and communities often prefer son over daughter during decision making, health care use, education and clothing, feeding^[8]. Preference of boys has continued with rising economic development, declining fertility, smaller families and improved social status of women^[6]. Although gender- based health disparities are prevalent in India, there is a lack of documentation on how gender differences express themselves in the care-seeking process during neonatal, infantile and childhood age groups^[8].

CONCLUSION:

With a downward trend in exclusive breastfeeding practices in Karaikal region, practice of exclusive breastfeeding is further less among twin babies. This study shows a higher gain of weight and length among boy babies than girls in early infancy irrespective of type of feeding practices. This is either due to the use of formula or overfeeding. This pattern of crossing centiles in growth may predispose male infants to future obesity. A higher frequency of breastfeeding among girl babies was attributable to the incorrect perception of superiority of formula feeds - ***"BOTH THESE A BLESSING IN DISGUISE" TO GIRL BABIES.***

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VI NERVE PALSY - A FALSE LOCALISING SIGN

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ABSTRACT

A female patient, 27 years of age came with the complaint of headache associated with vomiting since last 15 days. Deviation of left eye nasally since 10 days. No history of defective vision, diplopia, Ocular pain, Stiff neck, fever, Redness, Photophobia, transient obscuration of vision, no history of any drug intake. No history of any systemic diseases. **Ocular Examination** showed Esotropia in Both Eye 15 Degree, no facial asymmetry, normal head posture. Anterior Segment Examination was normal in both eyes. Extraocular movements- Abduction was restricted in both eyes (In Right Eye Abduction was restricted upto -3 and Left Eye -1). Cranial nerves Examination showed bilateral (sixth) abducens nerve palsy, rest other cranial nerve were intact in both eyes. **Fundus** in both eyes suggestive of chronic Papilledema i.e Disc margins blurred, disc edematous, splinter hemorrhage present over disc margin. cup obliterated, vessel tortuous, 2:3, foveal reflex present. **Investigation** MRI BRAIN showed, Partial Empty Sella with thinned pituitary gland in the floor of sella. **CSF Analysis**- Increased CSF Pressure: 22 mmHg or 29 cm / 299 mm of water. Normal CSF chemical and cellular Analysis. So, with the case history, clinical finding and investigation, patients was diagnosis as a case of Bilateral sixth nerve palsy due to idiopathic intracranial hypertension.

Keywords: Headache, Abducens nerve Palsy, Papilledema, Increased Intracranial, Pressure, Abducens nerve Palsy.

INTRODUCTION

False Localising Sign

- It reflects the dysfunction distant or remote from the expected anatomical locus of pathology. First described by James Collier in 1904. Other cranial nerve which also show false localizing sign 3rd, 5th and 7th cranial nerve.^[1]

Idiopathic Intracranial Hypertension

- It was previously called as Benign intracranial hypertension or Pseudotumour cereberi. It is characterized by following features:-^[2]
 1. Increased intracranial Pressure
 2. Cytologically and biochemically normal CSF
 3. Optic nerve head edema
 4. Absence of intracranial mass lesions and neurological signs

Modified Dandy Criteria for idiopathic intracranial hypertension ^[3]

- Symptoms of increased intracranial Pressure (headache, nausea, vomiting, transient obscuration of vision and papilledema.
- No localizing findings in neurological examination (except for false localizing signs such as abducens or facial palsies)
- Awake and alert patient
- Normal CT/MRI findings without evidence of dural sinus thrombosis
- ICP >250 mm of H₂O with normal cerebrospinal fluid cytological and chemical findings
- No other cause of increased ICP found

Investigation in IIH

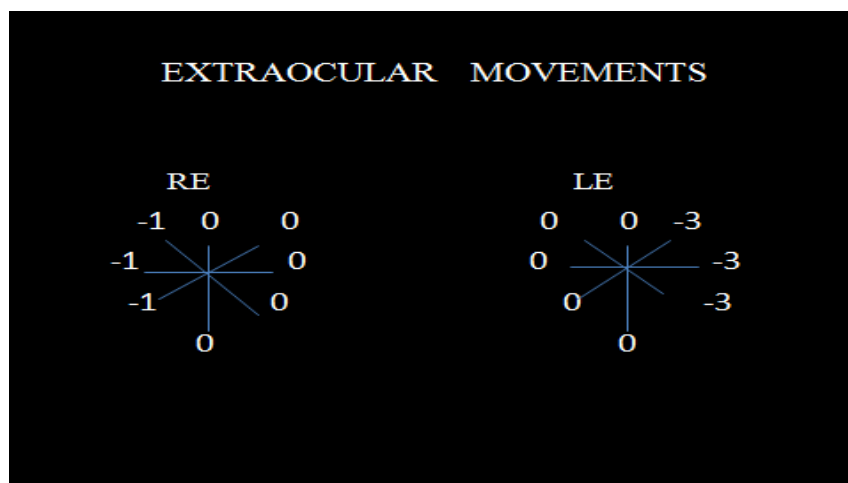
- MRI- shows slit like ventricle and flattening of the pituitary gland (Empty Sella Sign)
- MRV- To exclude cerebral venous sinus thrombosis or stenosis.

Treatment in IIH (Idiopathic Intracranial Hypertension)

- Medical treatment includes, weight loss, Drugs- Acetazolamide, Furosemide, Digoxin and Analgesic. Surgical treatment includes, Optic nerve fenestration, Lumboperitoneal shunt, Transverse dural sinus stenting.

CASE REPORT

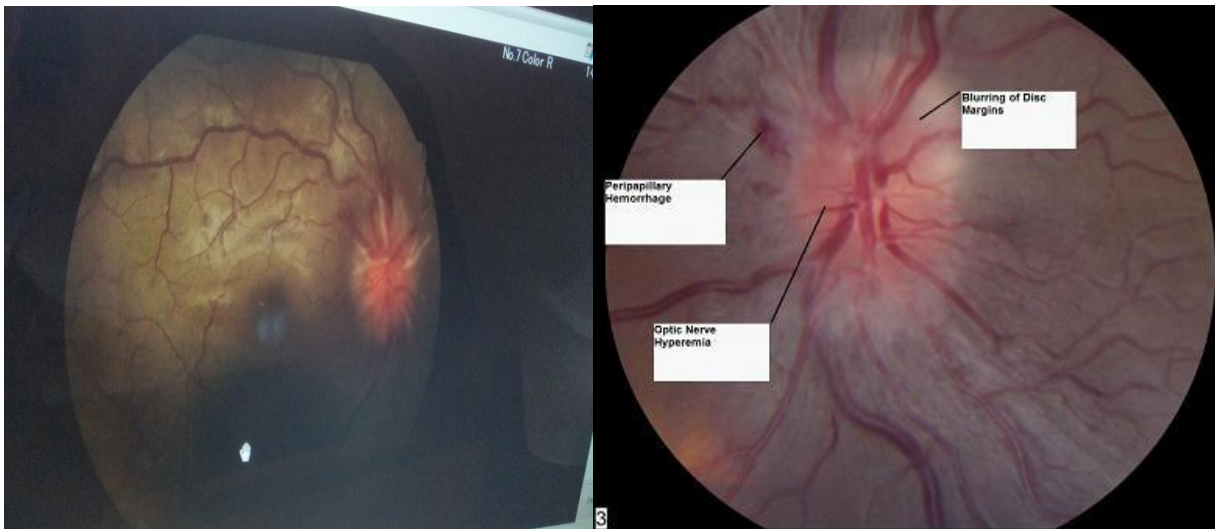
A 27 years old female patient came to the department of VMMC & H, Karaikal, Pondicherry with the complaints of headache associated with vomiting since last 15 days. Deviation of left eye nasally since 10 days. Anterior segment normal. Restriction of abduction in both eyes. (Right eye -1 and Left eye -3). Fundus Examination in Both eyes suggestive of chronic Papilledema i.e Disc margins blurred, disc edematous, splincter hemorrhage present over disc margin. cup obliterated, vessel tortous, 2:3, foveal reflex present.



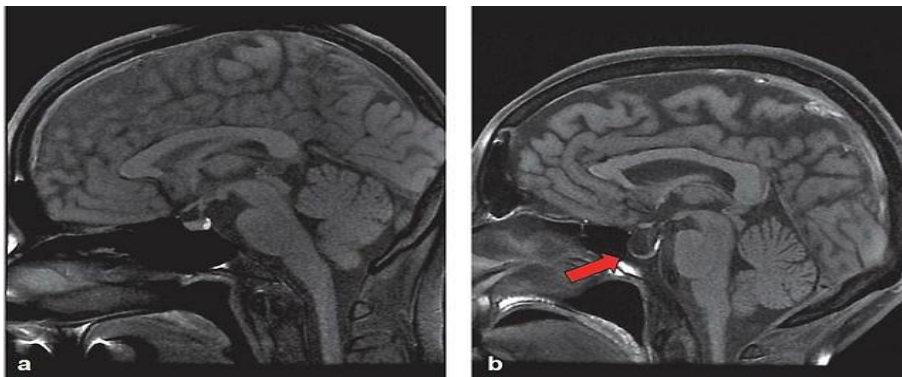
FUNDUS EXAMINATION

RE

LE



MRI Brain showed, Partial Empty Sella with thinned pituitary gland in the floor of sella. Tortuous course of bilateral optic nerve with prominent perioptic CSF Space. No evidence of acute infarct, hemorrhage or Space occupying lesion noted. (Red arrow show the empty sella)



DISCUSSION

- The first report of IIH was by the German physician Heinrich Quincke, who described it in 1893 under the name “Serous meningitis”.
- The term “Pseudotumor cerebri” was introduced in 1904 by his compatriot Max Nonne.^[6]
- Diagnostic criteria for IIH were developed in 1937 by the Baltimore neurosurgeon Walter Dandy; Dandy also introduced subtemporal decompression surgery in the treatment of the condition.
- The disease was renamed Benign intracranial hypertension in 1955 to distinguish it from intracranial hypertension due to life-threatening disease (such as cancer), however this was also felt to be misleading because any diseases that can blind someone not be thought of as benign, and the name was therefore revised in 1989 to “Idiopathic (of no identifiable cause) intracranial hypertension.

CONCLUSION

Patient is followed up regularly. Now patient is stable and and headache is under control. Patient is on drugs, Tab Diamox (Acetazolamide) 250 mg BD, Tab Topamac (Topiramate) 50 mg BD, Tab Homin D3 OD and Tab Myorest (Chorzoaxone 250 mg + Paracetamol 325 mg) BD.

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A RARE CASE OF CENTRAL PRECOCIOUS PUBERTY DUE TO PITUITARY MICROADENOMA IN A GIRL CHILD

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ABSTRACT

A 8 years old female patient came to the department of Pediatrics, VMMC & H, Karaikal, Pondicherry with the complaints of early onset of breast, pubic hair development and attainment of menarche by 6.8 yrs of age. Mother noticed breast development since 6 yrs of age, developed axillary and pubic hair at 6.2 yrs of age. At the same time noticed weight and height gain and attained menarche on 14/8/2018(6.8yrs). No h/o vomiting, headache. Visual disturbance couldnot be ascertained by mother. Hormone Profile: FSH = 55.01 mIU / ml [increased], LH = 34.2 mIU /ml[increased], Prolactin= 14.6 ng/ml, TSH = 3.40 micro IU /ml, T3= 4.27 pg/dl, T4= 3ng/dl, Cortisol= 14.2ng/ml, Igf = 4.08 ng /ml. MRI BRAIN: Complete agenesis of corpus callosum with calpocephaly . mild to moderate symmetrical bilateral front temporal lobar atrophy pituitary micro adenoma. MRI ABDOMEN AND PELVIS: Enlarged uterus for the age length 7 cm (normal for the age is 3 +_0.7 cm), Ovarian volume: 3 ml, Uterine length 7 cm, Fundo Cervico Ratio (FCR): 1.5. BERA: Bilateral hearing loss +, no wave form seen. KARYOTYPING: Result was 46xx. Normal karyotyping with increase in satellite and satellite stalk on short arm of chromosome 21. Central precocious puberty due to pituitary microadenoma in a girl child with spastic quadriplegic cerebral palsy, mental retardation and seizures. Treatment: GnRH analog advised to suppress FSH and LH level.

Key words: Central precocious puberty, Pituitary microadenoma, spastic quadriplegic cerebral palsy

INTRODUCTION

Precocious puberty is defined by the onset of secondary sexual characteristics before the age of 8 yr in females and 9 yr in males. Depending on the primary source of the hormonal production, precocious puberty may be classified as central (also known as gonadotropin dependent, or true) or peripheral (also known as gonadotropin independent or precocious pseudopuberty).⁽¹⁾

Central precocious puberty (CPP) is always isosexual and stems from hypothalamic-pituitary-gonadal activation with ensuing sex hormone secretion and progressive sexual maturation. In peripheral precocious puberty, some of the secondary sex characters appear, but there is no activation of the normal hypothalamic-pituitary-gonadal interplay. In this latter group, the sex characteristics may be isosexual or heterosexual (contrasexual).⁽¹⁾

The vast majority of non-functioning pituitary adenomas (NFPAs) are either diagnosed incidentally on imaging studies performed for unrelated reasons or present with symptoms and signs of mass effect such as headache and visual field abnormalities^(2, 3). Over 50% of NFPA are of gonadotrope differentiation since they immunostain for β LH (luteinizing hormone), β FSH (follicle stimulating hormone) or α -subunit, as well as for SF-1 (steroidogenic factor-1), while they are non-reactive to Pit-1 (pituitary transcription factor 1)⁽³⁾. However, gonadotrophinomas seldom result in a hormonal hypersecretion syndrome because the peptides they synthesize are either not secreted or constitute hormone fragments devoid of biological activity^(2,3).

A few of these gonadotrophinomas do secrete biologically active hormones, usually FSH, and are known as functioning gonadotrophin-producing adenomas (FGA)⁽⁴⁾. These FGA can result in isosexual central precocious puberty in children of both sexes, menstrual irregularities and ovarian hyperstimulation in premenopausal women and testicular enlargement in males⁽⁴⁾.

CASE REPORT

A 8 years old female patient came to the department of Pediatrics, VMMC & H, Karaikal, Pondicherry with the complaints of early onset of breast, pubic hair development and attainment of menarche by 6.8 yrs of age. Mother noticed breast development since 6 yrs of age, developed axillary and pubic hair at 6.2 yrs of age. At the same time noticed weight and height gain and attained menarche on 14/8/2018(6.8yrs). No h/o vomiting, headache. Visual disturbance couldnot be ascertained by mother. No H/O abdominal distension, recurrent diarrhoea, dehydration or diaphoresis. Known case of cerebral palsy with seizures, global developmental delay and dystonic movement and on Sodium valproate in appropriate dose.

Second order child, non-consanguineous marriage, all three trimesters was uneventful. Full term delivered by LSCS, birth weight – 3.2kg, cried immediately after birth. No NICU admission. Global developmental delay present. Immunized upto the age according to NIS. No similar complaints in the family. Mother attained menarche at the age of 11 yrs.



On general examination child was conscious but not oriented with place. Pallor present. No icterus/ cyanosis / lymphadenopathy/ edema/ clubbing. Head to toe findings: head-microcephaly, face-normal, no dysmorphism, eye-concomitant squint+, nose-normal, mouth-dental caries +, neck/ Chest & abdomen-normal, external genitalia – normal- SMR A4P4B4, spine –normal, no neurocutaneous marker.

On CNS examination, child was conscious but not oriented, handedness not attained and poor eye contact. Cranial nerve examination, 1st could not be tested, 2nd could not be tested, 3rd 4th 6th EOM: full and free, 7th no deviation of angle of mouth, no facial asymmetry, 8th nerve: no response to sound. 9th nerve: intact, 10th Nerve: uvula appear to be in midline, 11th nerve & 12th nerve intact.

Motor system examination: All four limbs: bulk – equal, tone- increased, power- 3/5. Reflexes: Superficial abdominal reflex: normal, B/L biceps, triceps, nee & ankle reflexes ++ ++.

Investigations: Hormone Profile: FSH = 55.01 mIU / ml [increased], LH = 34.2 mIU /ml[increased], Prolactin= 14.6 ng/ml, TSH = 3.40 micro IU /ml, T3= 4.27 pg/dl, T4= 3ng/dl, Cortisol= 14.2ng/ml, Igf = 4.08 ng /ml. **MRI BRAIN:** Complete agenesis of corpus callosum with calpocephaly . mild to moderate symmetrical bilateral front temporal lobar atrophy pituitary micro adenoma. **MRI ABDOMEN AND PELVIS:** Enlarged uterus for the age length 7 cm (normal for the age is 3 +_0.7 cm), Ovarian volume: 3 ml, Uterine length 7 cm, Fundo Cervico Ratio (FCR): 1.5. **BERA:** Bilateral hearing loss +, no wave form seen. **KARYOTYPING:** Result was 46xx. Normal karyotyping with increase in satellite and satellite stalk on short arm of chromosome 21.

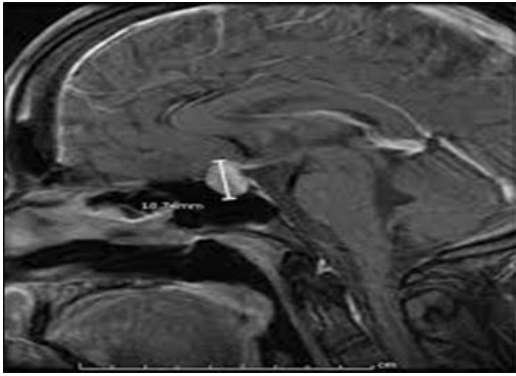


FIG 1: Pituitary Microadenoma

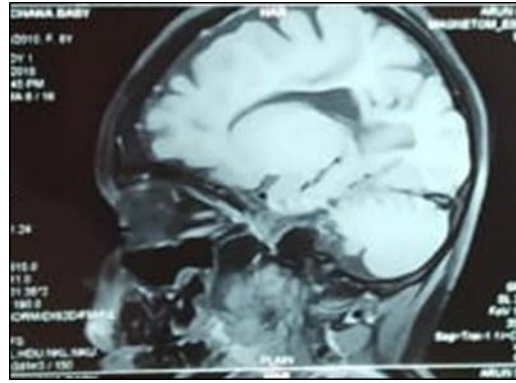


FIG 2: Agenesis of Corpus Callosum

Final diagnosis: Central precocious puberty due to pituitary microadenoma in a girl child with spastic quadriplegic cerebral palsy, mental retardation and seizures.

Treatment: GnRH analog advised to suppress FSH and LH level.

Discussion

Central precocious puberty (CPP) is defined by the onset of breast development before the age of 8 yr in females and by the onset of testicular development (volume ≥ 4 mL) before the age of 9 yr in males, as a result of the early activation of the hypothalamic pituitary- gonadal axis. It occurs 5- to 10-fold more frequently in females than in males and is usually sporadic. ⁽¹⁾ Although at least 90% of females have an idiopathic form, a structural central nervous system (CNS) abnormality may occur in 25–75% of males with CPP. Genetic forms of CPP, such as the paternally transmitted type due to a mutation of the MKRN3 gene, have been recently described. A high prevalence of CPP has been reported in females adopted from developing countries, particularly if adopted several months or years after birth, possibly related to undefined nutritional or environmental factors. ⁽¹⁾

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FACTORS AFFECTING THE ACADEMIC PERFORMANCE OF SENIOR HIGH SCHOOL STUDENTS IN A NATIONAL HIGH SCHOOL IN THE PHILIPPINES

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ABSTRACT

This study is a report on the different factors affecting the academic performance of senior high school students in Alicia National High School in Alicia, Isabela, Philippines. The descriptive correlational design was employed using the one-shot survey method. There were 151 senior high school students randomly sampled from 249 student population. Data were subjected to statistical analyses using frequency, tally percent, mean, and Pearson Moment Coefficient of Correlation (r). Findings revealed that the factors significantly related academic performance are students' interests and study habits, teachers' personality, teaching skills and instructional materials. The study affirms the findings of reviewed literature and theories: 1) The students' positive attitude and interests in learning are directly related to their academic achievement. 2) The role the teacher plays in the classroom affects the perception the student has on the relationship and the classroom environment, which ultimately contributes to achievement. Students who perceive that their teachers are more supportive have better achievement outcomes. 3) The students taught using instructional materials performed significantly higher compared to those taught not using instructional devices. Generally, students will have better academic performance when they are allowed to participate effectively in the teaching-learning process through the use of instructional materials. It is recommended that teachers should engage on continuous professional development to improve teaching practices and students' academic performance.

Key Words: academic performance, study habits, teaching skills, instructional materials

INTRODUCTION

The credibility of an educational system depends on the learning performance of its learners. Learning and academic performance has been the focus of a great deal of research in many different disciplines, including psychology and education (De Fraine, Van Damme, & Onghena, 2007). Academic performance is the extent to which a learner is profiting from instruction in a given area of learning as reflected by the extent to which skill or knowledge has been imparted to him/her (Crow and Crow, 2009). It is affected by many factors ,teacher, family and the student themselves. It may further includes personality of teachers, effectiveness in teaching, strategies and students' interest and study habits as well as acquired factors such as learning styles and methods of study would have the effect (Abaidoo,2018).

Academic achievement of students especially at the elementary school level is not only a pointer to the effectiveness or otherwise of schools but a major determinant of the future of youths in particular and the nation in general. Learning outcomes have become a phenomenon of interest to all and this account for the reason why scholars have been working hard to untangle factors that militate against good academic performance . This phenomenon has been variedly referred in literature as academic achievement, or scholastic functioning. Academic achievement of learners has attracted attention of scholars, parents, policymakers and planners. Adeyemo (2001) opined that the major goal of the school is to work towards attainment of academic excellence by students. According to him, the school may have other peripheral objectives but emphasis is always placed on the achievement of sound

scholarship. Besides, virtually everybody concerned with education places premium on academic achievement; excellent academic achievement of children is often the expectation of parents (Osiki, 2001)

In the present educational system, studies based on the achievement levels of elementary and secondary students revealed that the quality of education has deteriorated over the years. In a recent UNESCO Statistics, Barsaga (2000) noted that Filipinos are among the most schooled in the developing countries; yet, in the comparative international tests that measure academic achievement, the Philippines ranks among the lowest of the developing countries. He further noticed that the International Association for the Evaluation of Educational Achievement (IEEA) Science study shows that Filipino children scored appallingly low at two (2) standard deviations below the mean. In spite of the governments' support of basic education, past national achievement tests show low levels of content mastery.

The results in the Trends In Math and Science Survey (TIMSS), an international comparative study test conducted in 1998, placed the Philippines at number 36 among 39 competing countries. In 2003, the TIMSS was conducted in 45 countries, where the Philippines ranked 41. In both international tests, the country's results were significantly lower than the international average by two standard deviations (Development Research News, July to August 2009).

The Department of Education which always has programs for the improvement of quality education as its primordial thrust has come up with quantifiable bench marks and one of them is the National Achievement Test for Elementary and Secondary schools. In school levels, achievement tests measures the academic performance of students in every subject in the curriculum.

The study conducted by Dicos (2008) in the Multiple Intelligence and level of Performance in the NAT of the third year students in Benguet found out that the students perform average mastery in English and science and below mastery in mathematics in the NAT during SY 2006-2007. The students in Benguet have varied intelligences but their top three inclination in decreasing order are interpersonal, intelligence, natural intelligence, and linguistic intelligence. The NAT results and the multiple intelligences tests results do not have any significant correlation. The identified factors that affect significantly the students' NAT are student level, teacher level, and the school level.

In the study of Valdez and Guiab (2016) the only predictor found to be significantly related to the Mathematics performance of the pupils is the impressions on Mathematics teacher. This implies that teachers should engage on continuous professional development to improve teaching practices and students' performance for them to become more efficient and effective to teach the subject. Possible intervention program should be implemented to address the unique needs of pupils which will ensure greater proficiency in Mathematics and increase impressions to Mathematics teacher.

However, Afzal, Ali, Khan and Hamid (2010) asserted that students' personal motivation plays a vital role towards their academic performance. They found that both intrinsic and extrinsic motivation has a positive on students' academic performance. They added that intrinsic motivation has a strong predictor towards academic performance than extrinsic motivation. Similarly, Haider, Quereshi, Pirezada and Shahzadi (2015) concluded that motivation play an important role in the success of a student academics. Additionally, Amrai, Motlagh, Zalani and Parhon (2011) argued that the academic performance of students is affected by a combination of different motivational factors.

The attitude of students towards their learning have been found to have a significant relationship with academic performance. For example, Awang, Ahmad, Bakar, Ghani, Yunus et al. (2013) found that there is statistical significance relationship between students attitudes towards their learning and academic performance. Janssen and O'Brien (2014) argued that although students learning has an impact on academic performance, it is indirect.

Interest is defined by Typhoon International Corp. (2004: 662) as the —attention with a sense of concern; lively sympathy or curiosity; and the power to excite or hold such attention (in something). "Interest plays an important role in the field of psychology as a number of researches have showed that it is related to personality, motivation, cognition, development, emotion, vocations, aesthetics, behavior, hobbies, reasoning, and information processing (Silvia, 2006). A few studies have found interest to be a factor that relatively influences reading and text processing. Though there is evidence that seductive details of interest has detrimental effect as it impairs comprehension; interest promotes comprehension and memory for several reasons: interest increases attention to a text; interest makes people process a text more deeply; and interest promotes good metacognitive strategies" (Silvia, 2006).

Furthermore, students' personality traits, personal goals and motivation as well as the support from teachers and the teacher's level of experience significantly influence the academic performance of students (Ulate & Carballo, 2011).

According to MeenuDev (2016) students' level of interest in a subject influence their academic performance. Similarly, Kpolovie, Joe, and Okoto (2014) asserted that student's attitude to school and their interest in learning influence their academic performance.

Another important factor in students' learning are the teachers. Teachers play vital role towards the academic performance of students. A study conducted by Kimani, Kara and Njagi (2013) in Kenya on teacher factors influencing academic achievement, found that teachers experience, age, gender and professional qualification had no statistical significant relationship with academic performance of students. However, they noticed that performance targets, completion of syllabus, paying attention to weak students, assignments, student evaluation, and the teaching workload of a teacher had significant relationship with students' academic performance. In Nigeria, Akiri and Ugborugbo (2009) also found that there is no statistical relationship between teacher effectiveness and academic performance.

The reviewed literature there are several factors relating to academic performance of students. These are combinations of students' interest, study habits, attitude and teachers' effectiveness and use of instructional materials. The different findings of the literature prodded the researcher to conduct this study.

Conceptual Framework of the Study

Several concepts have been used in this study but the key variable which was defined is academic performance. This is because academic performance determine the human capital development of an economy; it enable students and parents to know the current academic state of their students; and it determines the failure and success of an academic institution (Narad & Abdullah, 2016).

According to Narad and Abdullah (2016) academic performance is the knowledge gained which is assessed by marks by a teacher and/or educational goals set by students and teachers to be achieved over a specific period of time. Martha (2009) emphasized that academic performance of students is defined by a student's performance in an examination, tests, and in a course work. Similarly, Yusuf, Onifade and Bello (2016) opined that academic performance consist of scores obtained by a student in an assessment such as class exercise, class test, mid-semester, mock examination, and end of semester examination.

Academic performance of students is one of the main indicators used to evaluate the quality of education in schools (Lawrence A., 2014) Academic performance is a complex process that is influenced by several factors, such as study habits (Odiri O E. ,2015). Bong and Skaalvik (2003) defined academic performance as student perceptions of their academic capability and defined by Liu and Wang (2005) as "students' perceived academic competence. Marsh, Relich, & Smith (1983) maintained that perception of one's ability level is a key aspect of academic performance.

Student's interest and study habits

Students play a critical role towards their academic performance. Students' factors such as developing interest in a subject, engaging in co-curricular activities (Javanthi et al. 2014), regular studying, self-motivation, punctuality in school (Sibanda et al. 2015; Khan & Ahmed, 2013), and students personal goals as well as personality traits (Ulate & Carballo, 2011) affect their academic performance. Study habit is different individual behavior in relation to studying (Arora R. 2016) and is a combination of study method and skill (Kamoru U, Ramon OG., 2017)

Considering the importance of teacher and students' study skills and habits , and the important role they play in the academic achievement of students, and taking into account that teachers' effectiveness, study habits and interests vary from person to person and from place to place, and also as the results of related studies are different from each other, the present study was designed and implemented.

Teacher- related factors

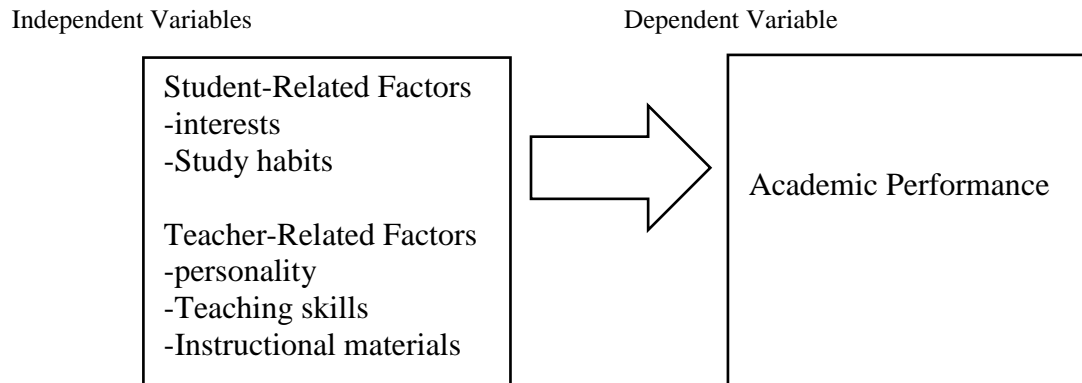
The primary purpose of teaching at any level of education is to bring a fundamental change in the learner (Tebabal & Kahssay, 2011). To facilitate the process of knowledge transmission, teachers should apply appropriate teaching methods that best suit specific objectives and level exit outcomes (Ganyaupfu E.M.,2013).

Teaching strategies are methods employed by teachers to develop and facilitate the acquisition of knowledge, understandings, skills and values among students. Musili (2015) added that teacher experience and professional training have a significant impact on students' performance. Blazar (2016) confirmed that the impact teachers have on the academic performance of their students is substantial. But stressed that little is known about the specific teacher factors which contributes to the academic performance of students.

Instructional Materials

Instructional materials serve as a channel between the teacher and the students in delivering instructions. They may also serve as the motivation on the teaching-learning process. It is use to get the attention of the students and maintains interest in class. Teachers depend on instructional materials in every aspect of teaching. They need material for background information and processing on the subject they are teaching. Students taught with instructional materials performed significantly better than those taught without instructional materials and also that the use of instructional materials generally improved students' understanding of concepts and led to high academic achievements (Adalikwu, S.,2013.)

The interplay of the variables in the study is illustrated in a schematic diagram that follows:



Purposes of the Research

This study endeavored to analyze the relationship between academic performance and factors affecting the academic performance of the Grade 12 students at Alicia National High School, Alicia, Isabela, School Year 2018-2019.

Specifically, it sought to address the following research questions:

1. What is the academic performance of the respondents?
2. What are the factors affecting the academic performance of the respondents in the following areas:
 - 2.1 Student- related Factors
 - 2.1.1 Interest
 - 2.1.2 Study Habits
 - 2.2 Teacher- related - Factors
 - 2.2.1 Personality Traits
 - 2.2.2 Teaching Skills
 - 2.3 Instructional Materials
3. What is the relationship between students' academic performance and the factors affecting their academic performance?

Hypothesis

There is no significant relationship between the student-related factors and teacher related factors towards academic performance.

METHODOLOGY

Research Design

This is a descriptive-correlational study employing the one-shot survey method. According to Fraenkel and Wallen (2010), descriptive method is the survey, as when researchers summarize the characteristics (abilities, preferences, behaviors, and so on) of individuals or groups, or (sometimes) physical environments (such as schools), to have more complete understanding of people and things. This method requires a detailed analysis of the various aspects of themselves and their relationships. Furthermore, Acero, et al. (2006) explain that descriptive research deals with the relationships between variables, the testing of hypothesis, and the development of generalizations, principles or theories that have universal validity. It is concerned with functional relationships.

Participants and Sampling Procedures

The respondents of this study were the students from Alicia National High School, Paddad, Alicia, Isabela. The sample population are grades 12 students. The researchers used simple random sampling using proportion allocation formula to determine the number of students to be chosen from each class. The sample size were drawn from the target population of 249 students. Out of the total population, the sample size, of 151 students were determined.

Research Instrument

The questionnaire was the main instrument used in gathering the needed data on the attitude of the students. The Questionnaire developed by Liu & Wang (2005) was adapted by the researcher.

Procedure of Data Collection and Analysis

A formal request letter to the School head to allow the researcher to distribute questionnaires to the students with the help of the teachers. The approved letter was presented to the respondents in whom the researcher introduces herself and explained the purpose of the activity to the respondents. Data were collected and being recorded subjected to statistical treatment used.

The data collected were checked for consistency, accuracy and completeness, and then these were coded and organized. These were processed and analyzed using the Statistical Package for the Social Sciences (SPSS).

DepEd Order No. 73, s. 2012 or the Guidelines on the Assessment and rating of learning outcomes under K to 12 Basic Education Curriculum was used as the basis for labelling the proficiency level of respondents in identifying their academic performance.

The interpretation of the interest and study habits of the students and the teacher-related factors were analyzed using weighted mean and interpreted with the use of the following range of description:

Interval	Descriptive Interpretation
4.5 - 5.00	Always
3.5 - 4.49	Often
2.5 - 3.49	Sometimes
1.5 - 2.49	Rarely
1.00 - 1.49	Never

RESULTS AND DISCUSSION**Academic Performance of the Respondents**

DepEd Order No. 73, s. 2012 or the Guidelines on the Assessment and rating of learning outcomes under K to 12 Basic Education Curriculum was used as the basis for labelling the proficiency level of respondents in identifying their academic performance.

Table 1 shows the performance level of students range from developing to advanced. It shows how students fare in academics. It could be noted that although there are advanced or high achievers there are also low achievers. The result implies students need to exert more effort to improve their academic performance to improve academic achievement since their achievement also reflects the education outcome. Annie, Howard and Midred (as cited in Arhad, Zaidi & Mahmood, 2015) also indicated that academic performance measures education outcome. They stressed that it shows and measures the extent to which an educational institution, teachers and students have achieved their educational goals. It can be deduced from the result that Alicia National High School has to design a program to improve the academic performance of their students who belong to developing, approaching and proficient, thus achieve the advance level.

Table 1. Respondents 'Academic Performance

General Average/Level	Frequency	Percent
75-79 (Developing)	15	9.43
80-84 (Approaching Proficiency)	43	28.48
85-89 (Proficient)	75	49.67
90- and above (Advanced)	18	11.92
Total	151	100

Mean= 87.67 (Proficient)

Student-related Factors

Table 2 reveals the interest of the respondents in learning their subjects. The students often make themselves prepared for their academic subjects with a mean of 3.79. Item number 3 shows that they often listen to their teachers attentively with a mean of 4.02. Item number 5 shows that sometimes the students get frustrated when the discussion is interrupted or the teachers is absent with a mean of 3.42. It can be noted that the respondents have a high interests in learning their academic subjects. This supports the insight that "interest in learning, could most probably be a very powerful affective psychological trait and a very strong knowledge emotion as well as an overwhelming magnetic positive feeling, a sense of being captivated, enthralled, invigorated and energized to cognitively process information much faster and more accurately in addition to most effective application of psychomotor traits like self-regulatory skills, self-discipline, working harder and smarter with optimum persistence" (Kpolovie, 2010a)

Item number 4 which has the highest mean tells that the respondents have a high consciousness when it comes to their tests results. This is reflective of the study of Hulleman (2011). He mentioned that interest appears to play a very important role in learning and academic achievement. The nature and strength of student's interest in learning and in schooling may represent an important aspect of personality (Anastasi&Urbina 2007). The characteristic, interest, may substantially influence educational and occupational achievement, interpersonal relations, the enjoyment one derives from leisure activities, and other major phases of daily living. Values are clearly related to life choices and are often discussed in conjunction with interests and preference. From the view point of the student and what he intends to achieve educationally, a consideration of his interest might be of practical significance. The interest must be there for him to devote time for his study.

Table 2. Respondent's Interest in Learning Their Academic Subjects

Interests	Mean	Desc.
1. I make myself prepared for the academic subject	3.79	Often
2. I listen attentively to the lecture of my subject teachers	4.02	Often
3. I actively participate in the discussion, answering exercises and or clarifying things I did not understand	3.74	Often
4. I want to get good grades on tests, quizzes, assignments and projects	4.40	Often
5. I get frustrated when the discussion is interrupted or the teacher is absent	3.42	Sometimes

Table 3 reveals the study habits of the respondents. Item numbers 1, 2, 5, 6,8 and 10 describe a favorable habit of the respondents with regards to doing their assignments and studying their lessons to improve their grades. Meanwhile item numbers 3, 4, 7, and 9 show that the respondents prefer to do extra-curricular activities or leisure during their vacation or spare time. This is parallel to what Correa-Fernandez (2015) claims that students are satisfied when they engage themselves into extra-curricular activities and leisure times.

In other words, study habits include behaviors and skills that can increase motivation and convert the study into an effective process with high returns, which ultimately increases the learning (Hashemian M, Hashemian A., 2014) This skill is also defined as any activity that facilitates the process of learning about a topic, solving the problems or memorizing part or all of the presented materials. Study habits are in fact the gateway to success and differ from person to person (. Kamoru U, Ramon OG. 2017)

Table 3. Respondents' Study Habits in Learning Their Academic Subjects

Study Habits	Mean	Desc.
1. I do my assignments regularly	3.97	Often
2. I exert more effort when I do difficult assignments	3.90	Often
3. I spend my vacation time in doing assignments or studying my lessons	3.02	Sometimes
4. I study the lessons I missed if I was absent from the class	3.30	Sometimes
5. I study and prepared for quizzes and tests	3.77	Often
6. I study harder to improve my performance when I get low grades	4.21	Often
7. I spend less time with my friends during school days to concentrate more on my studies	3.36	Sometimes
8. I prefer finishing my lessons and my assignments first before watching any television program	3.50	Often
9. I see to it that extracurricular activities do not hamper my studies	3.15	Sometimes
10. I have a specific place of study at home which I keep clean and orderly	3.59	Often

The literatures reviewed indicated that students factors which influence their academic performance is a combinations of several indicators. This study found that interest in a subject regular studying, class attendance, self-motivation and attitude of student towards learning are the key factors which affect their academic performance. All the literature reviewed and this present study found that there is a positive relationship between these factors and academic performance. This implies that if a student exhibit positive attitude towards these factors his/her academic performance will improve, all other things being equal.

Teacher-Related Factors

Table 4 reveals the personality traits of the teachers as perceived by the respondents. It shows that the teachers have a good relationship with their students with a mean of 4.04. The teachers often shows smartness confidence and firmness in making decisions with a mean of 3.63. The teachers are often appealing to their students with a mean of 3.80. Item number 5 which shows the openness of teachers to suggestions and opinions fall under often description with a mean of 3.78.

Research has indicated that the relationship between teachers and students is an important predictor of academic engagement and achievement. In fact, the powerful weapon teachers have, when trying to foster a favorable learning climate, is positive

relationships with their students. Students who perceive their teachers as more supportive have better achievement outcomes (Rimm-Kaufman & Sandilos, 2012; Gehlbach, Brinkworth, & Harris, 2012). Students who have positive and meaningful relationships with their teachers are more motivated to succeed in school, specifically in the classes in which they have a positive relationship with the teacher (Meagan Varga, 2017).

Table 4. Personality Traits of Teachers

Personality Traits	Mean	Desc.
1. Has a good relationship with the students and teachers	4.04	Often
2. Shows smartness, confidence and firmness in making decisions	3.63	Often
3. Imposes proper discipline and is not lenient in following the prescribed rules	3.60	Often
4. Has an appealing personality with good sense of humor	3.80	Often
5. Is open to suggestions and opinions and is worthy of praise	3.78	Often

Table 5 depicts that the teachers are liked by the students during their classes because of their various strategies and mastery of the subject matter. The teachers often explain the lesson clearly with a mean of 3.90. The teachers also masters the subject matter well with a mean of 3.77. The teachers are often organized in presenting subject matters with a mean of 3.93. Teachers are often updated with present trends with a mean of 3.49. Item number 5 has a mean of 4.16 which tells that teachers often use various teaching strategies and devices in teaching the lessons.

Teachers communicate a very imposing influence on students' performance and attitude towards the subject. Their teaching strategies and techniques alongside with their behaviors and relationships concretely mark students' lives (Valdez & Guiab, 2016). The teachers nurture student's holistic growth and development. Young people desire a safe, warm and connected learning environment to develop and fulfill their potentials and capacities. The home, school, church, media, organizations, and government need to collaborate and cooperatively determine the challenges, problems, needs and interests of students in order that prompt and proper interventions would be designed and applied; hence, teachers' aspirations and expectations from students would be realized.

Table 5. Teaching Skills of Teachers

Teaching Skills	Mean	Desc.
1. Explains the objectives of the lesson clearly at the start of each period	3.90	Often
2. Has mastery of the subject matter	3.77	Often
3. Is organized in presenting subject matters by systematically following course outline	3.93	Often
4. Is updated with present trends, relevant to the subject matter	3.49	Often
5. Uses various strategies, teaching aids/devices and techniques in presenting the lessons	4.16	Often

It can be gleaned from Table 6 that the teachers have mastery of the subject matter and are organized in presenting their lesson as perceived by the students. This is shown in item number 3 with a mean of 4.56. Teachers are also updated with present trends in teaching. However, the objectives of the lesson are not clear sometimes, this is shown in item number 1 with a mean of 3.45.

Tety (2016) noticed that instructional materials have an impact on academic performance. That students who are taught with instructional materials perform better than students taught without instructional materials. Similarly, Krukru (2015) found that in Nigeria, instructional materials have a significant impact on academic performance. He asserted that the use of instructional materials facilitates the smooth delivery of a lesson and it enhances teaching and learning. The use of instructional materials assist students to understand the concept of a subject better. As a result of this students who are taught with instructional materials perform better than student taught without instructional materials (Adalikwu, Lorkpilgh, 2013). Maganga (2016), Nghambi (2014) and Osei-Mensah (2012), indicated that the availability of teaching and learning materials and competency of teachers have an impact on students' academic performance.

Table 6. Teachers' Ability in the Use of Instructional Materials

Instructional Materials	Mean	Desc.
1. Explains the objectives of the lesson clearly at the start of each period	3.45	Sometimes
2. Has mastery of the subject matter	3.78	Often
3. Is organized in presenting subject matters by systematically following course outline	4.56	Always
4. Is updated with present trends, relevant to the subject matter	3.76	Often
5. Uses various strategies, teaching aids/devices and techniques in presenting the lessons	3.50	Often

Relationship of the Student-related Factors towards Respondents' Academic Performance

As revealed in Table 7, all items are significant at 0.05 level of significance. Thus, there is significant relationship between interest of the respondents in earning their academic subjects and their academic performance. It shows that when pupils are interested in learning, they study hard and thus perform high in academics. This result indicates that the nature and strength of one's interest in learning and in schooling may represent an important aspect of personality (Anastasi & Urbina 2007). The characteristic,

interest, may substantially influence educational and occupational achievement, interpersonal relations, the enjoyment one derives from leisure activities, and other major phases of daily living. Values are clearly related to life choices and are often discussed in conjunction with interests and preference. From the view point of the student and what he intends to achieve educationally, a consideration of his interest might be of practical significance. The interest must be there for him/her to devote time for his study (MeenuDev,016).

Table 7. Relationship of the Respondents' Interests towards their Academic Performance

Interests	Corr.	Sig.
1. I make myself prepared for the academic subject	0.38*	0.00
2. I listen attentively to the lecture of my subject teachers	0.39*	0.00
3. I actively participate in the discussion, answering exercises and or clarifying things I did not understand	0.38*	0.00
4. I want to get good grades on tests, quizzes, assignments and projects	0.45*	0.00
5. I get frustrated when the discussion is interrupted or the teacher is absent	0.38*	0.02

*Significant

Table 8 reveals that there is a significant relationship between the respondents study habits and their academic performance. As shown in the table all items are significant at below 0.05 level. It tells that as the respondents' study habits become positive, their academic performance also gets high.

Results appear to be in line with the study of Looyeh, Hayede Rezaie, Seyede Fateme Seyed Fazelpour, Shadman Reza Masoule, Minoo Mitra Chehrzad, & Ehsan Kazem Nejad Leili (2017) that the academic performance of the students has a significant and positive relationship with the score of all the areas of study habits as well as the total score of study habits. In general, the correlation between the study habits and the academic performance is significant. Determining the students' study habits and the relationship between their study habits and their academic performance can, therefore, improve their academic achievement, strengthen and modify their study habits (Looyeh, Hayede Rezaie, et.al. (2017).

Table 8. Relationship of the Respondents' Study Habits towards their Academic Performance

Study Habits	Corr.	Sig.
1. I do my assignments regularly	0.41*	0.00
2. I exert more effort when I do difficult assignments	0.40*	0.00
3. I spend my vacation time in doing assignments or studying my lessons	0.29*	0.00
4. I study the lessons I missed if I was absent from the class	0.34*	0.00
5. I study and prepared for quizzes and tests	0.39*	0.00
6. I study harder to improve my performance when I get low grades	0.43*	0.00
7. I spend less time with my friends during school days to concentrate more on my studies	0.33*	0.00
8. I prefer finishing my lessons and my assignments first before watching any television program	0.26*	0.00
9. I see to it that extracurricular activities do not hamper my studies	0.31*	0.00
10. I have a specific place of study at home which I keep clean and orderly	0.37*	0.00

*Significant

Relationship of the Teacher-related Factors towards Respondents' Academic Performance

As revealed in Table 9, all items are significant at 0.05 level of significance except form item number 4. Thus, there is significant relationship between the personality traits of the teachers and their respondents' academic performance. However item number 4 which says that the teacher's appealing personality and sense of humor does not affect the students' academic performance.

Findings reveal that students' interest and their relationship with the teachers are contributing factors in successful academic performance. Therefore, the data imply that teachers need to consider student interest and develop a relationship with them in order to foster student growth and success (Kate Sauer, 2012). One thing more, when students feel a sense of control and security in the classroom, they are more engaged because they approach learning with enthusiasm and vigor. Students become active participants in their own education (Maulana, Opendakker, Stroet, & Bosker, 2013).

The result negates Akiri and Ugborugbo (2009 in Sauer, 2012) that there is no statistical relationship between teacher effectiveness and academic performance. The teacher and learners hold as the key factor and heart in education correspondingly. What the teacher does and fails to do in the classroom impact learners' performance, attitude and behavior. Teachers use different methods and strategies to effect productive learning. The teaching strategies must suit the native capacities and tendencies of the learners to

achieve their goals. Therefore, the first step to helping a student become more motivated and engaged, and thus academically successful, is building and maintaining positive teacher-student relationships.

Table 9. Relationship of the Personality Traits of Teachers Towards Respondents' Academic Performance

Personality Traits	Corr.	Sig.
1. Has a good relationship with the students and teachers	0.40*	0.00
2. Shows smartness, confidence and firmness in making decisions	0.36*	0.00
3. Imposes proper discipline and is not lenient in following the prescribed rules	0.37*	0.00
4. Has an appealing personality with good sense of humor	0.05 ^{ns}	0.35
5. Is open to suggestions and opinions and is worthy of praise	0.39*	0.00

*Significant

ⁿ Not Significant

Table 10 reveals there is significant relationship between the teachers' teaching skills and the respondents' academic performance at 0.05 level of significance. This means that a teaching strategy that best fits students' preference would likely result to better grades while generally, teaching strategy would result to a negative attitude towards the subject. Findings postulates that perceived teacher support positively predicted the achievement. Although the noted association between the variables is not very high, its relationship is significant. This implies that the relationship is not being caused by chance alone, hence teaching strategy is really associated with grades of the learners. Research prove teaching skills facilitate learners in getting adjustment to class (Demaray & Malecki, 2002b,2005) and they are more effective.

Table10. Relationship Teaching Skills of Teachers Towards Respondents' Academic Performance

Teaching Skills	Corr.	Sig.
1. Explains the objectives of the lesson clearly at the start of each period	0.41	0.01
2. Has mastery of the subject matter	0.40	0.00
3. Is organized in presenting subject matters by systematically following course outline	0.42	0.02
4. Is updated with present trends, relevant to the subject matter	0.33	0.00
5. Uses various strategies, teaching aids/devices and techniques in presenting the lessons	0.49	0.00

*Significant

As revealed in Table 11, all items are significant at 0.05 level of significance. Thus, there is significant relationship between the teachers' ability in the use of instructional materials and the respondents' academic performance. It has been proven that the key school factors which directly influence academic performance includes instructional materials, discipline, effective teaching, class size and the school environment (Abaidoo, 2018). This means the teacher should always select and utilize appropriate instructional materials as well as teaching strategies.

Table 11. Relationship of Teachers' Ability in the Use of Instructional Materials Towards Respondents' Academic Performance

Instructional Materials	Corr.	Sig.
1. Explains the objectives of the lesson clearly at the start of each period	0.35	0.02
2. Has mastery of the subject matter	0.38	0.00
3. Is organized in presenting subject matters by systematically following course outline	0.47	0.00
4. Is updated with present trends, relevant to the subject matter	0.38	0.00
5. Uses various strategies, teaching aids/devices and techniques in presenting the lessons	0.29	0.00

*Significant

The hypothesis there is no significant relationship between the student-related factors and teacher related factors towards academic performance is rejected. There is a significant relationship between students' interests and study habits and teachers' personality, teaching skills, and use of instructional materials, and academic performance.

CONCLUSIONS AND RECOMMENDATION

Based on the foregoing findings and discussion, it can be concluded that this study has indeed revealed data-based evidence that students' interest in learning, study habits, teacher's personality, use of instructional materials are factors that greatly influence academic performance of students.

The study affirms the findings of reviewed literature and theories: 1) The students' positive attitude and interests in learning are directly related to their academic achievement. 2) The role the teacher plays in the classroom affects the perception the student has on the relationship and the classroom environment, which ultimately contributes to achievement. Students who perceive that their teachers are more supportive have better achievement outcomes. 3) The students taught using instructional materials performed significantly higher compared to those taught not using instructional devices. Generally, students will have better academic

performance when they are allowed to participate effectively in the teaching –learning process through the use of instructional materials.

Recommendations

Based on the findings, it was recommended that school heads should conduct regular supervision to enhance effective use of instructional materials and resources. Emphasis should be on the use of instructional materials in preparing teachers and provision of in-service training to update pedagogical skills.

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PRIMARY AMENORRHEA IN A CHILD WITH MURCS ASSOCIATION – A CASE REPORT

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ABSTRACT

MURCS is a rare association affecting the development of reproductive and urinary systems.[1] It involves Mullerian agenesis, Renal agenesis, Cervicothoracic Somite abnormalities. Mullerian anomalies can include abnormalities in portions or all of fallopian tubes, uterus, cervix and vagina. Renal anomalies include unilateral agenesis, ectopic kidneys, horseshoe kidneys or hydronephrosis [2][3]. Cervicothoracic somite abnormalities reported are Klippel-Feil syndrome, Thoracolumbar Kyphoscoliosis.[3]

KEYWORDS: Mullerian agenesis, Renal agenesis, Cervicothoracic Somite, Thoracolumbar Kyphoscoliosis

INTRODUCTION:

The agenesis of the Müllerian duct is the second most common cause of primary amenorrhoea after Turner syndrome.(1,2) The abnormal development of Müllerian duct is often associated with the urinary tract and skeletal abnormalities. MURCS association is a unique and rare developmental disorder with four common features of uterine hypoplasia or aplasia, renal agenesis or ectopy, vertebral anomalies and short stature(1,4,5).

There are complex interactions between the mesonephric, paramesonephric and metanephric ducts during the embryonic life and normal development of the Mullerian system depends on such interactions. If this process is interrupted, coexisting Mullerian and renal anomalies are noted in the girl at the time of evaluation(2,3). Mullerian anomalies can be polygenic in inheritance, Autosomal dominant or recessive or X-linked. MURCS can be identified at birth, but can be proved only in puberty

CASE REPORT :

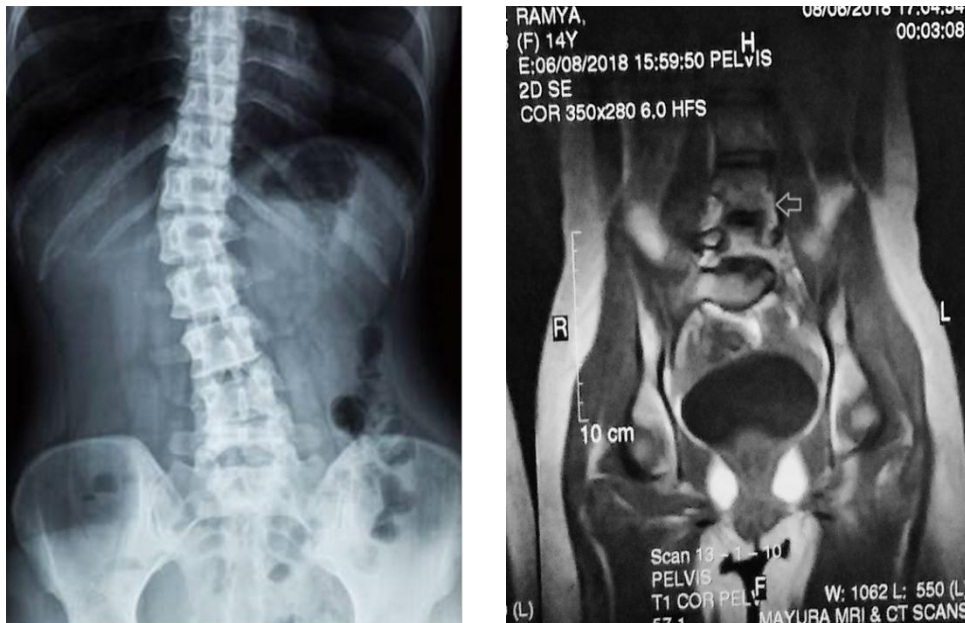
A 15 years old female child, first born to non-consanguineous parents. Evaluated for primary amenorrhea after four years of onset of breast development. She underwent Left Nephrectomy for left sided Hydroureteronephrosis, following urinary tract infection. She had limping of the right lower limbs.

On general examination – normal, anthropometrically undernourished. SMR Breast - 4, Pubic Hair – 4, normal female external genitalia. Scoliosis with convexity to left with pelvic tilt (+), Sacral dimple with sinus(+), Short middle phalanx of the left 4th toe. Systemic examination: Normal.

**INVESTIGATIONS:**

USG ABDOMEN AND PELVIS (prior to Nephrectomy): Marked dilatation of left renal pelvicalyceal system, left ureter grossly dilated, mild dilatation of right pelvicalyceal system and ureter, hypoplastic uterus, absence of left pedicle of L5 vertebra. **MRI Abdomen and pelvis (prior to Nephrectomy):** left Hydroureteronephrosis, left pedicle of L5 vertebra – absent, spinal cord – Normal. **Technetium 99 scan and MCU :** Normally functioning right kidney, poorly functioning left kidney, left mega ureter (+) ; grade III VUR on the left side. **MRI pelvis(Post nephrectomy):** Infantile uterus, Absent Left kidney and ureter.

X Ray Spine (Cervical & Thoracic) – Thoracic scoliosis with convexity to the left. **X ray feet**– short 4th toe, shortened middle phalanx in left foot. **Bone age** – 13-14 years. **TFT** – FT4 – 0.8ng/dl, TSH – 3.2 μ U/ml; Normal study, Serum FSH –15mU/ml, **LH** – 17mU/ml (Prepubertal), **Karyotyping** – 46 XX.



Arrow points absent left pedicle of L5 vertebra

DISCUSSION:

MURCS association is a rare developmental disorder characterized by primary amenorrhoea in a female with well-developed secondary sexual characteristics and other urological and somatic abnormalities^[1, 2]. Once believed to sporadic, an increasing number of familial cases now support Autosomal dominant inheritance with incomplete penetrance. So, the family members in addition to index case should be enquired of and investigated for renal and skeletal abnormalities⁽²⁾.

Apart from the classical presentations of MURCS, other clinical features are Facial asymmetry, Cleft lip and palate, Micrognathia, Abnormal external ear, deafness, Sprengel's shoulder, Rib abnormalities, Maldevelopment of upper limb and Gastrointestinal abnormalities^(4,5).

The closest differential diagnoses of MURCS association are Goldenhar syndrome, VACTERL association and Turner syndrome. The child evaluated had MU (infantile uterus) R (left renal dysgenesis with Hydroureteronephrosis) C (thoracolumbar scoliosis) S (short middle phalanx of 4th toes) association – MURCS

A new feature associated in this case – Absent left pedicle of L5 vertebra.

To conclude, for the evaluation of primary amenorrhoea in well-developed secondary sexual characters, congenital anomalies should be ruled out before hormone and karyotype analysis.

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A RARE DISORDER OF TIBIAL HEMIMELIA WITH ATYPICAL PRESENTATION

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ABSTRACT

The patient a 8yr old boy presenting with gross deformity of left leg since birth. **Clinical examination:** revealed absense of middle 1/3rd of tibia,with preserved foot with all rays. Motor function of the foot was normal.x-ray showed absense of diaphysis of tibia with triangular hypoplastic epiphysio-metaphyseal portions above&below the defect .fibula thickened&showed bowing with around 100° angulation.we describe the x-ray findings, the surgical treatment technique, and the prognostic course of the patient. Descriptions of such cases are very infrequent in the literature and type of treatment is still object of debate.

KEYWORDS: Tibial hemimelia, leg reconstruction, correction of pediatric deformity, paley classification, weber classification, jones classification

INTRODUCTION:

Tibial hemimelia is a rare disorder. The incidence being 1 in 10 lakhs. The treatment of this condition is very difficult and may require many procedures. Several authors tried to classify this pathology, they attempted to recommend proper surgical options for each types of th. In 1861, billroth firstly described the "tibial hemimelia".this description was then modified by dankmeijer in 1935. Th can occur for an autosomal dominant or recessive transmission. Th is associated with several syndromes such as werner's syndrome, langer-giedion syndrome, tricho-rhino-phalangeal syndrome (trps ii),tibial hemimelia diplopodia syndrome, tibial hemimelia and split hand and foot syndrome and tibial hemimelia micromelia trigonal brachycephaly syndrome.other known potential cause is mother assumption of talidomide during pregnancy. Weber described a classification system for th and recently paley has performed a more accurate evaluation system.all these classifications are useful to recognize if tibial reduction defects or cartilaginous anlage are present. Nevertheless, there is a lack evidence about the correct approaches according to the grade of th. Therefore, types of treatment are usually demanding, even for expert surgeons. We present a case report, trying to discuss the anatomical findings associated with a rare type of th.

THE CASE report

The Patient A 8yr Old Boy Presenting With Gross Deformity Of Left Leg Since Birth.Clinical Examination: Revealed Absense Of Middle 1/3rd Of Tibia,With Preserved Foot With All Rays. Motor Function Of The Foot Was Normal.X-Ray Showed Absense Of

Diaphysis Of Tibia With Triangular Hypoplastic Epiphysio-Metaphyseal Portions Above&Below The Defect .Fibula Thickened&Showed Bowing With Around 100° Angulation.

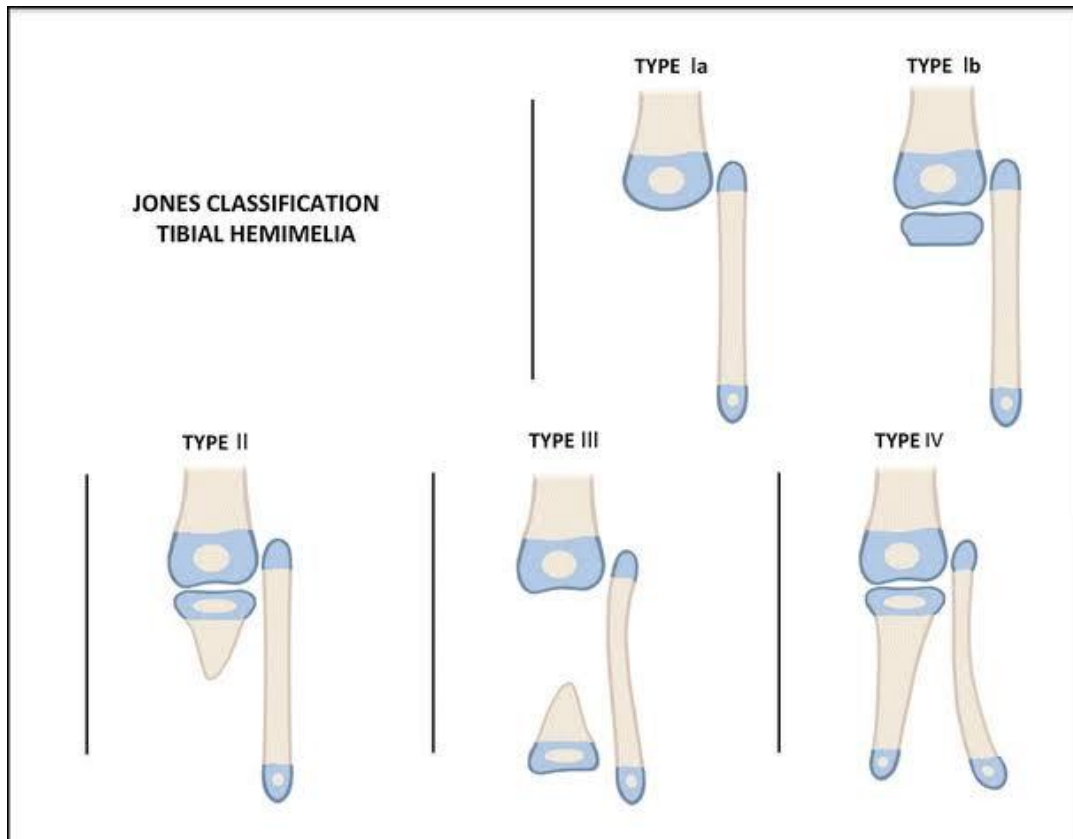
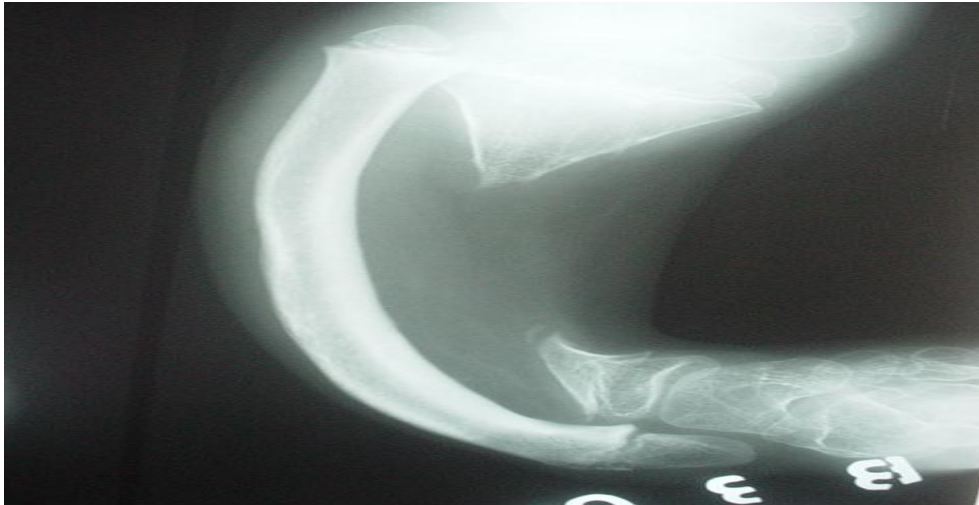
CLINICAL PICTURE : 1



CLINICAL PICTURE : 2



PRE OP Xray :



Our case is not fitting to the widely used classification of Jones, Barnes & Lloyd-Roberts classification of tibial hemimelia because of presence of both upper & lower epiphysio-metaphyseal region & deformed fibula.

TREATMENT GIVEN: Tibialisation of fibula&deformity correction planned with ilizarov apparatus

INTRAOPERATIVE PICTURE : 1



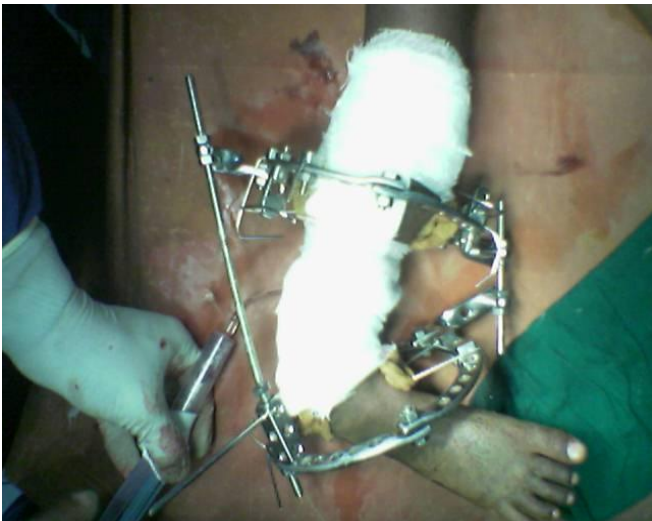
INTRAOPERATIVE PICTURE : 2



STAGE I-

Oblique osteotomy of the fibula done at the upper end with medialisation of fibula into tibial metaphyseal remenant.another osteotomy of fibula done at the apex of the deformity.both osteotomies are fixed with ilizarov apparatus with olive wires securing the proximal tibialisation.hinge is placed away from the fibula.gradual distraction done 1-2mm/day.deformity correction achieved with straight fibula in one month period

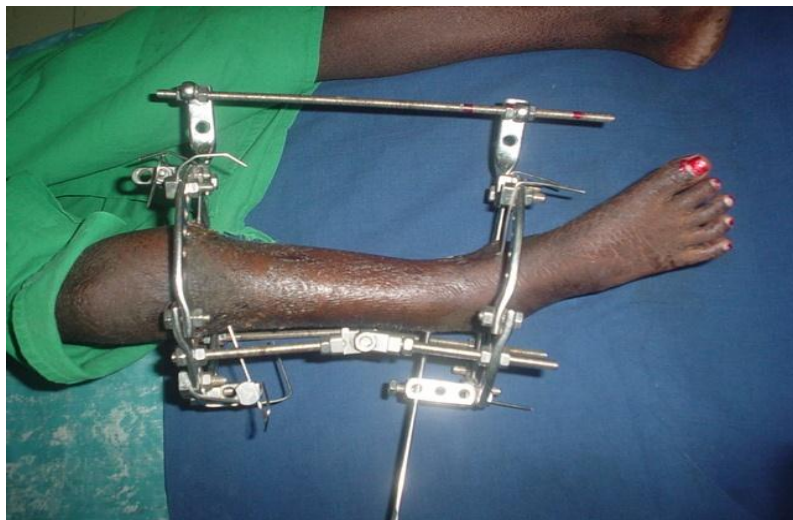
INTRAOPERATIVE PICTURE : 3



STAGE II-

Tibialisation of lower end of fibula done with ilizarow in-situ,because not much tibial bone present.bone graft applied which was taken from remaining fibula&intramedullary k-wire fixation done through calcaneum,talus&tibia.healing of the tibialisation occurred in one month.then ilizarow removed.limb maintained in pop cast for another one month.

POST OF CLINICAL PICTURE : 1



POST OF CLINICAL PICTURE : 2



3 MONTHS FOLLOW UP :

6 MONTHS FOLLOW UP :



RESULTS: Ankle movements are normal with straight limb with shortening of 7cm.brace applied with heel raise.we planned for limb lengthening in later stages

DISCUSSION: Since this patient did not fit into any classification,we have to plan our own treatment.so far the result of treatment has been satisfactory.shortening is the only complaint for the patient which can be corrected later at any time

CONCLUSION: Tibial hemimelia should be treated aggressively if adequate bone in tibia is present and foot is normal

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A CASE OF SUCCESSFUL MANAGEMENT OF AN UNANTICIPATED DIFFICULT INTUBATION IN A CASE OF NEUROFIBROMATOSIS TYPE 1 POSTED FOR POST CRICOID GROWTH BIOPSY

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ABSTRACT

A 65 years old female with NF and post cricoid growth was posted for excision and biopsy.We encountered unanticipated difficult intubation eventhough patient airway examination was normal preoperatively with mallampatti grading 1.After 2 attempts made patient was intubated successfully and airway secured.Procedure was uneventful intraoperatively as well as post extubation period.

Keywords: neurofibromatosis,difficult intubation, neurofibromas,laryngoscopy

INTRODUCTION

Neurofibromas of the trachea are rare.Usually they are associated with neurofibromatosis-1 ,also known as von recklinghausen neurofibromatosis or rarely as isolated tracheal tumors.Tracheal neurofibromas if its large enough will produce symptoms of airway obstruction and difficulty in securing the airway.We report a patient with NF1 with post cricoid growth posted for excision biopsy where we encountered difficulty in intubation and managed successfully.

CASE REPORT

A 65 year old female with complaints of cough for past 6 months ,difficulty in swallowing,throat pain and voice change for past 1 month.There is no history of ear ache/discharge/hearing deficit.No history of visual changes.No history of chest pain ,palpitation or breathlessness.No history of giddiness,weakness or memory changes.No nausea vomiting.No history of pain,stiffness,restricted mobility or gait abnormality

She had history of neurofibromatosis type 1 since age of 10. She also had history of PTB 20 years back and was treated. She has a family history of neurofibromatosis type 1 in their family members.

On examination patient is conscious, oriented, afebrile, moderately built and nourished. Her pulse rate is 80/min regular, normal volume and character, equality on both sides, no radiofemoral delay, other peripheral pulsation normal, BP is 110/70 mmHg. Right upper limb, supine position. Respiratory rate is 20/min, regular.

Pallor (+), Lymph node (+) left neck.

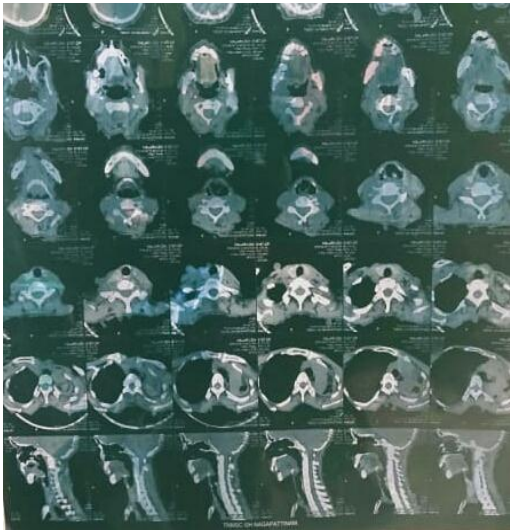
No icterus/cyanosis/clubbing/edema

Neurofibromatosis lesion present throughout the body

Spine – scoliosis +

On systemic examination, in respiratory system, trachea is mildly deviated to left. Mild scoliosis present, chest movements normal on both sides and no abnormal breathing movement was seen. On auscultation bilateral air entry present (reduced on left suprascapular region) and no added sounds. In CVS S1 S2 +, No murmur. In CNS higher mental functions, cranial nerve examination, motor system and sensory system is normal. Per abdomen soft, bowel sounds present, No organomegaly. Her CBC, RFT, Electrolytes BT/CT are within normal limits, ECG revealed sinus tachycardia with RBBB. CT neck plain revealed no abnormal mass lesions seen on both sides of neck. Loss of lordosis of cervical spine with spondylotic changes present. Left side of neck? lymph node present. CT thorax plain revealed left side bronchiectasis, left upper lobe collapse and consolidation noted with few patchy nodules with volume loss in left lung. No lymphadenopathy was seen. Mediastinum shifted to left.





UGI scopy revealed ?post cricoid growth.In indirect laryngoscopy base of toungue ,epiglottis ,vallecula was normal.Aretynoid was congested.Pyriform fossa showed left side fullness and was normal on right side.Vocal cords mobility normal on right side and fixed on left side.Patient was accessed and accepted for elective surgery under ASA 3.Informed written consent was obtained from the patient and patient was kept fasted for 8 hours prior to surgery.Patient was pre medicated with Tab.Ranitidine 150mg and Tab .Ondansetron 4mg on the night before and morning of surgery.Tab Diazepam 5mg was given on the night before surgery.Patient was shifted to OT and baseline monitors was attached(pulseoximeter,NIBP,SPO2).IV line was secured .Intraoperatevely patient was medicated with Inj.Midazolam 1mg iv.Inj glycopyrrolate 0.2mg and Inj.Butorphenol 1mg iv.Patient was preoxygenated with 100% O2 for 3 minutes and then induced with Inj propofol 2 mg per kg iv and paralysed with Inj succinyl choline 1mg per kg iv.Patient in sniffing position,initially intubation was performed using conventional direct laryngoscope(Macintosh -3) vocal cord was found to be Carmack Lehane grade 3.External laryngeal pressure was applied and repeat laryngoscopy was attempted using McCoy blade and attempt to intubation was failed using blind gum elastic bougie due to the presence of blood and secretions.Hence bag and mask ventilation was resumed and video laryngoscopy was attempted and we could not visualize vocal cord due to the presence of blood and secretions.Bag and mask ventilation was resumed and finally anterior commisure laryngoscopy was done and good view of vocal cord was seen ,bougie was passed through the barrel of anterior commisure laryngoscope and scope was removed, ET tube was railroaded over the bougie and intubation was confirmed by checking bilateral air entry.Patient was maintained with O2 + N2O+sevoflurane and muscle relaxant with Inj vecuronium 0.1mg /kg iv.At the end of surgery inhalational agent was discontinued .We anticipated post extubation airway edema hence Inj lignocaine 1.5mg /kg :Inj.dexamethasone 4mg was given before extubation and patient was reversed with Inj neostigmine 50 mics/kg and Inj glycopyrolate 20mics/kg IV.

Patient resumed spontaneous breathing, ET tube was kept intact due to anticipated airway edema and we waited for the patient to become fully awake and conscious.Finally awake extubation was done ,Patient was observed for 30 minutes at room air,Pateints saturation was maintained at more than 95%.Post extubation uneventful

DISCUSSION

Neurofibromatosis type NF1 and NF2 constitute a group of autosomal dominant disease that have wide spread effects on ectodermal and mesodermal tissues.NF1 is the most common form of neurofibromatosis with an estimated birth incidence of 1 in 2500.Hallmark cutaneous findings include Café –au-lait macules ,skin fold freckling and cutaneous neurofibromas.Some of this cutaneous finding can also be seen in NF2.Neurofibromas are the characteristic lesion and they are not only found in the neuraxis but may also be found in the oropharynx and larynx which produces difficulty in laryngoscopy and intubation.

Anaesthetic consideration of NF1

AIRWAY	Neurofibroma of tongue,pharynx or larynx	Tracheal intubation
RS	Intra pulmonary neurofibroma,pulmonary fibrosis; scoliosis/kyphosis	Cough,dyspnea Compromise lung functions
CVS	Essential HTN Mediastinal tumors	Pheochromocytoma or renal artery stenosis SVC obstruction
CNS	Cerebral and spinal neurofibroma	Epilepsy,learning disorders Cerebrovascular disease
GIT	Intestinal tumors Carcinoid tumor in duodenum	Pain,hemorrhage or perforation Jaundice & carcinoid syndrome

American society of anaesthesiology(ASA)

Difficult airway :

difficulty with facemask of the upper airway,difficulty with tracheal intubation or both.

Difficult laryngoscope :

Not possible to visualize any portion of the vocal cords after multiple attempt at conventional laryngoscope.

During induction consideration should be given for the maintenance of spontaneous ventilation and avoidance of long acting muscle relaxants.Additional airway adjuncts and the ability to perform an emergent cricothyroidotomy may also be beneficial.

CONCLUSION :

NF1 is not only a neurocutaneous disorder but also a multisystemic disorder with multifaceted implications throughout nearly every organ system .So proper pre anaesthetic checkup to anticipate difficult airway in such cases.we concluded that always anticipate difficulty in intubation and should take precautions in case of NF eventhough normal airway anatomy during preoperative examinations.During induction consideration should be given for the maintenance of spontaneous ventilation and avoidance of long acting muscle relaxants.Additional airway adjuncts and the ability to perform an emergent cricothyroidotomy may also be beneficial.

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EXTRA GONADAL MIXED GERM CELL TUMOUR IN INGUINAL REGION- A RARE CASE REPORT

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ABSTRACT

Male extragonadal germ cell tumors (EGCTs) are characterized by a malignant transformation of germ cells without the presence of a gonadal primary tumor. EGCTs represent up to 5% of all germ cell tumors (GCTs) with an incidence around 1/1,000,000. It is assumed that EGCTs either derive from a malignant transformation of germ cells that were misdirected during embryogenesis, or from germ cells that have spread throughout the body during embryogenesis to fulfil different roles in immunological processes or distinct organ functions. EGCTs are mainly localized along the median axis, especially in the mediastinum and in the retroperitoneum. Regarding histology, they have the same subtypes as gonadal GCTs (seminomas and non-seminomas). EGCTs are normally diagnosed in advanced stages due to tumor-associated symptoms or as incidental finding during routine diagnostic or therapeutic procedures. An integral part of EGCT treatment is cisplatin-based chemotherapy: residual tumor resection is only indicated for non-seminomatous EGCTs. In our case patient was diagnosed as extra gonadal germ cell tumour in inguinal region for which left side high orchidectomy with inguinal node dissection was done. Patient was defaulter and presented with recurrence for which Adjuvant chemotherapy BEP regime (bleomycin, etoposide, cisplatin) one cycle was given. The prognosis of malignant retroperitoneal EGCTs depends on tumor localization and histology. The 5-year overall survival ranges from 40% to 90% and is more favorable for retroperitoneal or seminomatous tumors than for mediastinal non-seminomatous tumors. Mature teratomas of mediastinal EGCTs are benign and are only treated by surgical resection.

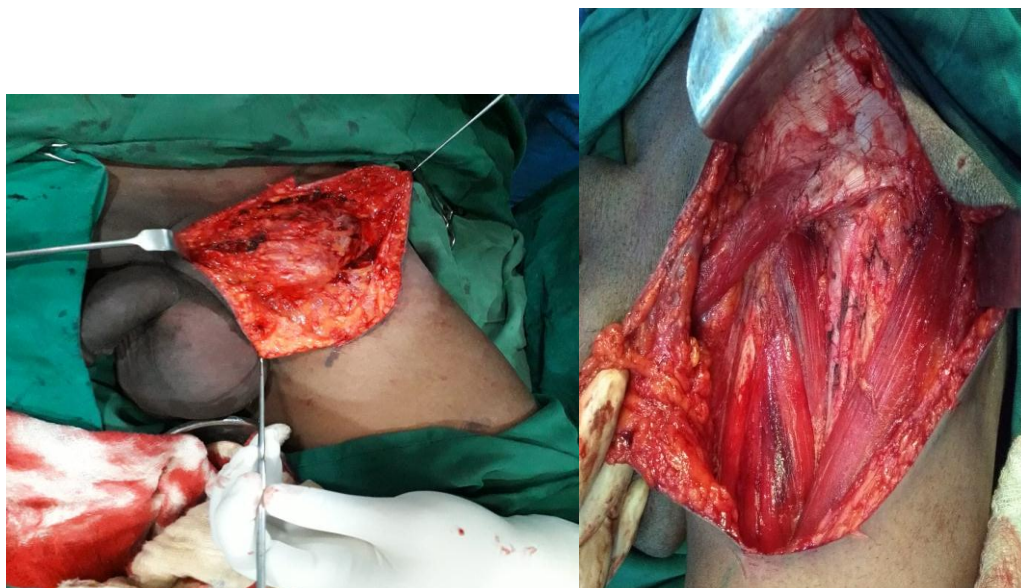
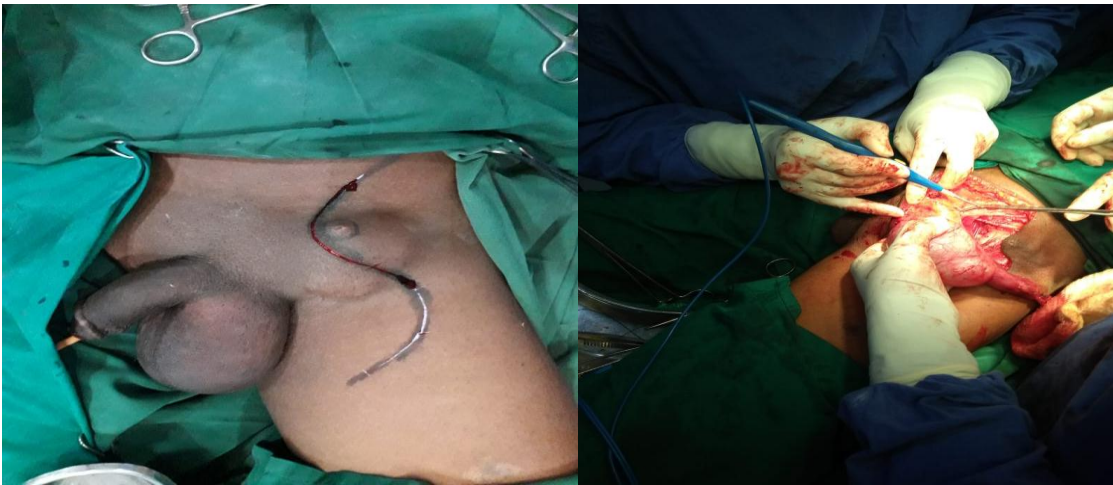
Keywords: Extragenadal germ cell tumours, chemotherapy, teratoma, high orchidectomy.

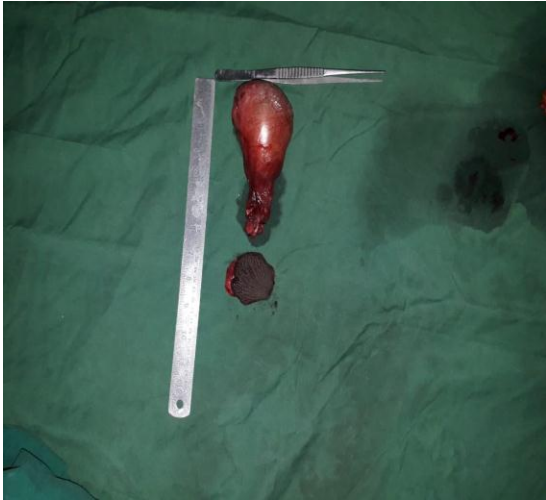
Introduction

Germ cell tumors (GCTs) are uncommon tumors that constitute only 2% of all human malignancies, they are the most common solid tumor in men between 15 and 34 years of age. Constitute 95% of malignant tumors arising in the testes. Several risk factors for GCT development have been identified, including history of a GCT, positive family history, cryptorchidism, testicular dysgenesis, GCTs are classified as seminoma or nonseminoma. Nonseminomatous tumors often include multiple cell types, including embryonal cell carcinoma, choriocarcinoma, yolk sac tumor, and teratoma. The metastatic dissemination is generally lymphatic, mainly at retroperitoneal lymph nodes. While mixed germ cell tumor (MGCT) is the second most common germ cell tumor, after seminoma, and occurs in gonads of young men, extragonadal MGCT is rare, involves midline from pineal gland to coccyx, and occurs in different age groups. Most extragonadal MGCTs are metastases from primary testicular germ cell tumors. The primary extragonadal MGCTs are rare and account for about 10% of all primary malignant retroperitoneal tumors.

Case report

A male patient 39 years old came with complaints of swelling over the left inguinal region for 2 months and swelling over the left testicular region for 2 months. He noticed swelling over the left inguinal region 2 month ago, which was gradual in onset and progressive in nature and was not associated with pain. No previous history of surgeries over the scrotum. On general examination, vitals are within normal limits. On local examination, swelling of size 8*7 cm present over left testicular region extending from the root of the scrotum to base of the scrotum, oval in shape, surface appears to be regular. 2 to 3 left side Inguinal lymph node is palpable measuring 8*7 cm which are matted with no warmth and tenderness, surface appears normal, mobility of the Swelling is restricted, no cough impulse, testicular sensation lost, transillumination negative, able to get above the swelling. FNAC of left inguinal node showed necrotic tissue probably tumor necrosis, serum LDH 803 U/L (135-225), Serum AFP 5695 ng/ml (<15), Serum beta HCG 651 MIU/ml (<2.0). Trucut Biopsy left inguinal node revealed metastatic moderately differentiated possibly primary germ cell tumor. CECT abdomen pelvis revealed left testicular malignant mass with peri tumoral fluid with hydrocele with left inguinal heterogeneous solid mass? Metastatic inguinal node mass. Clinically diagnosed as testicular tumour with inguinal metastasis. patient posted for left side high orchidectomy with inguinal node dissection. on histopathological examination malignant mixed germ cell tumour (Seminoma, Yolk sac tumour, Embryonal carcinoma, Immature teratoma), capsule is involved, Tunica is free of tumour, Spermatic cord is normal, Inguinal lymph nodes show Metastasis (2/5), scrotal skin is free of tumour. After 6 months patient came back with recurrence for which adjuvant chemotherapy with BEP regime for 3 cycles (bleomycin, etoposide and cisplatin) was given.





Discussion

This case is, to the best of our knowledge, the first reported case of an EGCT arising in the inguinal region. There are multiple theories regarding the development of EGCTs. One explains them by a disturbance of the migration of primordial germ cells along the urogenital ridge, which then undergo malignant transformation under the influence of their microenvironment. Another theory suggests that EGCTs develop when germ cells that have regularly spread during embryogenesis into the liver, bone marrow and brain undergo malignant transformation. A biopsy is required for the definitive diagnosis of EGCTs. Most patients present with clear evidence of germ cell features, but a minority could present with a poorly differentiated tumor with no distinctive germ cell features. In our patient's case, the diagnosis was clear as a mixed EGCT with a combination of yolk sac tumor as the primary component, immature teratoma and embryonal carcinoma. If an extra-gonadal GCT is found, it is considered metastases from an occult or "burned out" gonadal cancer until a primary testicular tumor is ruled out. An ultrasound should always be performed to exclude a testicular tumor. Taking a gonadal biopsy to rule out intra-tubular neoplasia is controversial, but not recommended. A multimodality approach starting with chemotherapy followed by surgery for residual masses is considered the best course of action. The standard first line approach for a poor-prognosis GCT is BEP chemotherapy.

Conclusion

In conclusion, EGGCTs represent a rare group of neoplasms, occurring more commonly in the mediastinum and retroperitoneum and very rarely in inguinal region as in our case. The EGGCTs are histologically constituted by the same components observed in the gonadal counterparts, but they are characterized by different biologic behaviors, clinical features and poorer prognoses, mainly when constituted by nonseminomatous components. The efficacy of multidimensional therapy, frequently practised in mediastinal EGGCTs, depends on both successful chemotherapy and surgery. Currently new therapeutic strategies are being studied to improve the prognosis, in order to obtain a longer overall survival, similar to that observed in the gonadal germ cell tumors.

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ASSESSMENT OF TRAINING NEEDS FOR PROFESIONAL DEVELOPMENT OF TEACHERS IN A SCHOOL DISTRICT IN NORTHERN PHILIPPINES

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ABSTRACT

This study aimed to assess the training needs of the elementary school teachers of Alicia South District, Alicia, Isabela, Philippines. This descriptive survey involved a population of 130 teachers from kindergarten to Grade 6. Questionnaire and informal interview were used in data gathering. Data were analyzed using frequency and percentage. Findings reveal that teachers highly need professional development training on new approaches, methodology, strategies and techniques in teaching all subjects in the curriculum and in giving remedial activities for pupils with special needs to acquire new knowledge and skills to improve performance and for career advancement. The result also shows that most of the teachers prefer the traditional demonstration cum lecture methods while few of them want to try web seminars during convenient time. The study affirms the importance of training to the professional growth of teachers and the achievement of the goals and objectives for quality instruction and high academic performance of pupils. Likewise, the identified training needs and preferred presentation format can be the basis of the researcher-administrator in crafting an in-service training for teachers at district and school levels. It is recommended that school heads prepare the in-service training program and implement it the coming school year, and organize a web seminar for interested teachers.

Keywords: development, needs assessment, teachers, training, strategies

INTRODUCTION

Teachers have very important role in nation building. Through quality teachers, the country can develop holistic learners who are imbued with values, equipped with 21st century skills that include critical thinking and problem solving, collaboration across networks and leading by influence, agility and adaptability, initiative and entrepreneurialism, effective oral and written communication, accessing and analyzing information and curiosity and imagination (Wagner,2016). The empowered and capacitated teachers are able to produce Filipinos who passionately love their country and help propel the Philippines to development and progress (DepEd Order No.36, s.2013).

Rapid change is taking place in the 21st century education. Schools call for a more competent and more knowledgeable teaching force to meet the demands of the millennial classroom. Millennial classroom requires teachers adept with education technology, effective and appropriate instructional pedagogy, and skill in dealing with students of various interests and needs. With the focus on process on how to make students learn and less on what should students learn, for many teachers teaching is more complicated. As teaching becomes more complex, the importance of teacher professional development also increases. Low or inadequate performance, changes in curriculum design and a technological breakthrough require some type of training and development efforts.

Another thing to consider is the Philippine Professional Standard for Teachers. It defines teacher quality in the K to 12 Reform through well-defined domains, strands, and indicators that provide measures of professional learning, competent practice, and effective engagement. The set of standards explicitly articulate what teachers should know, be able to do and value to achieve competence, improve student learning outcomes, and eventually quality education. It is anchored on teaching philosophies of learner-centeredness, lifelong learning, and inclusivity. The professional standards is the public statement of professional

accountability that can help teachers reflect and assess their own practices as they hope for personal growth and professional development (PPST, 2017).

Training and development is one of the important aspects of human resource management as it can improve performance at individual, collegial and organizational levels (Tahir, Yousafzai, Jan and Hashim, 2014). Training focuses on present jobs while development prepares employees for possible future jobs (Sims, 2002 in Tahir, Yousafzai & Hashim, 2014). Generally, the objective of training and development is to contribute to the organization's overall goal (Armstrong, 2006). Training and development improve skills; add to the existing level of knowledge so that employees are better equipped to do their jobs effectively, and to prepare them for higher position with increased responsibilities (Rao, 2015 in Ali, 2015).

Training is a systematic process of changing knowledge, skill behavior and motivation of employees to improve their performance on the job as per the goals and objectives of the organization. Any organization survives in a rapidly changing society when it trains its human resources to enhance their creativity, innovativeness and inventiveness to improve performance (Edralin, 2004). Training and development is a human resource practice that enhances employees' knowledge, competence and skills to improve capability to perform more efficiently and effectively.

School administrators face the challenging task of providing for the professional development of teachers in their schools. According to Alice Ong (1993), "this responsibility is assigned to them because administrators have ready access to data that provide a clear picture of strengths and weaknesses of the individual staff members, the needs of the students, the weak areas of curriculum, the values and desires of the community and how their school measures up to Education Ministry's goals and objectives". In this aspect, it is necessary for administrators to provide a process of involving teachers in the identification of professional skills that need to be improved and for involving them in the design of activities and program to provide this skill development (Omar, 2014).

As the new Public Schools Principal-in-Charge of Alicia South District, it is the responsibility of the researcher to devise a program to help teachers teach effectively and enable pupils to achieve high academic performance. As school administrator, the researcher believes training facilitates introduction of newer technology, new methods and strategies, innovation and enhances productivity and quality performance of the workforce. Training and development is necessary because schools in the 21st century are striving to compete and be in tune with global standards in education and the only way to achieve this is to increase teachers' knowledge, capabilities, competencies, skills and morale. To be able to come up with an appropriate in-service training program for teachers, a need assessment is necessary.

Statement of the Problem

The study aimed to assess the training needs of teachers to come up with a plan for in-service training and development program. Specifically, the study sought to answer the following questions:

1. What are the training needs of teachers for professional development?
2. What is the level of the teachers' professional development needs?
3. What are the presentation formats preferred by teachers?
4. Based on the results, what in-service training can be developed for teachers of Alicia South District?

Conceptual Framework

There are theories to explain the relevance of training needs in an organization like the Department of Education. According to social learning theory teachers acquire new knowledge and skills through observation on how their trusted and respected colleagues perform. The theory posits that learning and training is affected by the individual's ability to learn new skills which can be achieved through encouragement, confirmation and observation of others (Bratton, 2007). Another is the reinforcement theory. This theory implies that training is a strategic tool to make work interesting and a means for teachers to improve themselves for quality and high performance.

Training is a process of imparting and increasing specific skills for a particular purpose. Training provides teachers with the knowledge and skills required within the system and standards set by the Department of Education. (Sommerville, 2007 in Nischitaa P., 2014).

Development is a combination of various training programs designed to improve performance of teachers as required to cover new knowledge, skills, techniques in a positive progressive approach (American Society for Training and Development Report, 2008).

Teaching is the noblest profession and the heart and soul of a school (John Merrow, 2001 in Al-Qahtani, 2015). Quality teaching and teaching quality are important factors in improving student achievements. Teachers could have help if they have more intensive teacher training and more relevant professional development. To be able to identify their needs for personal and professional development, it is necessary to conduct need assessment.

Assessment of training needs of teachers is a way of meeting the Philippine Professional Standards for Teachers. The standards defines teacher quality in the Philippines and allow for teachers' growing understanding, applied with increasing

sophistication across a broader and more complex range of teaching/learning situations (PPST,2017p.4). The PPST explicitly point out there is a need to improve the system that support teacher professional development and be given utmost consideration for better outcomes. Professional development should focus on improving practices in instruction by giving teachers new knowledge; enhance ability, competency, strategies and techniques in assessing teaching-learning to improve learning of students (Wei, 2009 in Al-Qahtani, 2015). Training and development also uplift competence and morale of teachers.

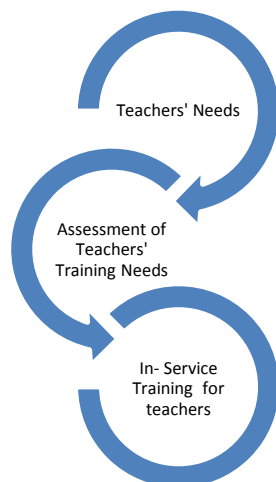


Plate 1. Framework of the study

METHODOLOGY

Research Design

The study employed the descriptive research. Descriptive research makes possible the prediction of the future on the basis of findings on prevailing conditions, correlations, and on the basis of reactions of people toward certain issues (Calderon & Gonzales, 2013). Through the needs assessment survey, the training and development needs of the teachers are identified and categorized.

Research Respondents

The respondents of the study are 130 elementary school teachers of the Alicia South District, Alicia, Isabela, Philippines.

Table 1. Number of respondents by grade

Teacher	Number	Percent
Kindergarten	15	11.54%
Grade 1	15	11.54%
Grade 2	15	11.54%
Grade 3	15	11.54%
Grade 4	23	17.69%
Grade 5	23	17.69%
Grade 6	24	18.46%
Total	130	100%

Sampling Plan

Purposive sampling was done. The researcher aims to develop a training program for teachers in all levels, hence the population is conveniently considered.

Instruments Used

A survey questionnaire was used to elicit the perspectives of teachers toward their need for teachers' professional and personal development. In order to achieve the goals of this study, two main data collection instruments were used: (1) a questionnaire and (2) semi-structured interviews.

Data Collection Process

To facilitate the administration and retrieval of the questionnaires, all participants were personally contacted by the researcher and were informed about the nature of the study. They were asked to answer the questionnaires on their own. An informal interview was conducted to support the gathered data on the need and importance of professional development to the teachers.

Statistical Tests

The data were subjected to descriptive statistics using frequency and percentage.

RESULTS AND DISCUSSION

Training and development is very important in a rapidly changing educational system. It is an activity that educational organizations must commit resources to maintain knowledgeable and competent teaching force. As teaching job becomes more complex, the importance of teacher development also increases. In order to initiate a professional training for teachers, it is primordial to find out if teachers need training and identify their needs. Hence, this study.

Table 2. Teachers' Need and Reasons for Training

Do you need training?	YES		NO	
	Frequency	Percentage	Frequency	Percentage
	130	100%	0	0
Why do you need training?			Frequency	Percentage
1. Increase innovation in new strategies			124	95.38%
2. Continue to increase creativity in teaching and learning process			130	100%
3. Acquire new understanding and instructional skills			130	100%
4. Promote high quality learning of pupils			130	100%
5. Update skills and knowledge for improving teaching and learning leading to better performance			130	100%
6. Achieve high productivity and students performance			130	100%
7. Increase motivation			130	100%
8. Promotion in rank/position			27	20.77%
9. Increase self confidence			108	83.08%
10. Widen interpersonal relations and link with other professionals			89	68.46%

Table 2 reveals the teachers' need for training and the reasons why they need training. The results support the theory that training is a fundamental aspect for the enhancement of teachers professionalism related to the teachers' vision to improve the quality of their work. Through in-service training, teachers can identify and evaluate critically the culture of the school which can bring changes to the working culture. Teachers who attend in-service training perform effectively in their work concerning knowledge of the subject, classroom management, teaching method and evaluation of students (Ekpoh, Oswald & Victoria, 2013). Studies by Jahangir, Saheen & Kazmi (2012) also shows that in-service training plays a major role to improve the teachers' performance in school.

The following are the unedited responses of the respondents from the interview.

"I am confident in teaching Filipino and English but I need to learn strategies in teaching Math, Sibika at Kultura, and other subjects that I am handling. One thing more, my school head expects me to be effective in all the subjects."

"I am new in this grade so I have to learn the contents and the strategies and techniques. Attending training will be fine."

"They say there new trends. . .strategies to improve pupil achievement, so I need to upgrade my instructional skills . Low pupil achievement means not effective teaching."

The result affirms that professional development activities enhance teachers capability and competence (Lynton, R. and Pareek, U. 2000), improve teacher performance, help teachers accept new technologies and techniques ((McCourt, W. W. Derek, 2003 in Falola, H. 2014).

The perceived importance of Training and development by teachers in the field shows training really helps teachers to grow in ability, skills, commitment, interpersonal skills, understanding, self-confidence and experience (Nischithaa and Narasimha Rao, 2014).

It further emphasizes that it is important for the Department of Education (DepEd) particularly the school administrators to identify the needs for training and development for teachers and to select techniques appropriate for the needs, and eventually plan its implementation.

Table 3. Summary of Topics and Level of training needs on professional development of teachers

Professional Development	No need at all 1		Low level of need 2		Moderate level of need 3		High level of need 4	
	F	%	F	%	F	%	F	%
1. Content and performance standards in my main subject field(s)	0		6	4.61%	19	14.62%	105	80.77%
2. Teaching methods/techniques/strategies	0	0	4	3.08%	24	18.46%	102	78.46%
3. Differentiating instruction for individual differences (Diversity of Learners)	0	0	0	0	19	14.62%	111	85.38%
4. Lesson Planning	4	3.08%	53	40.77%	56	43.07%	17	13.08%
5. Teaching students with special learning needs (disabilities, giftedness and talents)	0	0	3	2.31%	21	16.15%	106	81.54%
6. Small group and large group instruction	9	6.92%	77	59.23%	30	23.07%	14	10.78%
7. Strategies in giving remediation and enrichment activities	0	0	4	3.08%	43	33.08%	83	63.84%
8. Creating and administering formative and summative assessments	82	63.08	32	24.62%	11	8.46%	0	0
9. Interpretation and utilization of test results	0	0	15	11.54%	35	26.92%	80	61.54%
10. Pupil Counseling	12	9.23	69	53.08%	35	26.92%	14	10.77%
11. Developing thinking skills of students	8	6.15	61	46.92%	37	28.46%	24	18.46%
12. Classroom Management	5	3.85	43	33.08%	64	49.23%	18	13.84%
13. ICT skills for teaching	0	0	16	12.31%	88	67.69%	26	20.0%
14. School management and administration	55	42.31%	48	36.92%	16	12.31%	11	8.46%
15. Current trends in my main subject field(s)	0	0	12	9.23%	71	54.62%	47	36.15%
16. Conducting an action research	0	0	3	2.31%	17	13.08%	110	84.61%

Table 3 reveals that all the teachers desire varied professional development training and have different levels of need from No need at all, Low level, moderate level and high level. It could be noted that most of the teachers express high level of interests as follows: 111 or 85.38% needs training in differentiating instruction for individual differences; 110 or 84.61% need training in conducting an action research; 106 or 81.54% need training in teaching pupils with special learning needs; 105 or 80.77% need training in content and performance standards in teaching specific subjects; 102 or 78.46% need training in teaching methods; followed by 83 or 63.84% who wants training in Strategies in giving remediation and enrichment activities; and 80 or 61.54% wants training in interpretation and utilization of test results.

Majority of teachers manifest either low or moderate level of need in the following lesson planning, small group and large group instruction, creating and administering formative and summative assessments, pupil counseling, classroom management, ICT skills, school management and administration, and current trends in main or major subject. It can be deduced that teachers possessed adequate skills in those aspects of professional development.

For the purpose of the study, only those topics perceived with high level of needs by teachers in different grade levels are included in the succeeding presentation and discussion.

All 15 or 100% of kindergarten teachers express high level of need for training in differentiating instruction for individual differences and conducting action research; 14 or 93.33% want training in interpretation and utilization of test results; 13 or 86.67% need training in teaching methods and strategies; 11 out of 15 or 73.33% express need for training in content and performance standards and strategies in teaching pupils with special learning needs; and 10 or 66.67% want training in strategies in giving remedial and enrichment activities.

The 15 Grade 1 teachers demonstrate high level of need for training in conducting action research and differentiating instruction (100%); teaching methods and teaching students with special needs (12 or 92.31%); content and performance standards and interpretation and utilization of test results (11 or 84.61%); current trends in main subject (10 or 76.92%).

The 15 Grade 2 teachers manifest high level of need for training in conducting action research (100%); content and performance standards and teaching students with special needs (13 or 86.67%); differentiating instruction for individual differences (11 or 73.33%); and strategies in giving remediation and enrichment activities and interpretation and utilization of test results (9 or 60%).

The 15 Grade 3 teachers express high level of need for training in conducting action research (100%); content and performance standards (13 or 86.67%); strategies in giving remediation and enrichment activities (12 or 80%); teaching methods, differentiating instruction, teaching students with special needs, and interpretation and utilization of test results (11 or 73.33%).

The 23 Grade 4 teachers reveal a high level of need for training in differentiating instruction and strategies in giving remediation and enrichment activities (100%); teaching methods (20 or 86.96%); content and performance standards (19 or 82.61%); teaching students with special needs and conducting action research (18 or 78.26%)

The 23 Grade 5 teachers show high level of need for training in differentiating instruction (100%); teaching pupils with special needs (20 or 86.96%); content and performance standards in main subjects and methods and strategies (17 or 73.91%); conducting action research (15 or 65.22%); interpretation and utilization of test results (11 or 47.83%).

The 24 Grade 6 teachers express high level of need for training in strategies in giving remediation and enrichment activities (100%); content and performance standards and teaching students with special needs (21 or 87.5%); conducting action research and teaching methods (20 or 83.33%); differentiating instruction (19 or 79.17%).

The need for training on Content and Performance Standards indicates that teachers recognize the importance of mastery of content knowledge and its interconnectedness within and across curriculum areas, coupled with a sound and critical understanding of the application of theories and principles of teaching and learning as well as strategies and techniques to effect quality instruction and outcome. This is anchored on the principle that quality of an education system cannot exceed the quality of its teachers” (Barber and Mourshed, 2007 in Karpati, 2017). Further, research has shown that teachers who participate in well-designed professional development activities get better results from their students (Guidance for the Reading First Program, 2002). Therefore, teachers have to be personally aware of the school curriculum, improve and enhance the necessary skills to interpret accurately the changes in concept and to implement the modified curriculum according to its requirements, aims and objectives.

The need for training on strategies, methods and techniques are in accordance to the following reviewed literature. According to Ayeni (2011), teaching is a continuous process that involves bringing about desirable changes in learners through use of appropriate methods. Adunola (2011) indicated that in order to bring desirable changes in students, teaching methods used by educators should be best for the subject matter. Furthermore, Bharadwaj & Pal (2011 in Ganyaupfu, 2013) sustained that teaching methods work effectively mainly if they suit learners’ needs since every learner interprets and responds to questions in a unique way (Chang, 2010). As such, alignment of teaching methods with students’ needs and preferred learning influence students’ academic attainments (Zeeb, 2004).

With the advent of the concept of discovery learning, many scholars today widely adopt more student-centered methods to enhance active learning (Greitzer, 2002). Most teachers today apply the student-centered approach to promote interest, analytical research, critical thinking and enjoyment among students (Hesson & Shad, 2007). The teaching method is regarded more effective since it does not centralize the flow of knowledge from the lecturer to the student (Lindquist, 1995 in Ganyaupfu, 2013). The approach also motivates goal-orientated behaviour among students, hence the method is very effective in improving student achievement (Slavin, 1996 in Ganyaupfu, 2013).

Conducting research is important for the teachers to improve practices and at the same time, it helps in improving those individuals who really wish to bring improvement in those practices. So, this way, research helps in the overall improvement of the individual. It also develops greater understanding related to the teaching, learning and further helps in improving educational practices of the teachers (Reddy, 2019). It can be deduced from the foregoing statements that teachers need to be educated in defining teaching as a reflective and intellectual process, the ability of which requires intellectual thinking space and engagement in the educational research ((Orchard and Forman, 2011, Wadsworth, 2011 in Randall, 2010) to achieve high quality performance of teachers and pupils.

These claims are reinforced by the following statements during the interview process:

“I am not so familiar with the differentiated instruction. I believe I need a seminar on this and other new strategies..”

“Discussing a new method with co-teachers and applying it in my class is my way of enhancing my teaching.”

“I really need seminars . . . in-service training in conducting intervention programs.”

“ I do not know what to do with a pupil with special need in my class. I always spend time with him. The whole class is affected....”

"I have to continue improving my teaching . . . to be able to cope with the 21st century. Unfortunately, opportunities are limited. Teachers who attend trainings are assigned by administrators."

"Twenty years or more in the service is already long; I need to learn new strategies. . ."

" If I have learned new things I feel more confident in what I am doing in the class."

Table 4. Summary of Preferred presentation format by teachers

Presentation Formats	Strong Interest		Little Interest		No Interest	
	F	%	F	%	F	%
Demonstration	114	87.69%	15	11.54%	1	.77%
Hands-on workshop	80	61.54%	40	30.77%	10	7.69%
Lecture	108	83.07%	17	13.08%	5	3.85%
Discussion or group dialogue	72	55.39%	32	24.61%	26	20%
Web seminar	64	49.23%	59	45.39%	7	5.38%
Keynote address followed by related breakout sessions	49	37.69%	68	52.31%	13	10%
Video	44	33.85%	52	40%	34	26.15%
Field trip	42	32.31%	65	50%	23	17.69%

Table 4 shows the respondents' varying preferred presentation format of professional development activities by expressing their level of interest. Teachers show strong interest in the following format of presentation: demonstration, lecture, hands-on workshop, discussion or group dialogue, web seminar, with keynote address followed by related breakout sessions, video and field trip.

It is noteworthy to present the preferred presentation format of the teachers by grade level.

Most of the kindergarten teachers express strong interest or preference in lecture (15 or 100%); hands-on workshop and demonstration (10 or 66.67%); keynote address followed by breakout session (9 or 60%) and web seminar (8 or 53.33%). Only three teachers express strong interest in the use of video.

The Grade 1 teachers' preference are the following: demonstration (100%); hands-on workshop, discussion and keynote address with breakout session (12 or 80%); video (9 or 60%). Only two teachers are strongly interested in fieldtrip.

The Grade 2 teachers prefer lecture (15 or 100%), demonstration (13 or 86.67%); discussion or group dialogue and video (10 or 66.67%), keynote address followed by related breakout sessions (8 or 53.33%).

The Grade 3 teachers show high interest in demonstration and lecture (15 or 100%); video and fieldtrip (12 or 80%); web seminar and discussion or group dialogue (11 or 73.33%).

The Grade 4 teachers likewise favor lecture (23 or 100%); lecture (18 or 78.26%); hands-on workshop (16 or 69.56%); discussion or group dialogue (12 or 52.17%).

The Grade 5 teachers highly prefer lecture (23 or 100%); demonstration (17 or 73.91%); web seminar (15 or 65.22%); hands-on workshop (11 or 47.83%).

The Grade 6 teachers also express strong interest in demonstration (24 or 100%); web seminar (20 or 83.33%); lecture and hands-on seminar (17 or 70.83%); discussion and field trip (10 or 41.67%).

It could be noted that demonstration is highly preferred by all Grades 1, 3, 4 and 6 teachers while lecture is strongly interesting to kindergarten, Grades 2, 3 and 5 teachers.

The data show that teachers prefer the traditional demonstration cum lecture method. They prefer to listen while the lecturer explain the topic. They believe essential qualities in learning such as independent thinking, power of observation and reasoning can be developed in this method. Other teachers prefer interactive format where they can actively participate in the discussion and exchange ideas with other participants. Teachers admit, discussion increases one's listening skills and confidence in speaking.

Interestingly, Grade 5 and 6 teachers also prefer Web seminar or Webinars. When asked why they prefer webinar, they say since the webinars are online, they are easy and convenient to both presenters and participants, as no one has to travel to get to the meeting. They say they are always busy in the classroom, hence, they would like to try web seminar.

Generally, the result affirms that teachers need training and development to improve skills, add to the existing level of knowledge so that they are better equipped to teach effectively, and be prepared for future higher position with greater responsibilities.

However, there are also teachers who express little interest or no interest at all in the presentation formats. It can be inferred that these teachers are already accustomed to the different presentation formats. To give them opportunity for professional enhancement, there are different training and development methods such as technical training, role playing, attitudinal training and development, and distance learning that may be used and apply based on individual training format preferred.

Based from the result, what possible teacher training that can be proposed?

The assessment of training needs of teachers offers an opportunity to design an in-service training for teachers of Alicia South District for the School Year 2020-2021. The in-service training would focus on selecting appropriate and effective methods, strategies and techniques in teaching different subjects and children with special needs and conducting and writing action research. The presentation format consists of demonstration cum lecture, hands-on workshop, and discussion.

CONCLUSIONS

Based on results of the study, the following conclusions are drawn:

The teachers of Alicia South District need training and development to acquire new understanding and update knowledge and instructional skills for improving teaching and learning leading to better performance.

The teachers have high level of need for professional training on content and performance standards in subject/s taught and on teaching methods/strategies/techniques such as differentiating instruction for individual differences; conducting action research; strategies in giving remediation and enrichment activities; interpretation and utilization of test results; developing thinking skills of students.

In terms of presentation format, teachers prefer demonstration, lecture, hands-on seminar, discussion, web seminar, and keynote address followed by related breakout session.

The assessment is a valid and credible basis for the school principal to plan and design a training program such as schools district in-service training on new trends in approaches, teaching methodology, strategies and using test results in conducting action research using demonstration cum lecture method, hands-on workshop, and group discussion.

RECOMMENDATIONS

It is recommended that the school administrators act promptly and appropriately on the identified training needs of teachers to capacitate them with skills and competencies needed in the 21st century classrooms.

School-based in-service training can be planned and conducted to respond to the needs of teachers per grade level after which reports of accomplishments would be submitted to the District Office for record and evaluation purposes.

Webinar (web seminar) can be arranged by the District Office for the Grades 5 and 6 teachers who are interested in this particular type of professional development.

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INNOVATION IN SERVICES SECTOR WITH SPECIAL REFERENCE TO HOSPITALITY INDUSTRY

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ABSTRACT

Innovation today means much more than a mere introduction of new products or services. In the earlier stages if innovation was linked to technology, quality and cost control, it relates to carrying organizations from efficiency to creative heights and growth today. It signifies reinventing new business processes and models and building new markets that meet customer needs and wants that have been untapped so far. In order to have a successful innovation process that yield continuous improvement, a nurturing environment is required. An innovative culture motivates talented people to bring to life all their cherished dreams by providing them enough opportunities to work independently. It involves welcoming change, willingness to accept unstructured approaches to work, and a general preference to do things differently. Creativity is the first step in the process of innovation. This is followed by the evolution of an idea. The final stage in the process of innovation is revolutionizing the evolution and making the idea a commercially viable one. Innovation requires discipline. There is a time to brainstorm, a time to select the best idea, and then comes the time to follow through and implement. Creativity without decision and execution isn't innovation. It is only through execution that a great idea is turned into innovation. Innovative effort is valuable if it is properly targeted. Every company needs a method for effectively analyzing the overall environment in which it operates, and subsequently developing an innovation program that matches the need of the customers and the capabilities of the organization. Financial constraints in the development of innovation are often considered one of the main impediments for high technology firms seeking to expand and grow. Innovation has no prescribed scale or size. Anything that is different than the traditionally practiced style and can yield better results when compared to the earlier practice can design for innovation. An efficient team for innovation and a flexible environment encourages the innovation. This paper will emphasize the extent of Innovation in Services Sector with special reference to Hospitality Industry.

Keywords: Innovation, brainstorm, Services, Creativity, Hospitality Industry

INTRODUCTION

According to Philip Kotler, Service is “any activity of benefit that one party can offer to another that is essentially intangible and does not result in the ownership of anything. Its production may or may not be tied to a physical product”. One question that has motivated research on innovation in services naturally concerns the differences vis-à-vis innovation in manufacturing. The specificities of innovation in services also raise further organizational issues about the role of formal R&D in service firms, and its significance in the context of their broader learning strategies.

Owing to rapid technological developments, increased global competition, and shorter product life cycles, firms are confronted with strong pressures to develop new knowledge and to innovate. Many firms decide to acquire knowledge and technology from external sources to complement their internal knowledge bases for innovation purposes. These sources include buyers, suppliers, competitors, research organizations, and universities. Especially research organizations and universities, both part of the public knowledge infrastructure, can have unique potentials for innovating firms. Not only can firms obtain technological knowledge, but they can also

recruit students and scientists to serve as employees or consultants. Industry-public knowledge infrastructure interaction represents an evolving trend for advancing new knowledge and technologies .

The pulse of innovation is felt in each and every sphere of the Service Industry which is characterized by 24 hrs non stop service and everything customized according to the customers needs and requirement. When one is starting up a new business, finding one's innovative niche is significantly easier. Unencumbered by past business, one is free to conceive, develop and market one's unique and innovative niche in business.

For many firms, services are a growing portion of their business, and represent a challenge to traditional product-based business models. The roles of the customer, and the design of the supply chain, also require different perspectives in order to manage them successfully.

To conclude we can say that in order to ignite innovation, companies should effectively tap all the sources of innovation. Companies must have a culture, vision and mission that encourage innovation. One has to always remember that if one has to succeed in the Service Industry, one need to innovate.

REVIEW OF LITERATURE

Innovations can be classified in different ways such as Business Model Innovation which entails changing the way business is done, Marketing Innovation which entails the development of a new marketing method with an improvement in product design or packaging, Organizational Innovation which refers to the creation or alteration of business structures and even models, Process Innovation which refers to the implementation of a new or even a slightly significant improved production or delivery method, Product Innovation which is the introduction of a new product that is entirely new or substantially improved, Service Innovation which is the opposite of Product Innovation and here the innovation relates to services rather than products and lastly Supply Chain Innovation which refers to the innovations that occur at the sourcing of input products from suppliers to the delivery of the output products to the customers.

In order to achieve innovation in Service Sector, building a supportive culture is of utmost importance. In order to have an innovation-supportive culture, the basic requirement is the careful development of the psychological, social and physical environment. In strong supportive culture with strong teamwork innovation can take the organization at its greatest height.

DISCUSSION

In Hospitality Industry, for example, in case of hospitals, the entire CRM is managed through Software. In such a set up, one can easily find out the name, address of the patient, and his further treatment related details by typing out the ID of the patient only. Moreover one can log on to the Hospital Website and can at any point of time find out the details regarding the availability of Beds and the Status which itself is a great innovation.

In today's world where every one from every part of the world is running after time with the purpose to save time, one can book appointment with the doctor by the click of a mouse only. Gone are those days where take one appointment only one had to spend not less than one month. Hats off to HMIS aka Hospital Management Information Systems.

We are all aware of the phrase, Health is Wealth. Without sound health we cannot achieve anything in our life. At this juncture, Medical Tourism is evolving and catching up at lightning speed across the world. Medical Tourism is indeed a new innovation of Hospitality Industry and is expected to rise in the peak in the few years to come.

The key players in the Indian Medical Tourism Industry in terms of turnover in Indian currency and maximum number of patients are Apollo, Wockhardt Hospital, P D Hinduja National and Medical Research, Ruby Hospitals etc. Apollo Group regularly sends representatives to international symposiums to showcase its high competitive American Private Sector Project success rates.

More and more people have started coming to India as India has some of the best doctors. Apart from that Language is another factor along with cost effective treatment which entails value for money has attracted tourists from abroad.

Moreover Medical Tourism Companies like Health Line have introduced several packages for patients traveling to India which include holidays and hotel stays during their travel part apart from basic requirements such as airport pick-up, meetings with doctors etc. With the introduction of Medical Visa, it will be easier to travel in India. If the treatment requires extension, the Medical Visa can be extended without any problem. But patient should include their Medical Reports before traveling to India.

CONCLUSION

In order to succeed in Service Industry, innovation is a must. Every Service Organization should openly encourage creativity and innovation from all aspect. In order to achieve innovation in Services, an environment of trust should be created where every idea should be openly accepted. Moreover Organizations should give time to be creative and in order to achieve innovation one should be willing to take controlled risk from all aspect. This will also give these organizations a competitive edge over others.

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A STUDY ON CONSUMER BUYING BEHAVIOR TOWARDS ELECTRONIC GADGETS THROUGH E-COMMERCE PLATFORMS

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ABSTRACT

Digital economy is rapidly penetrating to all spectrums of business. Cashless economy, payment gateways, online transactions, ease of purchase, wide range of product offerings have become the order of the day. Customers have stated taking informed decisions. The products and services are presented to customers in better way with the help of technology. Price wars, stiff competition, variety and open markets have increased the bargaining power of customers. Every company makes a sincere effort to reach its customer base by offering products and services at the most affordable price tags. E-commerce companies such as Flipkart, Amazon, E-bay, Myntra and many more have virtually occupied the market space and slowly replacing the conventional stores. Electronic gadgets occupy a special place in the online platform. It is believed that the online platforms provide better description about the products which helps the customers to make an informed decision about buying the products. Mobile phones, MP3 players, audio systems, Walkman series, iPod, tablets are the most commonly bought products on the e-commerce sites. The present study makes an effort to study the various behavioral aspects of consumers while buying an electronic gadget through e-commerce platform. The study employs 217 respondents across Bangalore city to capture their views on buying gadgets. Factor analysis is performed to identify the predominant factor that influence the customers to buy gadgets through online / e-commerce sites. Better description about the product is found to be the key element for choosing e-commerce sites for purchase of electronic gadgets.

Keywords:

E-commerce, Buying behavior, price, Description, replacement, offers

Introduction:

The growing interdependence of the world economy and international character of many business practices have contributed to the development of universal emphasis on consumer. Modern technological developments have no doubt made a great impact on the quality, availability and safety of goods and services. A consumer is who purchases or ultimately consumes goods and services. Growing practice of electronic transactions includes both e-commerce and e-consumers. Consumers check the various facilities available before buying the electronic gadgets, and also the description and features available with the electronic gadgets.

Online platform is changing the way consumers shop and buys goods and services, and has rapidly evolved into a global phenomenon. Many companies have started using the online platform with the aim of cutting marketing costs, thereby reducing the price of their electronic gadgets and services in order to stay ahead in highly competitive markets. Companies also use the online platform to convey, communicate and disseminate information, to sell the product, to take feedback and also to conduct satisfaction surveys with customers.

Customers use the online platform not only to buy the product online, but also to compare prices, product features and after sale service facilities they will receive if they purchase the electronic gadgets from a particular store. Most of the products or services which consumers buy or pay for are durables and services.

A consumer before buying any electronic gadgets online, he will check the authenticity of the online shopping website as how much the site is trustworthy and reliable as in online shopping the consumer or buyer is not able to see the seller and cannot check the electronic gadgets until it has been delivered to him.

The online platform is growing at an exponential rate. At the same time, technology has enhanced the capacity of online companies to collect, store, maintains, transfer and analyze vast amount of data from and about the consumer who visit their web sites (Suman, 2018)

The consumers attitude and perception towards online platform, male and female response show similar trend in online platform, majority of the response in all the age group shop online for convenience followed by wide variety and discount deal , and also found to be great potential for youth segment.(Manish Kinker,2018)

Online platform is the easy solution for busy life in today's world. In the past decade, there had been a massive change in the way of customer's shopping. Despite consumer's continuation to buy from a physical store, the users or buyers feel very convenient to online platform. (Prashanth Raman, 2017)

Online platform saves crucial time for modern people because they get so busy that they cannot or unwilling to spend much time shopping. Another reason for increase in online shopping is providing fast door to door delivery within a day or two days, return and replacement guarantee, cashbacks etc. make users to go for online shopping. (Bhoomi Ahuja, 2018)

Rationale for the study:

There are millions of people online any time and they all are a potential consumer in the online market. It is important to identify as to what are the various factors that influence the buying behaviour and perception of a consumer towards electronic gadgets that become obsolete over a period of time and new technological advancements take place. Hence the study provides a framework as to what is the motivating factor that drives the customers towards e-commerce platforms.

Objectives of the study:

- To study the consumer's preference towards buying electronic gadgets through E-commerce platforms
- To identify the key elements that determines the consumers' decision to buy electronic gadgets from e-commerce platforms

Research Design:

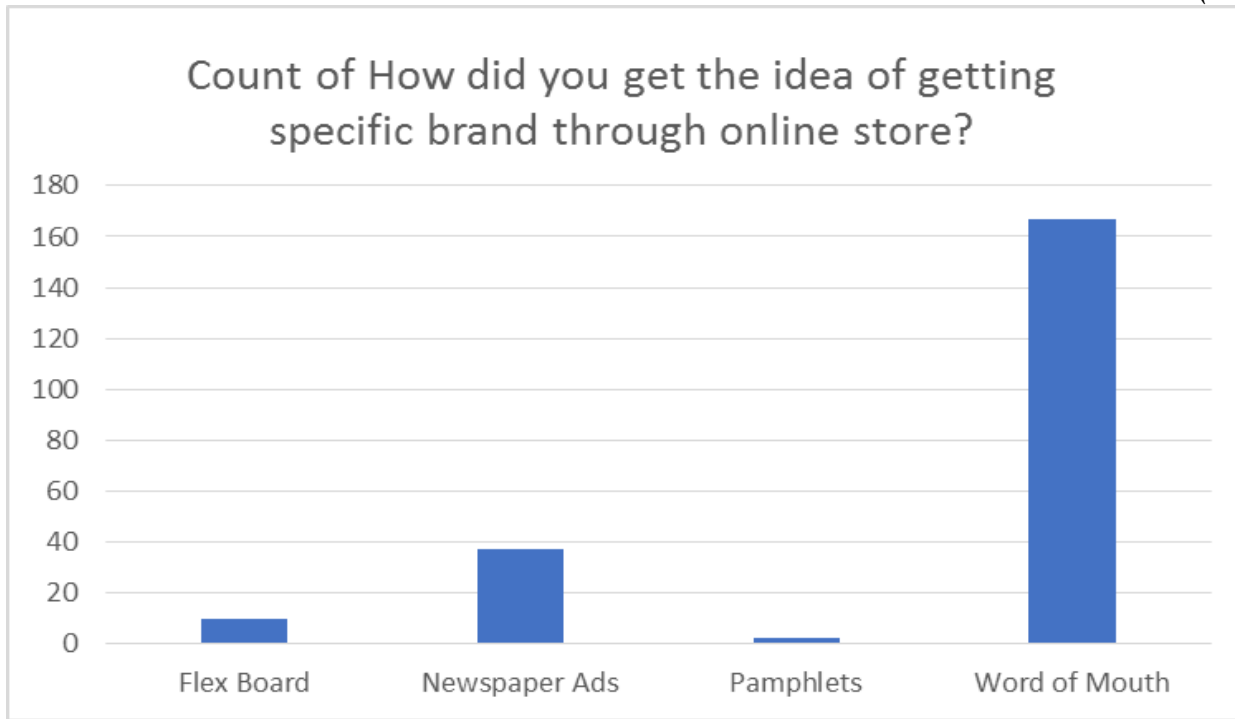
The present study is Descriptive in nature. The study is carried out in Bangalore city by sourcing 217 respondents through convenience sampling technique. The primary data is captured by administering structured questionnaire. The data is analysed using SPSS 25.0 package. Demographic attributes of the respondents are analysed using simple percentage method. Bar graph and line charts are used to represent the data. Factor analysis is used to identify the critical components that effects the consumers' buying decision towards electronic gadgets through e-commerce platforms.

Results and Discussion:

A. Demographics of Respondents

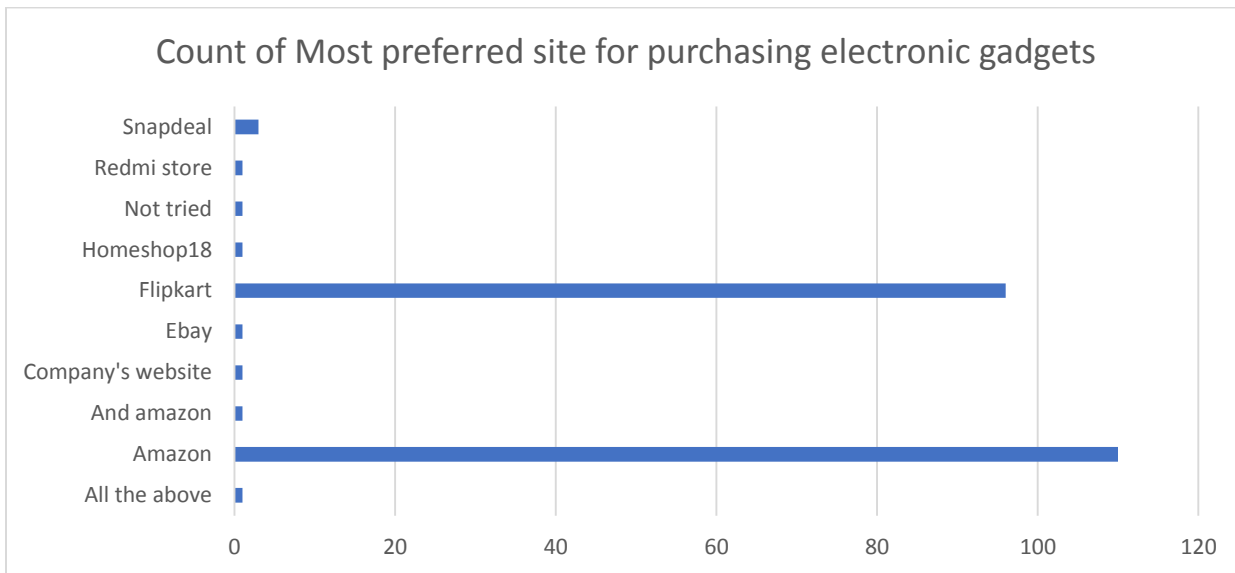
Age	18-25	180	82.9%
	26-35	15	6.9%
	36-45	22	10.13%
Gender	Male	160	73.7%
	Female	57	26.26%
Marital status	Single	192	88.47%
	Married	25	11.5%
Income	Below 100,000	170	78.34%
	100,000-500,000	17	7.8%
	Above 500,000	30	13.82%

Source of information for choosing e-commerce platform:



Word of mouth plays a significant role in driving customers towards e-commerce platforms.

Most preferred e-commerce site for buying electronic gadget:



Amazon and Flipkart are the most preferred E-commerce sites for buying electronic gadgets.

Communalities		
	Initial	Extraction
Trustworthy	1.000	.497
User friendly	1.000	.627
Secured Payment	1.000	.633
Better Discounts	1.000	.684
Better Choice	1.000	.710
Better Description	1.000	.733
Better Design	1.000	.613

Factor analysis:

To identify the key elements that determines the consumers' decision to buy electronic gadgets from e-commerce platforms

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.888
Bartlett's Test of Sphericity	Approx. Chi-Square	901.036
	Df	21
	Sig.	.000

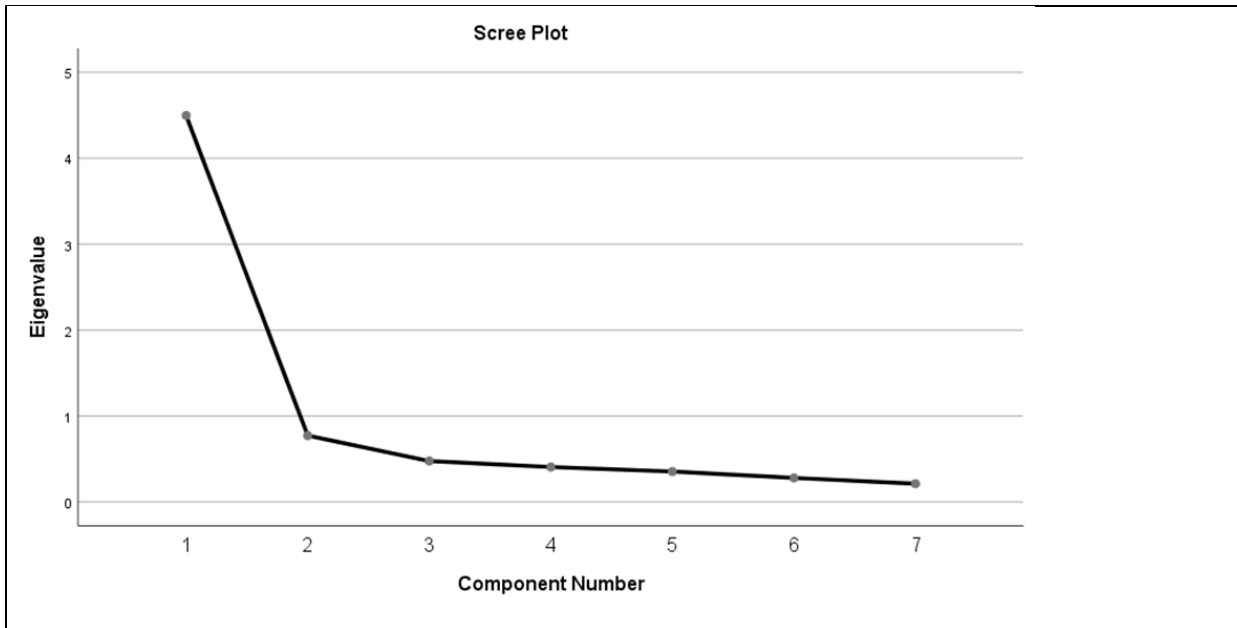
Since the KMO value is 0.888 which is above the threshold value of 0.5, it implies that sample is adequate enough to perform the analysis.

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.497	64.245	64.245	4.497	64.245	64.245
2	.773	11.037	75.282			
3	.476	6.801	82.083			
4	.407	5.813	87.896			
5	.355	5.065	92.961			
6	.280	4.001	96.961			
7	.213	3.039	100.000			

Extraction Method: Principal Component Analysis.

**Component Matrix^a**

	Component 1
Trustworthy	.705
User friendly	.792
Secured Payment	.796
Better Discounts	.827
Better Choice	.843

Better Description	.856
Better Design	.783
Extraction Method: Principal Component Analysis.	
a. 1 components extracted.	

From the principle component analysis, it can be inferred that one component is extracted.

The predominant factor that affects the purchase of online gadgets from online platforms will be "**Better Description**".

Reliability test:

Scale: ALL VARIABLES

Case Processing Summary			
		N	%
Cases	Valid	216	100.0
	Excluded ^a	0	.0
	Total	216	100.0
a. List wise deletion based on all variables in the procedure.			

Reliability Statistics	
Cronbach's Alpha	N of Items
.906	7

Reliability test:

Since Cronbach's alpha value is 0.906 which value above the threshold value of 0.7 it can be inferred that the constructs of the questionnaires possess required internal consistency.

Key Findings of the study:

- Male respondents show more interest buying electronic gadgets compared to their female counterparts.
- Young population i.e., the people in the age group between 18 to 25 are more prone to buy electronic gadgets from e-commerce platforms.
- Customers prefer electronics gadgets through online platform as they get "Better description" about the product they are buying. This infers that, consumers are more concerned about the product description as the online platforms do not have the product demonstration before buying.
- The maximum respondents prefer amazon to buy their electronic gadgets, and followed by the flipkart.
- Income group below 1lakh are more interested in buying electronic gadgets from online platform the maximum number of respondents fall in plot of below 1 lakhs followed by income between 1 lakh to 3 lakh

- Majority of the online shoppers are students & servicemen who between 10 years to 30years of age who are powerful internet users in the country.
- The most preferred mode of payment while purchasing online is Cash on Delivery & Card transactions
- Online shopping is most preferred by the customers at the time of availability of offers and discounts.
- Online platforms has a better Product description & display, Customer feedback & Rating system, Exchange/Return/Replacement & Refund policy & after-sales service when compared to traditional brick and mortar stores.
- Word of mouth continues to remain the most powerful medium to drive customers towards e-commerce platforms

Conclusion:

Despite the basic characteristics of consumers, the behaviour pattern of consumers are more or less similar to each other, particularly in the aspects like quality, preference and decision making. We found the predominant factor that affects the purchase of online electronic gadgets from online platform will be the "Best Description". The consumers are particular about the appropriate system of distribution and hence there is a great need for change in the electronics buying system. It may not be always correct to say that consumers behave in the same way as it much depends on type of products, quality of the products and price of the products. Consumer attitude towards electronics based on age group, income group and price leads major role while purchasing the electronic gadgets.

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Bhaktivedanta Hospital: Managing Healthcare With Spirituality

Case

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Level: | **Type:** Indirect case | **Length:** 7548

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Abstract

The case discusses how Bhaktivedanta Hospital, a project run by Shri Chaitanya Welfare Charitable Trust in Mira Road, Mumbai, became a successful local medical service provider. The Bhaktivedanta Hospital, since its inception in 1998, has provided holistic care services at affordable cost to people in the area. The case demonstrates how the hospital incorporates spiritual care in its management practices. Well defined operations, involvement of stakeholders, and unique medical care practices such as holistic care are the fortes of the Bhaktivedanta Hospital. Readers are challenged to analyze the hospital's management practices, their functions, and their link to hospital performance.

Case

Learning Outcomes

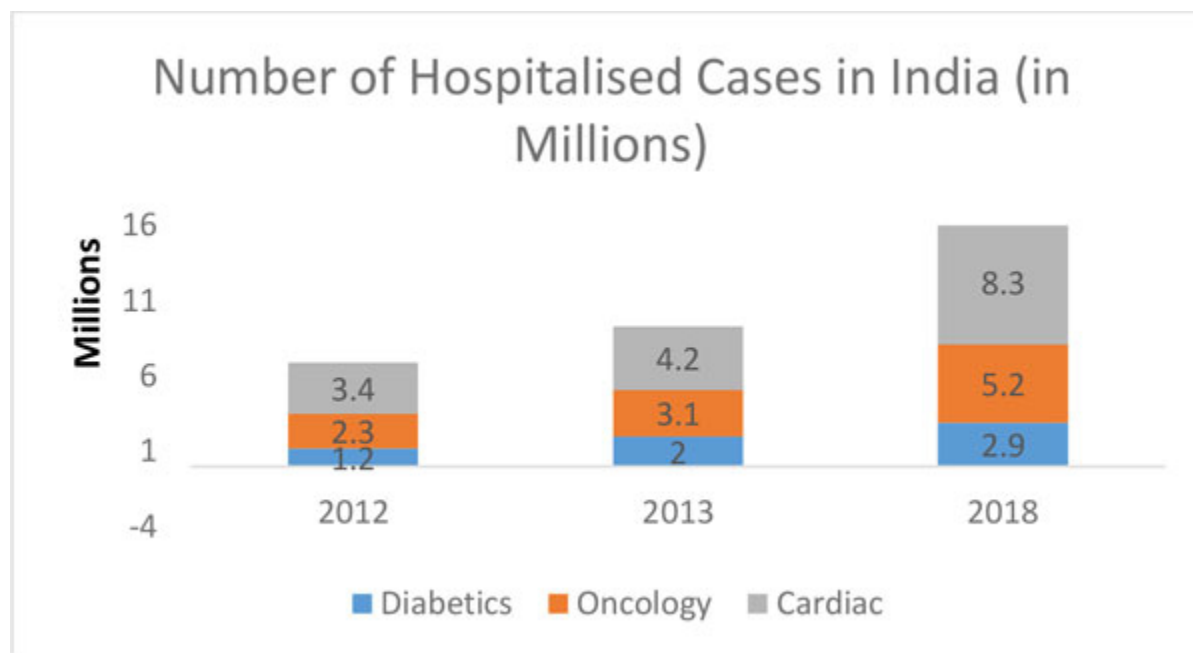
By completing this case, students will be able to:

- describe the concept of management and management practices in the areas of operations management, target management and people management;
- identify elements of management practices;
- discuss the relevance of management practices, their function, and their link to hospital performance.

Introduction: Healthcare System in India

The Indian healthcare industry is wide, intensive, and growing rapidly. With this enormous growth, the Indian healthcare sector needs to cater to a much greater level of demand for healthcare services, which are on a constant rise (India Brand Equity Foundation [IBEF], 2018; see [Figure 1](#)). The private sector plays a key role in healthcare delivery and it includes both for-profit and not-for-profit organizations. The Indian government currently spends a little more than 1% of the gross domestic product on healthcare (Central Bureau of Health Intelligence [CBHI], 2018), and 67.78% of total expenditure on health in India was paid out of pocket (World Health Organization [WHO], 2017). India's competitive advantage lies in its large pool of well-trained medical professionals, and in the number of doctors per capita, India meets the global average. Since patients spend more out-of-pocket than in many other countries, they want value for their money. The result is an ever-increasing demand for quality services from value-conscious patients (Kulkarni et al., 2015).

Figure 1. Hospitalization Patterns in India



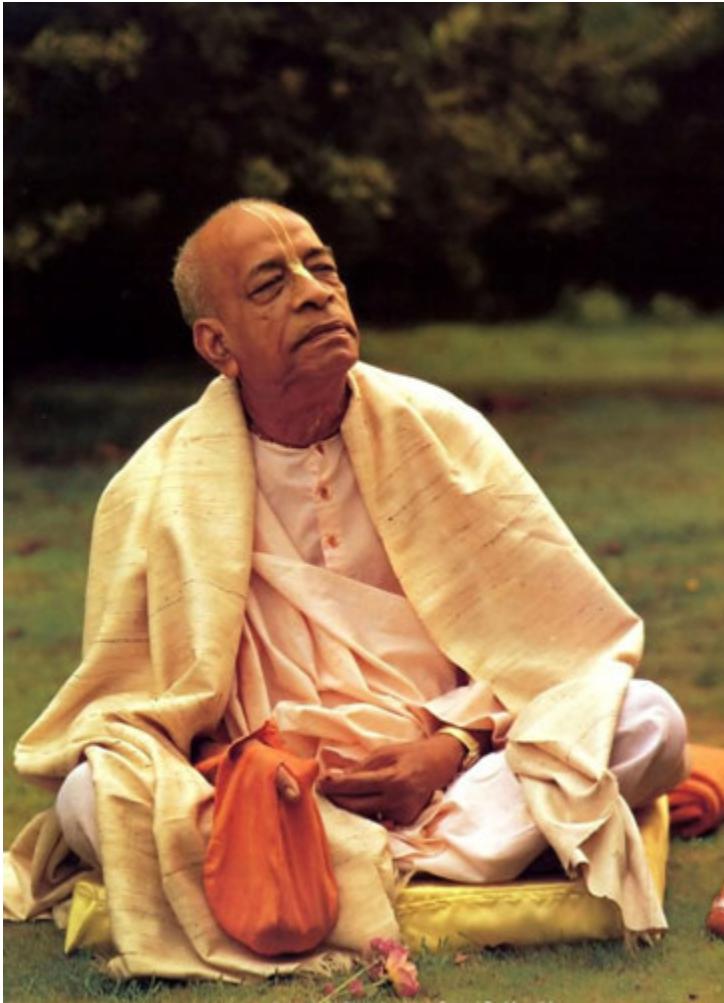
Source: Adapted from India Brand Equity Foundation (IBEF), Healthcare Report, December 2018.

The critical issues or challenges that need to be addressed by the Indian healthcare system are (1) lack of resources (infrastructure and manpower); (2) decreasing out-of-pocket expenditures; (3) bridging the gap in skilled healthcare workers (training and up-skilling), and (4) creating accessibility to a health system that is contemporary and technologically advanced (WHO, 2013). Optimal use of resources is necessary to manage these critical issues, for instance, reducing waste of resources thereby reducing out-of-pocket expenditure; adopting good resource management practices; enhancing workforce performance and empowerment through training, incentives, and rewards. To manage the aforementioned critical issues, it is therefore important for healthcare organizations in India to follow the best management practices.

Bhaktivedanta Hospital

The Bhaktivedanta Hospital (BVH), a project run by the Shri Chaitanya Seva Trust, was established as a tribute to Bhaktivedanta Swami Prabhupada (see [Figure 2](#)), the founder of the International Society for Krishna Consciousness (ISKCON). A group of undergraduate medical students laid the foundations of BVH in 1986 by undertaking medical camps in slums and villages. After specialization, they established their institute in 1998 and named it Bhaktivedanta. With a location on Mira Road in the Thane district of Mumbai, the non-profit institution sought to offer a wide range of holistic care services to the public with a unique blend of ultra-modern technology and spiritual ambiance from eastern wisdom. It started its operations with 10 beds, which was later expanded to 100, then 200, and now the hospital has a capacity of 300 beds.

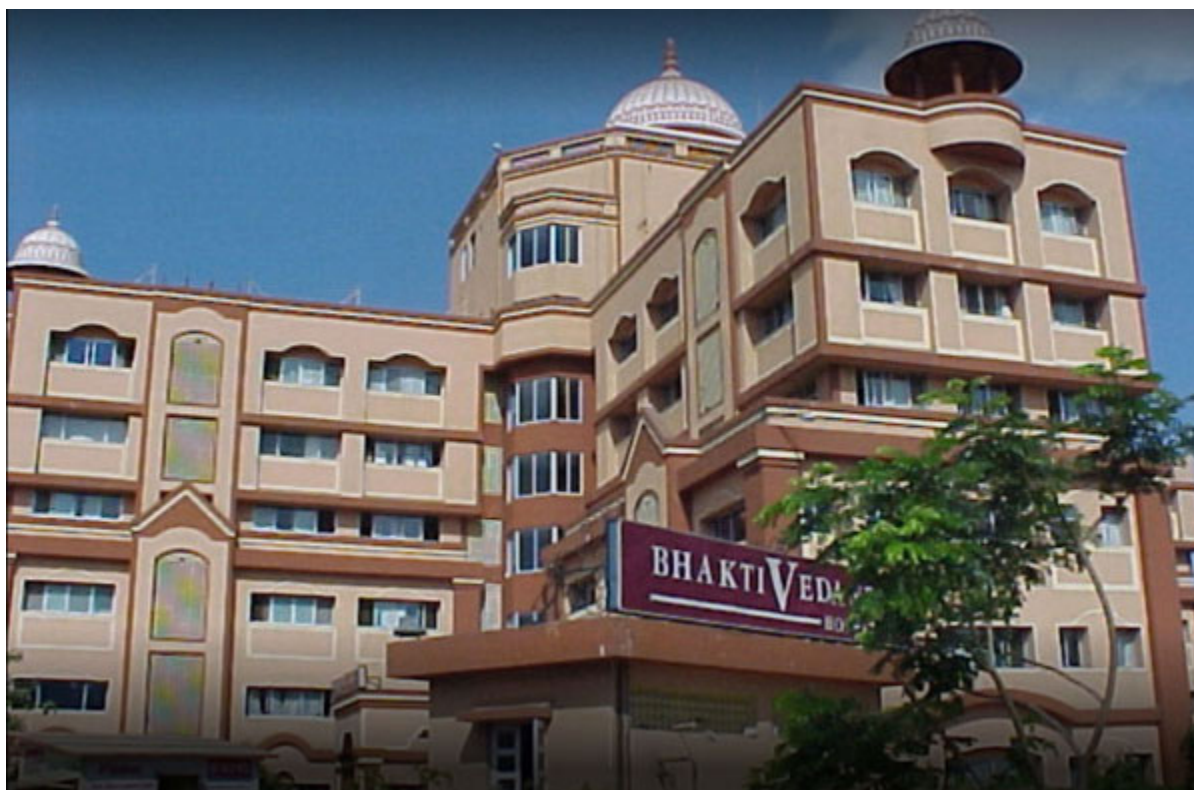
Figure 2. Bhaktivedanta Swami Prabhupada, Founder of International Society for Krishna Consciousness (ISKCON)



Source: <http://www.bhaktivedantahospital.com/about-us/our-inspiration/>

The BVH (see [Figure 3](#)) is today a well-established multispecialty hospital on Mira Road, equipped with modern technology and state-of-the-art machines to treat and accommodate patients with modern care.

Figure 3. Bhaktivedanta Hospital Building



Source: <http://mirabhayanderinfo.com/v2/index.php/hi/ads/5b8c516d230af/Hospitals/Bhaktivedanta-Hospital-and-Research-Institute>

The vision of BVH is to “serve humanity by providing affordable and quality health care by offering free and concessional medical treatment to the needy sections of the society.” and the hospital mission states “with love and devotion we will offer everyone a modern, scientific, holistic health-care service based on the true awareness and understanding of the needs of the body, mind and the soul” (see Appendix). Hospital management believes in and operates the hospital in accordance with the following goals:

1. offer holistic care by understanding the needs of body, mind, and soul;
2. offer quality healthcare services at affordable prices in order to serve humanity;
3. reach out to the public at large to provide healthcare services for different health issues to minimize health inequalities in the economy.

Specialties and Services

The BVH has specialties (see [Table 1](#)) in 39 modern medical care areas that are integrated with Ayurveda, homeopathy, and alternative medicines. Care is offered to patients of all ages, genders, nationalities, and incomes. In addition to such a wide range of services, the hospital has four areas including cardiology, urology, cancer, and eye care that comprise a center of excellence, and eleven service areas support and help care for patients around the clock. BVH’s pharmacy offers more than 7,000 brands of medicine and is accredited by the National Accreditation Board for Hospitals and Healthcare providers (NABH), and by the Pharmacy de Qualite (Platinum Certification) for its quality excellence. These services are identified and discussed separately as management practices in the following section.

Table 1. Specialities and Services at Bhaktivedanta Hospital

Specialties

Acupuncture	Endocrinology	Nutrition dietetics	and Plastic surgery
Anesthesiology	Gastroenterology	Obstetrics gynecology	and Psychiatry and clinical psychology
Ayurveda, panchakarma, and ksharsutra	Internal medicine	Oncology	Pulmonology and sleep medicine
Cardiology and cardiovascular thoracic surgery	General laparoscopic surgery	and Ophthalmology	Radiology
Critical care medicine	Homeopathy	Orthopedics	Rehabilitation
Dentistry	Infectious diseases	Otorhinolaryngology (ENT)	Urology
Dermatology	Nephrology	Pediatrics	Vascular surgery
Diabetology	Neuro surgery	Pain management	Weight loss
Endocrine surgery	Neurology	Palliative care	Yoga
Integrated medicine	Kidney transplant	Rheumatology	

Services

24-hour emergency room	Artificial kidney dialysis	Blood storage	Clinical wards
Health check-up packages	Nursing services	Pathology	Pharmacy
Ambulance	Swaasthya	Garbha samskar	

Source: <http://www.bhaktivedantahospital.com/>

Management Practices 1

The association of healing with spirituality is one of the most significant features of BVH. Unlike other hospitals, BVH does not focus only on diagnosis and treatment of the disease but also offers holistic healthcare services. Intangible hospital-specific assets (such as patient relationships, knowledge and competences of employees, patents, procedures and manuals, facility operating licenses and permits, recruitment process, and purchase agreements) and organizational processes are crucial in determining hospital performance, which constitutes a key foundational element of the resource-based view of the hospital. Management practices are one factor which cause large variation in hospital productivity, and adoption of good management practices creates value and improves healthcare outcomes (Bloom et al., 2014). Management of good healthcare delivery is therefore multi-dimensional in nature and integrates areas such as operations, targets, and people management. The key features of management practices in these areas which make BVH unusual, are discussed below.

Operations Management Practices at BVH

The BVH is a service organization delivering valuable healthcare services, which is the prime objective of the organization. To achieve this objective, both automation and compassionate and personal service are embedded in operational aspects of the hospital. BVH received approval from the International Society for Quality in Healthcare (ISQua), which was developed by NABH. BVH also received NABH accreditation for research. Furthermore, BVH became accredited to become a fully equipped multispecialty hospital committed to providing comprehensive medical care services to its patients through the latest technology and state-of-the-art healthcare facilities to match global benchmarks.

The typical best operations management practice categories include layout of patient flow, standardization and pathway management, standardization and protocols, and good use of human resources. The effective use of evidence-based clinical practice guidelines, standardized protocols and clinical pathways, improved patient flow, and improved documentation are important to maintain effective operations.

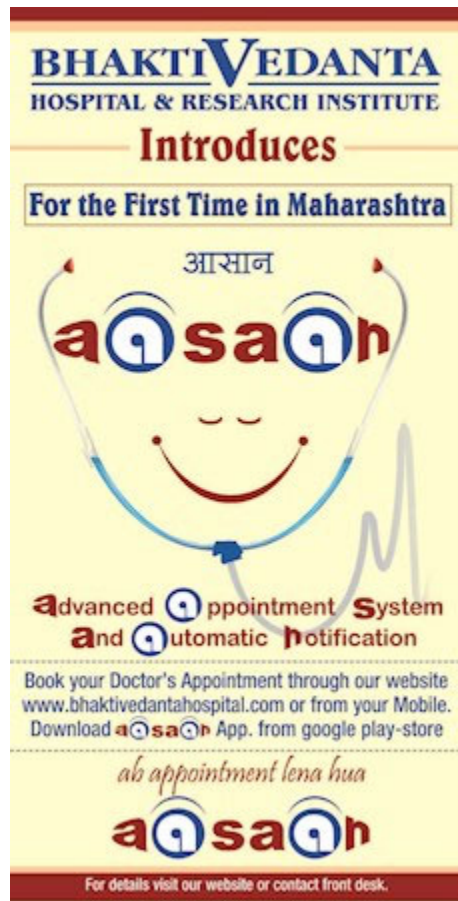
Following these accreditation standards means focusing on four resulting areas, namely: quality healthcare; evidence based clinical care; qualified and trained staff with credentials; and protection of rights, including redressal of grievances. Each of these four areas are discussed below.

Quality Healthcare

The hospital provides end to end medical care services to its patients. An improved patient pathway plays a major role in supporting efficient and quality healthcare operations. BVH has an efficient admission, treatment and discharge process in place. BVH uses a unique online doctor appointment system called advanced appointment system and automatic notification (AASAAN) which helps patients to book a doctor's appointment either through the website or through a personal mobile with automatic notification reflecting their appointment status (see [Figure 4](#)). Moreover, in order to make the patient pathway more efficient, BVH follows a detailed "patient guide," which is easily accessible on their website. The patient guide includes information on admission process, visitor guidelines, patients' rights and responsibility, third party administrator guidelines for patients, empaneled corporates (the leading health insurance companies which help in providing patients with cashless and hassle-free hospitalization—these companies have been BVH's long-time partners), and types of ward. BVH has restructured its layout and added an annex building primarily focusing on oncology, eye care and a state-of-the-art intensive care unit. It also has a 24-hour emergency department which follows a triage system. The emergency department is well-structured and located on the ground floor with a speed door for emergencies. The emergency unit includes a triage room, clinical examination room, cardiopulmonary cerebral resuscitation area, high dependency unit, procedure room, cardiac ambulance and a separate reception and billing counter. These steps help BVH to improve the patient pathway considerably.

Figure 4. Image on the Website for Advanced Appointment System and

Automatic Notification (AASAAN), the Online Doctor Appointment System of BVH



Source: <http://www.bhaktivedantahospital.com/patient-corner/book-an-appointment/>

Core ethical values and quality standards help the hospital in ensuring healthcare delivery through a strong organizational culture. BVH follows a well-defined set of processes as per NABH guidelines. It defines and displays the healthcare services which it provides and has a well-defined registration and admission process. BVH has an established laboratory quality assurance programme and conducts clinical trials in compliance with good clinical practice (GCP) guidelines, Schedule Y, quality council of India and other international requirements. The hospital also has clearance from the Maharashtra pollution control board and complies with the water and air pollution control act. The centralized medical research department at BVH undertakes and promotes scientific as well as ethical research studies and enhances the operations of the hospital with distinguished clinicians and clinical researchers. The key features of this department are experienced and GCP trained investigators and clinical research coordinators, established standard operating procedures for audio-video consent, separate drug and blood sample storage refrigerators for research, sponsorship of regulatory audits, assistance for preparation for research protocols, publications or any other medical writing, and internship training for clinical research professionals. The spiritual care research initiative of BVH is unique in nature. BVH also has a specialized division for awareness and treatment of infectious diseases and is actively engaged in research and awareness creation to reduce the burden of infectious diseases in society.

Evidence-Based Clinical Care

The BVH research institute offers healthcare services based on awareness and understanding of body,

mind, and soul. It has adopted a unique integrated approach to Ayurveda, homeopathy, and complementary medical therapies. This is done by conducting clinical trials registered under the United States food and drug administration, research and publication in international journals, and conference attendance by staff. The integrated approach is conducted while adhering to the guidelines of BVH's ethics committee (institutional ethics committee), which is registered under the central drug standard control organization, which in turn works under the Union Health Ministry, New Delhi.

Qualified and Trained Staff With Credentials

Motivated and trained employees at BVH contribute substantially to attaining the goals of the hospital to fulfill the aim of offering the right service to the right patient. Every employee at BVH is encouraged to develop him or herself and rise further in the organization through a set of orientation and training programs. In order to accomplish its goals and objectives, the hospital has undertaken several initiatives focused on employees, such as a robust performance management system and open work culture that develops the competence of its workers and improves the performance of the hospital. The employees have undergone training in the area of leadership and managerial skills, team building, people management skills, empathetic communication skills, quality work life, quality medical care, sense of urgency and belongingness, and prevention of sexual harassment at the workplace (Bhaktivedanta Hospital and Research Institute, 2018).

Protection of Rights Including Redressal of Grievances

The hospital follows the charter of patients' rights given by the Indian government's Ministry of Health and Family Welfare. BVH's patient guide (www.bhaktivedantahospital.com) includes "Patients' Rights and Responsibility" and clearly articulates the following points:

1. right to information in an understandable language;
2. right to information on the expected cost of treatment;
3. right to personal dignity and privacy during an examination, procedures and treatment;
4. right to uniform care for all classes of patient;
5. right to information on how to voice a complaint;
6. right to refusal of treatment;
7. right to informed consent before any procedure / surgery / treatment;
8. right to information and consent before any research protocol is initiated;
9. right to information on diet and nutrition and food-drug interactions;
10. right to information about immunization;
11. right to confidentiality of patient information/details recorded in the hospital;
12. right to access clinical records.

Similarly, the BVH ethics committee safeguards the dignity, rights, safety and wellbeing of all potential research participants. Moreover, patient reports are protected as per the guidelines of the national aids control organization.

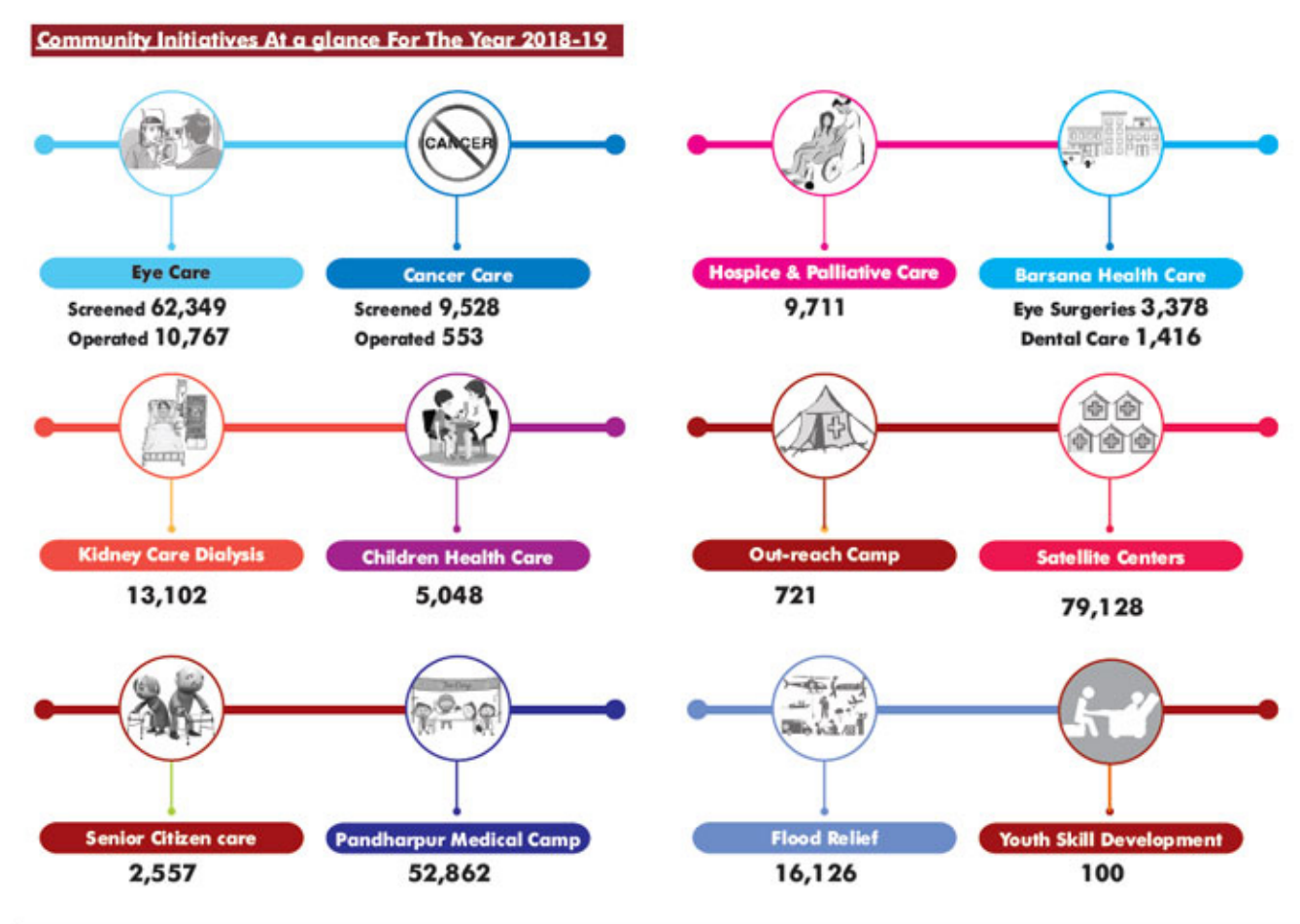
In all, the above practices helped BVH in efficiently managing the operations and led to the achievement of awards, including: Trendsetter in Patient Wellbeing and Quality Care given by the Times of India in association with the New India Assurance Co. Ltd. for adhering to high standards of patient safety in the healthcare sector; 'sach bhara samman' award for ethics, transparency and spirituality at work by the Associated Chambers of Commerce and Industry which eventually helped the hospital in building its reputation and identity; the hospital has also received a Patient Experience Leader of the Year Award from the Customer Relationship Academy of Asia for the personal care given to the patients and their carers.

Target Management Practices at BVH

Best practices in target management require hospitals to include operational and financial perspectives

in goals and targets (which are well defined and realistic in nature) and to balance long- and short-term performance. Target management calls for goals and targets to flawlessly align across all areas, and be consistently communicated throughout the organization. Every healthcare unit has a clear vision and mission which creates the foundation for goals, targets and operations of the hospital. BVH is no exception to this and its vision and mission are closely related to its operations and services, with its unique service proposition of 'spiritual care'. BVH's goals are a balanced set of targets including quality, operational efficiency and financial balance. It is committed to providing quality healthcare to all without any discrimination and also aims at developing professional management, creating an environment conducive to team spirit, and is always ready to resolve acute and chronic health problems of patients and to promote preventive medical care in society at large. The hospital tries to fulfil its objective of serving the community at a nominal and affordable rate. BVH's health initiatives for the community ([Figure 5](#)) includes hospice and palliative care (free homecare services at their doorsteps), community health programs like eye care (spot distribution of eye glasses using mobile vans), cancer screening camps, cardiac camps (creating awareness and conducting surgeries), kidney care programme (dialysis to patients on concessional rates/free of cost), mega camps (door-step clinics/ outreach camps at rural or tribal area), etc. BVH has also taken community initiatives in the area of empowerment of women and farmers, development of water resource, livelihood for landless, rural education, skill development & enhancement, etc. Most of these activities were undertaken by "Share Your Care". It is the community relief & project development wing of BVH which focuses on projects, programs and causes in the healthcare sector with the main objective to provide free, concessional, and affordable health care services to the needy. They offer a helping hand to the people irrespective of their caste, creed, nationality, race or religion with care and compassion. Share Your Care continuously attempts to bridge the gap between the haves and the have nots in the society by efficiently and effectively channelizing the resources that will bring positive changes at the grass root level.

Figure 5. The Community Initiatives Undertaken by BVH in Financial Year 2018–2019



Source: Bhaktivedanta Hospital and Research Institute (2018).

Human Resource Practices at BVH

BVH operates with the belief that right service to the right patient is only possible if its most precious asset 'employees' are managed and retained. Motivated and trained employees are required to be well versed with their mission and vision through in-house training and socialization in order for them to proactively serve patients. The management states that the ultimate objective of the hospital is to see its patients leave in an improved physical and mental state, and medical and non-medical employees contribute subsequently to achieving this. Human resource management practices at BVH include several traditional and humanistic approaches.

Traditional and Humanistic Human Resource Management

The traditional human resource management standards for recruitment, selection, training, compensation and performance management are followed and maintained to the accreditation and internal personnel standards set by the national accreditation board for hospitals and international service organization. As for humanistic human resource management practices, every employee of BVH is encouraged to develop him or herself and rise further in the organization. This begins with orientation through a six-day self-discovery course developed on timeless Vedic [2](#) wisdom from the Bhagavat Geeta. This is followed by training designed specifically for

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its employees on MATCH (mercy, austerity, truthfulness, cleanliness, holy name) guidelines to ensure there is no discrimination on the basis of sex, age, religion and belief in god, and in order to inculcate a culture and environment of care and service among its staff. Staff of the hospital are thus qualified and trained, and committed to provide quality healthcare to the patients through a personal bond and compassion. The staff treat the patients as family and are trained to provide physical, mental and moral support to the patients which helps in quick recovery along with wellness. This is done by providing opportunities and activities such as prayers, a mobile rath (that is, a wagon) for worshipping, spiritual counselling and end-of-life care programs that have created a unique identity for the hospital among its employees, patients and their family members.

Service

BVH believes that the journey of recovery does not lie between diagnosis and treatment. The staff here are trained and developed beyond their competencies to support the emotional and spiritual needs of the patients. This service is based on the belief system that true healing comprises the physical and mental wellbeing of the patients. The spiritual care center in the hospital includes a qualified team of doctors, spiritual carers and psychological counsellors working collectively to support and heal emotional, physical, mental and spiritual ailments in the patients. This is a unique step and they incorporate Vedic knowledge in medical care and ultimately achieve spiritual care. Multiple informative seminars on spirituality and healthy lifestyle are organized and conducted for schools, colleges and corporations. In addition to this, a bi-annual spiritual retreat at Govardhan eco village and an annual spiritual retreat of seven days are organized. Thereafter, a half day for 'antenatal care' is held bi-monthly for expectant mothers and similarly, senior citizen programs are held fortnightly. Eventually, employees' performance is evaluated on a number of factors such as job knowledge, initiative and creativity, interpersonal relationships and adherence to the spiritual principles of the organization. Some very niche services on offer are: a healthy conception (garbhadhan) program offered for twelve months split into a total of three months for before and nine months after conception; and a child wellbeing (Baal Sangopan) program about physical, social, mental and spiritual development at different stages of childhood.

Championing Employees

Employees at BVH are considered an asset and therefore human resource managers provide ample opportunities for its employees to be happy and flourish. To name a few clear are equitable salary structure for all staff members, promotion opportunities for work, fraternal supervision for human growth and flourishing in the hospital. In addition to these, opportunities for learning and research and publishing are provided for non-medical and medical staff. For instance, fellowships in minimal access surgery, nursing courses, continuing medical education, continuing nursing education, caregiver certificate courses, and spiritual care certificate courses are some of the opportunities offered at BVH. The research and ethics department actively provide opportunities for its staff to publish and present their research work, case reports and articles in international conferences, forums and journals. All these efforts for employees adhere to standard operating procedures. In addition to other education and spiritual programs, the staff are encouraged to have a good work-life balance and actively engaged by human resources to participate in events such as a 'let's make parenting joyful (bal vikas)' program. Interestingly, all the staff members in the organization use prabhujī (which translates to English as God) as a salutation, in order to remember spirituality and humanity from Vedic system when they interact with individuals. Furthermore, medical staff are encouraged to conduct clinical trials and since 2013, BVH has been involved in clinical trials in collaboration with sponsors and clinical research organizations in multispecialty clinical research on drugs, medical devices and surgical procedures. These are all supported by the research and ethics committee of the hospital to enable them to find alternative methods of diagnosis, treatment and prevention of diseases. This helps the hospital cultivate a scientific approach accompanied with evidence-based practices which ultimately facilitates the management and retention of its staff.

In all, the innovative practices such as spiritual care have created a unique selling proposition for BVH. Inculcating spiritual care in management practices under elements of human resource management, operational management and target management has been attained through various processes, practices and standard operating procedures. Well defined operations, involvement of stakeholders and unique medical

care practices such as holistic care are helping BVH to achieve its objectives. In addition, philanthropists and volunteers support the organizational vision by providing funds and services which make the organization competitive and technologically up to date to meet changing medical needs in the market. Target management is focused on realizing the vision of the organization by offering medical care at affordable rates. Moreover, community practices and projects have helped the organization to reach remote village populations to provide medical care services. The people management aspect is managed effectively through teams of well-qualified and experienced doctors non-medical staff. The association of services with a community services program (i.e., service to humans, as stated in organizational vision) has helped the staff in being well involved with the organization unconditionally. Furthermore, by considering staff as an asset and patients as a priority, management of people has become easy and effective for the hospital as staff are kept motivated and involved with the organizational objectives. It is indeed true that it is a hospital with a difference ([Figure 6](#)).

Figure 6. Article Published in The Pioneer, March 27, 2006

THE PIONEER
142ND YEAR PUBLISHED FROM DELHI, LUCKNOW, BHOPAL, KOCHI AND BHUBANESWAR

http://www.dailypioneer.com LUCKNOW, MONDAY MARCH 27, 2006 KANPUR VOL. 142 ISSUE 81 PAGES 12+4 Rs 2.00 REG. NO. 5313/WP/34/2004-05 *AIR SURCHARGE EXTRA IF APPLICABLE

A hospital rendering service with a difference!

Correspondent
Mathura

THE BHAKTIVEDANTA Hospital is a hospital with a difference. There are many organisations which conduct eye-relief camps and serve the needy but what it does is entirely different. Other NGOs could take a cue from the eye-relief camp organised by it recently.

Most often in such camps the patients are treated mechanically without considering the fact that they are humans. But here is a unique hospital, which comes all the way from Mumbai to Barsana, about 100 kilometres away from New Delhi, to render holistic care — treatment for the body, mind and soul. Perhaps nowhere else in the world this type of care and compassion has been contemplated let alone practised.

While on the one side you have the expert doctors providing the best medicines, including surgeries, on the other side you have a host of volunteers, including MBAs and professionals, cleaning the bathrooms and toilets, serving food, assisting the patients and caring them with love and compassion.

For the 120 villages in and around Barsana this is the most awaited event during the year apart from Holi. This year, more than 3,000 patients were treated in the OPD and 414 patients operated upon in the world-class set-up at the camp site. Twenty-one patients requiring specialised surgeries were taken to Mumbai at the cost of the hospital along with one relative, treated and operated as per their medical need and sent back to Barsana. All the patients treated at Barsana and at

Mumbai were given free medicines for 40 days till the follow-up camp.

The second and the final follow-up camp was held this year recently. A total of 418 patients attended the camp out of 435 patients. A thorough and complete check-up was performed for these patients by a team of two ophthalmologists, four nurses and 12 volunteers from Mumbai. All the operations were found to be 100 per cent successful and no complications were reported. The patients were found to be really happy and most of them expressed their gratitude for being moved from darkness to light.

It is a unique feature of Bhaktivedanta Hospital that both at the hospital as well as in the camps a three-pronged approach is made — first the patient is received and checked professionally

and the requisite medical treatment is given using the most modern equipment and techniques. Later, the patient is given food and nursing care at the bedside besides counselling. Finally, the holistic care is given with the help of spiritual and emotional support.

This camp exhibits the true holistic care approach combined with modern medicines. It will be beneficial for other organisations to emulate it. Dr VG Shashibhag, the chief camp coordinator, concluded by saying, "for six their smile is the best reward for our small efforts to restore their eyesight. As a further step we are working towards setting up a full-fledged modern Eye Care Hospital to provide free treatment to the deprived and the needy of Barsana and also to those living in the 120 villages around it."

A view of the eye-relief camp organised in Mathura recently

k Mukerji for and on behalf of GMYK Printech Ltd., 4th Floor, Sahara Shopping Centre, Faizabad Road, Lucknow-226016 and printed at Sahara India Mass Communication, Sahara Tower, 7, Kapsorthala Complex, Jagan Mitra, Resident Editor: Vijay Prakash Singh. Ph: 2346443 - 45, 2346112, 2346902. Fax: 2345582. JNN No. 2016/57.

Source: <https://web.archive.org/web/20110716051658/http://www.shareyourcare.com/images/press/pioneer-27mar06.jpg>

Discussion Questions

1. List and briefly describe several of the management practices in BVH.
2. Identify and illustrate the elements of management practices employed at BVH.
3. What other management practices should BVH undertake?
4. How can BVH's existing management practices be improved?

Notes

1. Bloom et al. (2012, p. 14) defined “best” management practices as those that “continuously collect and analyze performance information, that set challenging and interlinked short and long run targets, and that reward high performers and retrain or fire low performers.” Management authors, particularly Dessler (2004), Sutherland and Canwell (2004), and Van Assen et al. (2009), explain management practices as an entity of analytical instruments used to support the managers at work as something used in the implementation of the selected management concept. Rigby (2001, p. 139) proposed the definition of management practices as “tools which are defined as a set of concepts, processes, and exercises.”

2. The Vedic system is based on Vedas, which is sacred spiritual knowledge and the ultimate aim is to achieve salvation (moksha) by performing duties without expectation of anything in return.

Appendix: Mission and Vision of Bhaktivedanta Hospital

Source: Bhaktivedanta Hospital and Research Institute (2020).

Our Vision

- We shall have an organizational culture based on spirituality.
- We shall be a leading healthcare provider of quality medical services.
- We shall be known for distinct community work.
- We shall have committed satisfied employees.
- We shall achieve this by innovative resourcing and funding activities.

Our Mission

With love and devotion, we will offer everyone a modern, scientific, holistic health care service based on true awareness and understanding of the needs of the body, mind and soul.

Our Values

Bhaktivedanta Hospital and Research Institute is designed and structured to provide holistic health care for the body, mind and soul with a unique broadminded approach to allopathic, ayurvedic, homoeopathic and other alternative medical therapies. It is the endeavor of the hospital to provide care to world standards and that, too, at a reasonable cost, and in deserving cases, totally free. With the aim of achieving these objectives, the hospital is committed to establishing the necessary facilities to international standards, conducting research programs in various fields of health/patient care and ensuring that the research findings are translated into improvements in patient care. The hospital also aims at developing professional management, creating an environment conducive to team spirit, and is always ready to resolve acute and chronic health problems of patients and to promote preventive medical care in society at large.

Our ultimate objective is to see that each patient leaves this hospital with improved physical and mental health and with the feeling that the institution exists only for the patient and that the “patient is always the most important individual here”. Every employee of a hospital is encouraged to develop him or herself and rise further in the organization. Employees’ performance is evaluated on a number of factors such as job knowledge, competency, initiative and creativity, interpersonal relationships and discipline and adherence to the spiritual principles of the organization.

- Compassionate care
- Integrity
- Humility

- Spirituality

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Teaching Notes

Case Study Summary

This case on the Bhaktivedanta Hospital (BVH) discusses management practices and how they have helped BVH successfully operate in Mira Road, Mumbai. Since its inception in 1998, the BVH has provided holistic care services at an affordable cost to people in the area. Having become successful as the major medical service provider in the area, the hospital now takes a broader market perspective. What is the role of management practices in guiding a hospital such as BVH to compete with the largest institutions? This case provides ample opportunities to discuss the concept of management practices, elements of management practices, the function of management practices, and their link to the performance of hospitals in providing effective medical services.

Teaching Objectives

The fundamental goal of this case is to help students identify helpful hospital management practices. Lessons from the BVH case are transferable to the management practices of any hospitals or healthcare organizations. However, instructors must consider context and elements of management practices for other organizations before attempting to apply lessons from this case to organizations that are not healthcare service providers.

Instructional objectives of this case are to:

- list management practices pertinent to operations management, target management, and people management;
- discuss the problems and prospects of management practices;
- state the elements of management practices that are relevant to the scope of improvement.

Target Audience

This case is appropriate for graduate (MBA) students who are honing their fundamentals of management concepts.

The BVH case is also suitable for courses in Executive Master of Business Administration and Global Master of Business Administration programs, primarily because the case describes management practices of a multispecialty hospital in Mumbai (India).

Suggested Teaching Strategy

The instructor can begin the class discussion by introducing the role that hospitals play in the lives of the people in their community.

The instructor can then ask individual students who have visited a hospital to highlight their experience. The instructor is then encouraged to discuss the definition of management and management practices to enable students to understand key concepts.

Next, the instructor should ask students to identify and supply the information from the case overview in order to recollect and strengthen their understanding of the discussion. After discussing questions 1 and 2 as a class, small groups of students can be formed to discuss questions 3 and 4 and then present their findings to the class. Finally, the instructor can wrap the discussion by highlighting the concept of management and management practices, their function and relevance for organizations.

Suggested Answers to Discussion Questions

1. List and briefly describe several of the management practices in BVH.

At BVH there are three management practices, namely: operations management, human resource management, and target management.

Operations Management and Patient Flow

At BVH operations management is development of systematic process and implementation of those process to decrease waiting time by ensuring a swift flow of patients within hospital units (to illustrate, patient inflow to acute emergency department) for smooth patient inflow considering the volume of patients, varieties of patients and type of medical services required, etc. This is done by the department of Human Resource Management via standardization of work, daily routine, and standard operating procedures. For instance, hospital layout, put simply; reconstruction of hospital emergency department by identifying process steps and connections between emergency unit through process mapping for effective hospital capacity utilization on any given day or week when there is random influx of patients for consumption of medical services.

Team Building, Training, and Standardized Work by Human Resources Management Department

In order to achieve smooth inflow of patients for effective capacity utilization at BVH, the human resources department creates teams consisting of medical and non-medical staff and then standardizes the work flow and routine of its staff separately depending upon which hospital unit the staff belongs to. For example, when there is disruption due to random inflow of patients for medical services, the human resources department does workforce staffing by changing the work routine toward capacity planning to match available patient demand through available human resources. That is, if there is a greater number of emergency patients on a single day, the human resources department plans and coordinates teams of doctors, nurses, and support staff by using the hospital's information systems. In addition to this, human resources regularly organizes compliance training for medical staff to help them adhere to the ethics rules and practice standards of their profession.

Quality Healthcare at Affordable Cost

BVH's target of quality healthcare is achieved by creating an environment conducive to team spirit, readily resolving acute and chronic health problems of patients and promoting preventive medical care in society at large through its practices like systematic patient flow, standardized operating procedures, team building exercises, and training of employees. BVH tries to fulfil its target of serving the community at a nominal and affordable rate by reaching out to the community through their rural and tribal outreach. The health initiatives for the community include hospice and palliative care, community health programs like eye care, cancer screening camps, cardiac camps, kidney care programs, mega camps, etc.

2. Identify and illustrate the elements of management practices employed at BVH.

The three identified management practices are: operations management, human resources management, and target management.

Operations Management Elements

The elements of operations management practices include patient flow layout, basis for pathway management, standardization of protocol and continuous improvements. Some of the best practices found in this area are lean systems, planning and control systems, and quality management systems.

Human Resource Management Elements

These practices include recruitment policies, training, rewards, incentives, motivation, autonomy given to the employees, appraisal system, etc.

Target Management Elements

The elements of target management practices include the hospital's short and long term goals, well defined mission and vision, administration processes aligned with operational and financial perspectives.

3. What other management practices should BVH undertake?

Three management practices highlighted here (operations, human resources, target management) do not comprehensively cover all management practices. These three are an indicative list and are usually taught in post graduate business courses or as part of the business school curriculum. Management practices, however, do not work in isolation; rather they must be adopted by all to collectively generate a system or framework of value creation.

It is suggested that students in a group brainstorm other management practices that might be helpful to BVH and other organizations.

4. How can BVH's existing management practices be improved?

This discussion should be directed to how BVH should measure what happens internally at the hospital, followed by targets and its alignment to vision and mission. Thereafter, discuss human resource practices such as issues and challenges of compensating medical versus non-medical staff and training and reskilling.

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