

# MENTAL HEALTH FÜR EINE ARMEE IM EINSATZ

*Trends in Forschung und Entwicklung 2010 - 2025*



Quelle: Bundeswehr/Jana Neumann



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# EINFÜHRUNG

## Leit-These:

Je länger die Bundeswehr über eine Geschichte/Historie von Auslandseinsätzen verfügt, desto dringlicher wird eine präventive und therapeutische Gesamtstrategie benötigt, die alle Bereiche psychosozialer Versorgung integriert.

Die Auseinandersetzung mit psychischen Erkrankungen im Zusammenhang mit militärischem Handeln und militärischen Einsätzen hat sozialgeschichtlich eine lange Tradition. Bereits in der Antike wurden seelische Reaktionen auf Kampfstress und die psychosozialen Folgen beschrieben. Zu erwähnen wären beispielsweise die Schilderungen Homers zum Amoklauf der Sagengestalt Achilles vor Troja.

Im ersten Weltkrieg traten mit den Kriegszitterern an der Westfront und im zweiten Weltkrieg mit den Magenerkrankungen der Deutschen Wehrmacht derartige reaktive Phänomene erstmals in einem Ausmaß auf, das die verfügbaren medizinischen und logistischen Kapazitäten an ihre Grenzen brachte.

Aber auch in den Kriegen der Neuzeit wie dem Vietnamkrieg oder den Golfkriegen sind wissenschaftlich fundierte Untersuchungen zu dem Ergebnis gekommen, dass die Belastung durch Kampfhandlungen variantenreiche psychische Reaktionen und Erkrankungen nach sich zieht (z. B. das sog. Golfkriegssyndrom).

In der Bundeswehr war die Psychiatrie nach dem zweiten Weltkrieg zunächst über viele Jahre als Begutachtungspsychiatrie von den Prinzipien der Diagnostik und Begutachtung der Wehrdienstfähigkeit von Soldaten bestimmt. Erst mit Beginn der Auslandseinsätze Anfang der 1990er Jahre wandelte sich dieses Bild. Es kam nun erstmals zu einem zunächst langsamen, seit Beginn der 2000er Jahre zunehmend spürbaren Anstieg von psychischen Erkrankungen, die direkt auf Auslandseinsätze zurückzuführen waren.

Dieser Anstieg brachte die Notwendigkeit mit sich, die therapeutischen Konzeptionen in den Bundeswehrkrankenhäusern substantiell weiterzuentwickeln und neue Behandlungsangebote zu schaffen. Im Vordergrund stand und steht dabei insbesondere auch die posttraumatische Belastungsstörung.

Schnell musste festgestellt werden, dass sich die Vorerfahrungen anderer Armeen aus früheren Kriegsszenarien nur sehr eingeschränkt auf die Bundeswehr als Einsatzarmee, gleichzeitig aber auch als Parlamentsarmee mit dem Leitbild des Staatsbürgers in Uniform übertragen ließen. Dadurch entstand ein Bedarf an innovativer wissenschaftlicher Expertise, die in der Lage sein sollte, die notwendigen Entwicklungen und Veränderungen beratend und impulsgebend zu begleiten. Der Deutsche Bundestag beschloss dementsprechend im Jahr 2008 den Aufbau eines Psychotraumazentrums für die Bundeswehr, um die skizzierten Herausforderungen zu bewältigen. In kürzester Zeit wurden seitens der Bundeswehr Personal und Material für eine erste Ausgangsbefähigung bereitgestellt, die in den folgenden Jahren weiterentwickelt wurde.

Daraus entstand das Psychotraumazentrum der Bundeswehr („PTZ“) als Teil des Bundeswehrkrankenhauses Berlin. In seiner jetzigen Aufstellung integriert es klinische und wissenschaftliche Expertise unter einem Dach. Der Auftrag des Zentrums, das in dieser Form deutschlandweit einmalig ist, besteht darin, die Bereiche der Entstehung, Diagnostik, Prävention, Behandlung und Nachsorge einsatzbedingter und nicht einsatzbedingter psychischer Erkrankungen durch wissenschaftliche Projekte voranzubringen und dabei in erster Linie einen direkten gesundheitlichen Nutzen für die betroffenen Soldaten und ihr psychosoziales Umfeld zu generieren. Dabei ist es essentiell, mit anderen Einrichtungen und Organisationsbereichen der Bundeswehr zusammen zu arbeiten und diese in ihrer Auftrags Erfüllung zu beraten und zu unterstützen. Neben der direkten Vernetzung innerhalb militärischer Strukturen stellen die Zusammenarbeit der Wehrpsychiatrie und des PTZ mit dem Arbeitsfeld Seelsorge (ASEM) des Evangelischen Kirchenamtes für die Bundeswehr sowie mit der Soldaten- und Veteranenstiftung (SVS) des Deutschen Bundeswehrverbandes besonders positive Beispiele dar.

Das erste maßgebliche Projekt des Psychotraumazentrums begann im Jahr 2009 mit der Durchführung einer aufwändigen und wissenschaftlich hochwertigen Prävalenzstudie zur Häufigkeit psychischer Erkrankungen in der Bundeswehr, die in den folgenden Jahren gemeinsam mit der Technischen Universität Dresden umgesetzt wurde. Aus dieser Untersuchung wurden fundierte Daten über die Krankheitslast psychischer Erkrankungen und deren Entstehungsbedingungen gewonnen, die dann zu einer maßgeblichen Grundlage für nachfolgende Entwicklungen und Projekte in der psychosozialen Versorgungslandschaft der Bundeswehr wurden. Eine 12-Monatsprävalenzrate psychischer Erkrankungen von 20 bis 23 % aller Soldaten wurde so zu einem Weckruf für die Entwicklung von wirksamen präventiven und therapeutischen Gegenmaßnahmen.

Eine Auswahl dieser Maßnahmen soll im Rahmen dieser Einführung exemplarisch vorgestellt und dann in den folgenden Kapiteln vertieft werden.

Eine der präventiven Forschungsrichtungen war eine bis heute andauernde, sehr fruchtbare Zusammenarbeit des PTZ mit dem psychologischen Dienst der Bundeswehr. Das von diesem entwickelte Computerprogramm CHARLY wurde in einer longitudinalen, kontrollierten Studie auf seine Wirksamkeit untersucht. Die sich zeigende Überlegenheit gegenüber einer Standardprävention vor einem Auslandseinsatz führte dazu, dass CHARLY nunmehr in den Routinebetrieb des Sanitätsdienstes übernommen wurde und perspektivisch auf weitere Truppengattungen ausgeweitet wird. Darüber hinaus wurden Adaptionen für andere Behörden mit Ordnungs- und Sicherheitsaufgaben (BOS) als „Charly BOS“ entwickelt und in Projekten mit Feuerwehren und Polizei derzeit wissenschaftlich untersucht.

Psychiatrisch-psychotherapeutische und insbesondere psychotraumatologische Behandlung hatte sich bereits seit Mitte der 1990er Jahre zunehmend in den Bundeswehrkrankenhäusern etabliert. Unbekannt war aber, ob die aus dem zivilen Bereich übernommenen Verfahren bei Soldaten einen positiven und auch nachhaltigen Effekt zeigen. In mehreren kontrollierten Studien des Psychotraumazentrums konnte nachgewiesen werden, dass bei bis zu 80 % der im stationären Setting behandelten Soldaten eine (im Vergleich zu einer unbehandelten Kontrollgruppe signifikant höhere) klinische Wirksamkeit erzielt wird. Diese Forschungsarbeiten wurden 2015 seitens der deutschsprachigen Gesellschaft für Psychotraumatologie mit einem Forschungspreis gewürdigt. Trotz dieser Erfolge von Traumatherapie in Bundeswehreinrichtungen bleibt dennoch bei vielen Patienten eine relevante Restsymptomatik nachweisbar. Aus diesem Grund ist das Psychotraumazentrum der Bundeswehr auf der Suche

nach innovativen therapeutischen Ansätzen, um auch diejenigen Bereiche der Symptomatik anzusprechen, die herkömmlichen Verfahren nur eingeschränkt zugänglich sind. Dazu gehört die Anwendung von Serious Gaming als therapeutischem Zusatzmodul im Rahmen der Traumatherapie, dessen Anwendung auch ersten Ergebnissen zufolge offenbar den Handlungsprozess verbessert.

Ein weiteres Projektbeispiel umfasst integrative, interdisziplinäre therapeutische Ansätze in der Behandlung der das menschliche Erleben in der Regel tief erschütternden traumatischen Erfahrungen eines Einsatzes. In enger Zusammenarbeit mit der Militärseelsorge, insbesondere dem Arbeitsfeld Seelsorge des evangelischen Kirchenamtes, gelang es, einen therapeutischen Ansatz zu konzipieren, der gezielt Wertorientierungen und moralische Verletzungen bei Einsatzsoldaten in das Zentrum der Behandlung stellt. Erste Studien konnten dabei zeigen, dass eine enge Verbindung zwischen diesen Verletzungen und psychiatrischer Symptombildung besteht. Moral- und wertbezogene Therapie wird von den behandelten Soldaten als sehr hilfreich empfunden, die bisherigen wissenschaftlichen Auswertungen erbrachten ermutigende Resultate.

Psychiatrische Erkrankungen haben eine erhebliche Auswirkung auf das soziale Umfeld der Betroffenen. Angehörige psychisch Erkrankter spielen daher eine maßgebliche Rolle im Heilungsprozess. Aus diesem Grund hat die therapeutische und wissenschaftliche Arbeit des Psychotraumazentrums einen weiteren Schwerpunkt in der Erforschung der Belastung von Lebenspartnern und auch Kindern traumatisierter Soldaten sowie in der Entwicklung von therapeutischen Angeboten, die auch durch Tier-assistierte Ansätze unterstützt werden können. Aus dieser Arbeit entstanden neben wissenschaftlichen Studien bereits ein Kinderbuch für Kinder traumatisierter Soldaten sowie mehrere Informationsbroschüren. Diese kostenfreien Schriften des PTZ werden in erheblicher Stückzahl von der Truppe abgefordert.

In der jüngsten Zeit dehnt sich das Spektrum des klinischen und wissenschaftlichen Interesses des PTZ auch in den Bereich Technik-basierter Methoden und Verfahren aus. Mitte 2016 wurde erstmals im deutschsprachigen Raum eine fachlich fundierte App für Soldaten mit posttraumatischen psychischen Erkrankungen konzipiert und freigeschaltet. Diese bietet psychoedukative Informationen sowie Anleitungen zur Selbsthilfe (z.B. Notfallpläne, Entspannungstrainings etc.) und soll seitens des Psychotraumazentrums in Kooperation mit der TU Dresden und UniBw München kontinuierlich inhaltlich weiterentwickelt werden. Dieses Angebot wird zusätzlich flankiert durch Servicedienstleistungen des PTZ wie Online-Beratung und Internet-basierte Psychotherapieformen. Digitale Applikationen wie die App CoachPTBS sollen ebenso wie spezifische Gruppenprogramme („In Würde

zu sich stehen“) zur Entstigmatisierung von psychischen Erkrankungen beitragen.

Daneben sind gerade jetzt Fragen zu beantworten, wie Chronifizierung von psychischen Erkrankungen verhindert, wie Rehabilitationsmaßnahmen optimiert aufeinander abgestimmt werden können. Daher wurden Forschungsinitiativen im Bereich der Rehabilitation und dienstlichen Wiedereingliederung im Schulterschluss mit den anderen psychosozialen Diensten der Bundeswehr sowie den regionalen Sanitätseinrichtungen stark intensiviert.

So hat sich das Psychotraumazentrum der Bundeswehr in den letzten Jahren im engen Verbund mit den psychiatrischen Abteilungen der Bundeswehrkrankenhäuser und der Sanitätsunterstützungszentren sowie den psychosozialen Diensten der Bundeswehr zu einer gut vernetzten, zentralen Ansprechstelle und zu einem Kompetensträger für einsatzbedingte und nicht-einsatzbedingte psychische Erkrankungen in der Bundeswehr entwickelt. Die hohe Akzeptanz zeigt sich nicht zuletzt anhand zahlreicher Vortrags- und Kongressveranstaltungen im zivilen sowie militärischen nationalen und internationalen Kontext. Sie wird unterstrichen durch ein einmal jährlich in der Vorweihnachtszeit angebotenes Fortbildungs- und Diskussionsforum (Berliner Psychotraumakolloquium), bei dem neue Tendenzen in der Psychotraumatologie mit einem breiten militärischen und zivilen Fachpublikum diskutiert werden.

Gleichwohl besteht nun aktuell die Notwendigkeit einer Bestandswahrung und Weiterentwicklung der Wehrpsychiatrie der Bundeswehr, um die erreichten Fortschritte zu konsolidieren. Die Ergebnisse der erwähnten Dunkelzifferstudie deuten darauf hin, dass tausende aktive und ehemalige Soldaten der Bundeswehr durch Einsätze relevante krankheitswertige psychische Problematiken entwickelt haben, die bis heute unbehandelt sind.

Es ist daher in den nächsten Jahren mit einem Anstieg der Inanspruchnahme psychiatrischer Einrichtungen der Bundeswehr zu rechnen. Diese sind angesichts der aufgebauten militärpsychiatrischen Expertise in Deutschland alternativlos und können durch zivile Angebote lediglich ergänzt werden. Eine zentrale Herausforderung wird es daher sein, die bestehenden Therapiezentren in den Bundeswehrkrankenhäusern und Fachärztlichen Untersuchungsstellen in ihrer personellen und materiellen Ausrichtung zukunftsfest zu entwickeln und jeweils bedarfsgerecht anzupassen.

Dieser Prozess sollte durch die wissenschaftliche Expertise des Psychotraumazentrums weiter intensiv begleitet werden. Dazu sollten auch größere internationale zivil-militärische Kooperationsprojekte gehören. Als ein Beispiel kann

das derzeit anlaufende Depressions- und Suizidpräventionsprojekt des Psychotraumazentrums genannt werden, durch das ein Anstieg depressiver Erkrankungen, die in einigen Fällen auch mit Suizidalität einhergehen, verhindert werden soll.

Zentrales Ziel aller Aktivitäten ist es, die Lebensqualität und Alltagsstabilität der Soldaten, die im Dienst für ihr Land eine psychische Schädigung erlitten haben, nachhaltig zu verbessern.

Die in diesem Reader vorgelegte kurze Zusammenfassung zentraler Forschungsergebnisse und Serviceleistungen der Wehrpsychiatrie, insbesondere des Psychotraumazentrums, verfolgt das Ziel, den Entwicklungsprozess der vergangenen Jahre exemplarisch und konzentriert wiederzugeben. Es sollen zudem Schlussfolgerungen für notwendige Maßnahmen und strukturelle Veränderungen in der Zukunft abgeleitet werden, die sich aus den Ergebnissen der abgeschlossenen Projekte ergeben. Es soll dazu angeregt werden, an dem umfassenden und konstruktiven Prozess der kontinuierlichen Verbesserung psychosozialer Versorgung deutscher Soldaten teilzuhaben und aktiv mitzuwirken.

#### Fazit

Die psychosoziale Versorgung der Bundeswehr ist in den letzten 20 Jahren Gegenstand umfangreicher Veränderungen gewesen. Diese fanden ihren Ausdruck nicht zuletzt in der Gründung und Weiterentwicklung des Psychotraumazentrums (PTZ) als wissenschaftlichem Kompetensträger. Vielfältige Forschungsprojekte mit Beteiligung des PTZ haben zu einer fundierten Datenbasis beigetragen, die wiederum Weiterentwicklungen in den Bereichen Diagnostik, Prävention, Therapie und Begutachtung psychischer Erkrankungen in den deutschen Streitkräften angeregt hat.

#### Hinweis:

*Die einzelnen Kapitel haben den Anspruch, in sich abgerundet und selbsterklärend zu sein. Daher sind gelegentliche inhaltliche Überschneidungen zwischen den Abschnitten nicht immer vermeidbar.*

*Aus Gründen der Übersichtlichkeit konnten nicht alle Forschungsartikel, die in den letzten Jahren in der Bundeswehr entstanden sind, im Haupttext besprochen werden. Daher findet sich im Anhang eine Sammlung ausgewählter Abstracts.*

*Dem Wunsch nach einem ungehinderten Lesefluss geschuldet ist der Verzicht auf eine Geschlechter-bezogene Anpassung der Begrifflichkeiten. Gemeint sind jeweils männliche und weibliche Form ohne Gewichtung oder Wertung.*

# THEMA 1

## Psychische Gesundheit von Bundeswehrsoldaten seit Beginn der Auslandseinsätze - Tendenzen und Risikoprofile

### Leit-Thesen:

- Auslandseinsätze hinterlassen bei vielen Soldaten psychische Folgen
- Vielfältige Einflüsse wirken auf dieses Geschehen ein
  - nicht zuletzt auch – Wertorientierungen
- Fürsorge für vulnerable Soldaten ist Führungsaufgabe



Quelle: Bundeswehr/Andrea Bienert

Die Teilnahme an internationalen Auslandseinsätzen in den verschiedensten Krisenregionen der Welt hat für die Bundeswehr tiefgreifende Veränderungen im Hinblick auf psychische Reaktionen der teilnehmenden Soldaten und damit auch im Hinblick auf den Stellenwert psychischer Erkrankungen in den medizinischen Versorgungssystemen mit sich gebracht.

Epidemiologische Untersuchungen zwischen 2009 und 2013, die an Einsatzsoldaten in Afghanistan sowie an einer Kontrollgruppe ohne Einsatz durchgeführt wurden („Dunkelzifferstudie“), erbrachten erste aussagekräftige Ergebnisse. Mehr als 20 % aller Soldaten mit und ohne Einsatz litten unter einer psychischen Erkrankung (Soldaten mit Auslandseinsatz: affektive Erkrankungen (z. B. Depression) 7.8%, PTBS 2.9%, Angststörungen 10.8%, somatoforme Störungen 2.5%, Alkoholmissbrauch u. -abhängigkeit 3.6%).

*Einsatzsoldaten haben ein erhöhtes Risiko, Kampfhandlungen und andere traumatische Ereignisse zu erleben. Im Vergleich zu nicht-Einsatzsoldaten hatten sie eine signifikant höhere 12-Monats-Prävalenz von PTBS (OR: 2,4), Angst (OR: 1,4) und Alkoholkonsum (OR: 1,9). Vorbestehende psychische Störungen steigerten das Risiko signifikant.* **GES-2013-1** | Wittchen H, Schönfeld S, Kirschbaum C, Trautmann S, Thureau C, Siegert J, Höfler M, Hauffa R, Zimmermann P (2013): Rates of Mental Disorders Among German Soldiers Deployed to Afghanistan: Increased Risk of PTSD or of Mental Disorders In Journal of Depression and Anxiety 2(1):1-7 DOI:10.4172/2167-1044.1000133

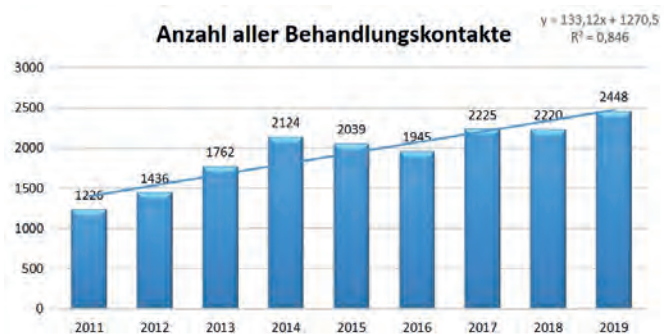
Auch die bundesdeutsche Zivilbevölkerung leidet nach aktuellen Surveys unter einer erheblichen psychiatrischen Krankheitslast. Die auftretenden Erkrankungen sind jedoch im Vergleich zum Militär unterschiedlich. Zu beachten ist zudem, dass die Anforderungen an Soldaten im Hinblick auf psychische Stabilität angesichts des beanspruchenden Aufgabenspektrums besonders hoch sein müssen.

*Die 12-Monats-Prävalenzen von psychoreaktiven Erkrankungen bei Einsatzsoldaten sind in Teilen vergleichbar mit der einer zivilen Stichprobe. Die Prävalenz bei Soldaten ohne Einsatz ist niedriger. Signifikante Unterschiede zwischen militärischem Personal und Zivilpersonen hinsichtlich der Prävalenz der einzelnen Diagnosen zeigten sich mit niedrigeren Werten für Alkohol und Nikotin. Bei Einsatzsoldaten mit hoher Kampfbelastung zeigten sich im Vergleich zu Zivilisten erhöhte Raten von Panik und Agoraphobie sowie der PTBS.* **GES-2016-2** | Trautmann S, Goodwin L, Höfler M, Jacobi F, Strehle J, Zimmermann P, Wittchen H (2016): Prevalence and severity of mental disorders in military personnel: a standardised comparison with civilians. Epidemiology and Psychiatric Sciences (18):1-10 DOI: 10.1017/S204579601600024X

Die Prävalenzen und ihre Veränderungen bilden sich nicht nur in epidemiologischen Feldstudien, sondern auch in den Versorgungssystemen der Bundeswehrkrankenhäuser ab.

*Eine Auswertung der hospital- und allgemeinärztlichen Statistiken der Bundeswehr ergab, dass sich im Jahre 2006 signifikant mehr Bundeswehrsoldaten aufgrund einer psychiatrischen Erkrankung in ambulante oder stationäre Behandlung begaben als noch im Jahre 2000. Die Unterschiede waren vor allem auf Anstiege belastungsreaktiver Störungen (F43) zurückzuführen. In den Bundeswehrkrankenhäusern stieg zusätzlich der Anteil psychiatrischer und insbesondere belastungsreaktiver Störungen an der Gesamtzahl stationärer Patienten signifikant an.* **GES-2009-1** | Zimmermann P, Hahne HH, Ströhle A (2009): Psychiatrische Erkrankungen bei Bundeswehrsoldaten. Veränderungen in der Inanspruchnahme medizinischer Versorgungssysteme im Vergleich der Jahre 2000 und 2006. Trauma und Gewalt 3(4):316–327

Seit 2010 führt das Psychotraumazentrum die Einsatzstatistik psychischer Erkrankungen der Bundeswehr. Diese zeigte über Jahre erhebliche Anstiege in der Inanspruchnahme psychiatrischer Einrichtungen der Bundeswehr aufgrund psychischer Erkrankungen, die seit 2014 zunächst ein Plateau auf hohem Niveau erreicht haben. Dies hängt auch mit der begrenzten Kapazität der Bundeswehrkrankenhäuser zusammen, aufgrund derer einsatzbedingte Erkrankungen mit den sonstigen, nicht-einsatzbedingten Krankheitsbildern von Soldaten um die vorhandenen Ressourcen konkurrieren.



Quelle: PTZ Einsatzstatistik (Stand: 15.1.2020)

Die Inanspruchnahme und die jahresabhängige Anzahl der Behandlungskontakte in wehrpsychiatrischen Einrichtungen steigen kontinuierlich, was sich in einem klar steigenden Trend ( $r^2=84,6\%$ ) abbildet.

*Auslandseinsätze der Bundeswehr bergen ein hohes psychisches Traumatisierungspotenzial. Daten zwischen 2010 und 2011 zeigen einen Anstieg der Neuerkrankungszahlen für psychiatrisch-psychotherapeutische Behandlung bei Soldaten nach Auslandseinsatz. Hierbei stieg die Zahl weiblicher Soldaten mit Erstkontakt aufgrund einsatzbedingter psychischer Belastungen auffällig an. Der Anteil von Kosovo-Rückkehrern lag insgesamt höher als der Anteil nach einem Afghanistaneseinsatz. Hauptgrund für Erstkontakte waren Belastungsreaktionen gefolgt von affektiven Störungen. Die Befunde deuten darauf hin, dass der Anstieg der Neuerkrankungszahlen geschlechts- und Einsatzgebiets-spezifisch ist.* **GES-2012-3** | Kowalski J, Hauffa R, Jacobs H, Höllmer H, Gerber W, Zimmermann P (2012): Einsatzbedingte Belastungen bei Soldaten der Bundeswehr Inanspruchnahme psychiat-



risch-psychotherapeutischer Behandlung. Deutsches Ärzteblatt International 109(35-36):569–575 DOI: 10.3238/arztebl.2012.0569.

Auch in den Einsätzen selbst wurden Erhebungen zur Inanspruchnahme der dort bis 2014 tätigen Psychiater durchgeführt. Dabei zeigte sich zwischen 2009 und 2012 ein Wandel der diagnostizierten Erkrankungen. Passend zu abnehmenden Kampfhandlungen verringerte sich auch der Anteil akuter Belastungsreaktionen und posttraumatischer Belastungsstörungen zugunsten von Anpassungsstörungen, die auf dienstliche und private Konflikte zurückzuführen waren.

*Ein Vergleich der einsatz-psychiatrischen Diagnosehäufigkeiten der Jahre 2009 und 2011/12 wies in 2009 einen signifikant höheren Anteil an akuten Belastungsreaktionen und in 2011/12 einen signifikant höheren Anteil an Anpassungsstörungen nach. Diese Verschiebung im Diagnosespektrum lässt sich hypothetisch auf Unterschiede der einwirkenden einsatz-assoziierten Stressoren zurückführen. GES-2012-7 | Ungerer J, Weeke, A, Zimmermann P, Jenuwein M, Petermann F, Kowalski J (2013): Akute psychische Störungen deutscher Soldatinnen und Soldaten in Afghanistan. Zeitschrift für Psychiatrie, Psychologie und Psychotherapie (2013), 61, pp. 273-277. DOI: 10.1024/1661-4747/a000170.*

In einer noch aktuelleren Untersuchung bestätigte sich dieser Trend: im Einsatzverlauf waren signifikante Anstiege an depressiver Symptomatik sowie von Schlafstörungen, nicht jedoch der PTBS, zu verzeichnen.

*In einer prospektiven Untersuchung von 118 in Afghanistan eingesetzten Soldaten wurde bei einem signifikant höheren Teil im Vergleich zu einer nicht im Ausland stationierten Kontrollgruppe (N=146) eine steigende Depressivität und Tagesmüdigkeit sowie eine herabgesetzte Schlafqualität nachgewiesen. Wichtigster Prädiktor für schlechten Schlaf im Einsatz war dabei eine beeinträchtigte Schlafqualität vor dem Einsatz. Der Anteil der Soldaten mit beeinträchtigter Schlafqualität sank nach dem Einsatz signifikant. Ein Schlafcoaching vor dem Einsatz könnte vermutlich zu einer besseren Schlafqualität vor und im Einsatz führen. GES-2017-1 | Danker-Hopfe H, Sauter C, Kowalski JT, Kropp S, Ströhle A, Wesemann U, Zimmermann P (2017): Sleep quality of German soldiers before, during and after deployment in Afghanistan-a prospective study. Journal of Sleep Research 26(3):353-363 DOI: 10.1111/jsr.12522.*

Von hoher gesundheitspolitischer Relevanz ist auch ein Anstieg von Nikotinabhängigkeit im Einsatz, der sich bei einer Kohortenstudie von Kampftruppensoldaten zeigte.

*Ein Vergleich des Nikotinkonsums zwischen einer in Afghanistan eingesetzten und einer in Deutschland stationierten Grenadierkompanie zeigte eine signifikante Zunahme der Tabakabhängigkeit der in Afghanistan eingesetzten Gruppe. Die Zunahme kann auf die einsatzspezifischen Besonderheiten und Belastungen dieser Gruppe zurückgeführt werden. GES-2017-7 | Wesemann U, Schura R, Kowalski J, Kropp S,*

*Danker-Hopfe H, Rau H, Ströhle A, Thiele J, Zimmermann P (2015): Association of Deployment and Tobacco Dependence among Soldiers. Gesundheitswesen 2015 Oct 22. DOI: [http://dx.Doi.org/10.1055/s-0035-1559707](http://dx.doi.org/10.1055/s-0035-1559707).*

Angesichts der erheblichen Prävalenzen psychischer Erkrankungen bei Soldaten beschäftigt sich ein Forschungszweig des Psychotraumazentrums mit Risiko- und Schutzfaktoren. In der Prävalenzstudie der Bundeswehr („Dunkelzifferstudie“) wurden bereits psychische Vorerkrankungen, die Anzahl erlebter Stressoren, mangelnde soziale Unterstützung und Schwierigkeiten in der Emotionsregulation als relevante Prädiktoren identifiziert.

*358 männliche Soldaten wurden vor und 12 Monaten nach dem Einsatz mit standardisierten Diagnose-Interviews (CIDI) und eingebetteten Fragebögen hinsichtlich der Risikofaktoren von PTBS, Depressionen und Angststörungen untersucht. Belastende Ereignisse, fehlende soziale Unterstützung und Schwierigkeiten in der Emotionsregulation waren dabei signifikante Risikofaktoren, insbesondere hinsichtlich einer späteren PTBS-Erkrankung. GES-2015-5 | Trautmann S, Schoenfeld S, Heinrich A, Schafer J, Zimmermann P, Wittchen H (2015): Risk factors for common mental disorders in the context of military deployment: a longitudinal study. European Psychiatry Vol. 30, p 303 DOI:10.1016/S0924-9338(15)30244-3*

Auch der Umgang mit täglichem Inlands- bzw. Einsatz-Stress und der entsprechende Trainingsgrad scheint ein einflussreicher Faktor zu sein und führte beispielsweise bei Kommandosoldaten des Kommandos Spezialkräfte (KSK) zu einem verminderten Stresserleben während des Einsatzes.

*Kommandosoldaten im Auslandseinsatz leiden weniger unter chronischem Stress als Kommandosoldaten im Inlandsdienst. Der Einsatz wird eher als Herausforderung gesehen und die intensive Einsatzausbildung könnte unter Einsatzbedingungen verstärkt präventiv wirken. GES-2015-3 | Ungerer J, Kowalski J, Kreim G, Hauffa R, Kropp S, Zimmermann P (2015): Chronischer Stress bei Spezialkräften der Bundeswehr. Unterschiedliches Stresserleben bei Kommandosoldaten im alltäglichen Dienst und Auslandseinsatz. Trauma und Gewalt 9(3):236-243*

Auch für individuelle Faktoren zeigten sich Signale im Risikoprofil. Traumatisierte Soldaten in Führungspositionen (Offiziere) berichteten in klinischer Behandlung von einer geringeren Traumasymptomatik (Intrusionen) als ihre Kameraden mit geringerer Verantwortung.

*In einer Untersuchung von 74 an PTBS-erkrankten, sich in ambulanter und stationärer Behandlung befindlichen Soldaten wurden Zusammenhänge zwischen Gesamtschwere der PTBS zu Therapiebeginn, Symptomclustern und psychosozialen Parametern untersucht. Soldaten mit einsatzbedingter PTBS litten signifikant stärker unter Übererregbarkeit als Soldaten mit nicht-einsatzbedingter PTBS. Bei Soldaten in Füh-*

rungspositionen war die Traumasympptomatik wie Intrusionen signifikant schwächer ausgeprägt als bei anderen Dienstgradgruppen. Bei Soldaten mit verzögertem Beginn der PTBS waren Gesamtschwere und Intrusionssymptomatik schwächer ausgeprägt. **GES-2012-7** | Jenuwein M, Zimmermann P, Ungerer J, Fuchs S, Beudt S, Jacobsen T, Alliger-Horn C, Gerber WD, Niederberger U, Petermann F, Kowalski J (2012): Zum Schweregrad der Posttraumatischen Belastungsstörung im militärischen Kontext. Zeitschrift für Psychiatrie, Psychologie und Psychotherapie (2012), 60, pp. 309-314. DOI: 10.1024/1661-4747/a000131.

Eine besonders wichtige Zielgruppe für Risikoanalysen sind Soldaten, die aus gesundheitlichen Gründen im Einsatz überfordert sind und nach Deutschland zurückgeführt („repatriert“) werden müssen.

Ein Vergleich zwischen einer Fragebogenumfrage an ISAF-Soldaten und den medizinischen Unterlagen von aus psychiatrischen Gründen aus demselben Kontingent repatriierten Soldaten ergab unterschiedliche Repatriierungsrisiken der Einsatzsoldaten. Ein besonders hohes Risiko bestand für Mannschaftssoldaten mit einem Alter unter 26-Jahren, die an Kampfhandlungen teilgenommen hatten sowie für in Kundus stationierte Soldaten. **GES-2015-2** | Zimmermann P, Seifert A, Herr K, Radunz N, Leonhard R, Gallinat J, Heß J (2015): Risk Factors for Mental Health Aeromedical Evacuation Among German Armed Forces Soldiers Deployed to Afghanistan. Military Behavioral Health 3(1):23–28. DOI: 10.1080/21635781.2014.995247.

### **Einfluss von Werten und Moral**

Zudem haben offenbar persönliche Wertorientierungen und das Moralempfinden von Soldaten einen Einfluss auf Häufigkeit und Schweregrad psychischer Erkrankungen im militärischen Kontext. Im Rahmen von Auslandseinsätzen kann es zu Erfahrungen kommen, die zu verinnerlichten Werten und Normen in Widerspruch stehen. Moralische Verletzungen können sich so neben einer psychischen Symptomatik entwickeln.

Eine Fragebogenstudie an Einsatzrückkehrern zeigte, dass Wertorientierungen von Soldaten (vor allem Hedonismus, Benevolenz und Universalismus) einen signifikanten Einfluss auf die Häufigkeit und Schwere der PTBS und anderer psychischer Symptome nach einem Auslandseinsatz haben. Diese Ergebnisse könnten einen Einfluss auf die Weiterentwicklung von Therapieverfahren haben. **GES-2014-4** | Zimmermann P, Firnkes S, Kowalski J, Backus J, Siegel S, Willmund G, Maercker A (2014): Personal values in soldiers after military deployment: associations with mental health and resilience. European Journal of Psychotraumatology 5:1-9. DOI: 10.3402/ejpt.v5.22939.

Wertorientierungen bei Soldaten haben einen Einfluss auf die Schwere einer Alkoholkrankheit und sollten in der Diagnostik und Therapie des Alkoholabhängigkeitssyndroms stärker berücksichtigt werden. Der Wertetyp Hedonismus war in einer

Untersuchung an klinisch behandelten alkoholkranken Soldaten signifikant positiv, Stimulation negativ mit der Schwere der Alkoholabhängigkeit assoziiert. Im Verlauf eines qualifizierten Entzuges erhöhte sich die Abstinenzzuversicht signifikant, der Wert Tradition beeinflusste das Therapieergebnis positiv. **GES-2015-11** | Zimmermann P, Kahn C, Alliger-Horn C, Willmund G, Hellenthal A, Jaeckel R, Schomerus G, Wesemann U (2015): Assoziation von Werteorientierungen mit der Schwere einer Alkoholabhängigkeit bei Soldaten in qualifizierter Entzugsbehandlung. Nervenheilkunde 10:803-808

Moralische Verletzungen spielen in der Pathogenese psychischer Erkrankungen nach belastenden Erlebnissen in Auslandseinsätzen eine zentrale Rolle. Einsatzerlebnisse in Zusammenhang mit der Zivilbevölkerung scheinen eine besonders starke Auswirkung auf psychische Erkrankungen bei Bundeswehrsoldaten zu haben. Der Effekt wird offenbar über das Konstrukt moralischer Verletzungen vermittelt.

**GES-2017-2** | Hellenthal A, Zimmermann P, Willmund G, Lovinusz A, Fiebig R, Maercker A, Alliger-Horn C (2017): Einsatzerlebnisse, Moralische Verletzungen, Werte und psychische Erkrankungen bei Einsatzsoldaten der Bundeswehr. Verhaltenstherapie (9/2017), published online. DOI: 10.1159/000470848

### **Fazit**

Aus den Daten, die zu Risikoprofilen und Entwicklungstrends psychischer Erkrankungen von Einsatzsoldaten gewonnen wurden, lässt sich schlussfolgern, dass die Teilnahme an Auslandseinsätzen die psychische Gesundheit von Soldaten nicht selten negativ beeinflusst. Offenbar lassen sich spezielle Risikogruppen für die Entwicklung psychischer Erkrankungen im Einsatzverlauf identifizieren.

Die aufgezeigten Risikoprofile sollten vorrangig allgemeinmilitärischen und sanitätsdienstlichen Führungsebenen kommuniziert werden, um bestimmten vulnerablen Personengruppen eine besondere Fürsorge vor, während und nach Einsätzen zukommen zu lassen, zum Beispiel in Form strukturierter Präventionsmaßnahmen (siehe auch Thema 3). Diese sollten auf psychische Belastung im engeren Sinne fokussieren, aber auch erweiterte Dimensionen menschlichen Erlebens, zum Beispiel Wertorientierungen, berücksichtigen. Denkbar wäre beispielsweise ein gezieltes moralisch-ethisches Training.

## THEMA 2

# Hirnstrukturelle und physiologische Veränderungen im Rahmen psychischer Traumatisierungen

### Leit-These:

Studien zu physiologischen Parametern an einsatztraumatisierten Soldaten konnten die objektive, körperliche Komponente psychischer Störungen belegen. Diese Befunde sollten unterstreichen, wie ernst diese Erkrankungen in der Bundeswehr zu nehmen sind!



Quelle: Bundeswehr/Jonas Weber

In den letzten Jahren sind in der Bundeswehr eine Reihe von Studien durchgeführt worden, die physiologische und strukturelle Veränderungen vor allem des Gehirns, aber auch des Hormonhaushaltes nach Einwirkung traumatischer Ereignisse zum Thema hatten. Dabei konnte gezeigt werden, dass psychische Traumafolgestörungen umfangreiche Auswirkungen auf zentrale Regulationsprozesse des menschlichen Körpers haben, die zum Teil auch in bildgebenden Verfahren sichtbar gemacht werden können. Diese hängen unter anderem mit Fehlregulationen verschiedener Stresshormonsysteme zusammen, vor allem von Noradrenalin und Cortisol.

**Unter wirksamer pharmakologischer und psychotherapeutischer Behandlung sind derartige Veränderungen nicht selten reversibel.**

Im langzeitigen Verlauf werden aber bei versäumter Therapie auch Befunde erklärbar, dass Erkrankungen wie die posttraumatische Belastungsstörung mit einem erhöhten Risiko an Herz-Kreislauf- und Stoffwechselerkrankungen einhergehen, letztendlich auch mit einer erhöhten Sterblichkeitsrate.

Die ersten Studien des Psychotraumazentrums zu dieser Thematik ergaben Hinweise, dass sich die Anpassungsfähigkeit der Herzrhythmusvariabilität, die sog. Herzfrequenzvariabilität, offenbar sowohl bei einer posttraumatischen Belastungsstörung als auch bei allgemeinem beruflichem Stress von Soldaten deutlich verschlechtern und im Verlauf einer Psychotherapie auch wieder signifikant verbessern kann.

*Im Rahmen einer PTBS ist eine umfassende Störung verschiedener physiologischer Regulationsmechanismen beschrieben, die potenziell mit den Parametern der Herzfrequenzvariabilität (HRV) erfasst werden kann. Ein systematisches Review demonstriert einen Zusammenhang einer PTBS mit einer Reduzierung der HRV. Die HRV könnte somit ein potentieller Marker als Ergänzung für die klinische Diagnostik und die Therapieverlaufskontrolle bei Patienten mit einer PTBS sein.* **PHY-2015-5** | Sammito S, Thielmann B, Zimmermann P, Böckelmann I (2015): Einfluss einer Posttraumatischen Belastungsstörung auf die Herzfrequenzvariabilität als Marker des autonomen Nervensystems – eine systematische Literaturübersicht. Fortschritte der Neurologie Psychiatrie 83(1):30-7. DOI: 10.1055/s-0034-1398779

*In einem ersten Querschnittsvergleich der HRV-Parameter von Bundeswehr-Soldaten mit und ohne einsatzbedingte Störungen konnten Hinweise gefunden werden, dass die HRV, besonders der Kennwert SDNN, als objektivierbarer Parameter für die Stressbelastung bei unterschiedlicher beruflicher Anspannung, sowie auch für die Messung der Symptomlast bei PTBS-Erkrankten verwendbar ist.* **Dissertationsschrift (eingereicht)** | Paus F (2019): Die Herzratenvariabilität (HRV) als Marker für Stressbelastung und Symptomlast bei Posttraumatischer Belastungsstörung (PTBS) im militärischen Kontext

Ähnliche Zusammenhänge zeigten sich auch bei dem Hormon TNF-Alpha.

*Bei der Suche nach humoralen Prädiktoren der Schwere und des Verlaufs von PTBS müssen Serumkonzentration von TNF- $\alpha$  und seinen löslichen Rezeptoren zusammen mit den Einflussfaktoren Ethnie, Alter und BMI interpretiert werden.*

**PHY-2016-1** | Himmerich H, Wolf J, Zimmermann P, Bühler A, Holdt L, Teupser D, Kirkby K, Willmund G, Wesemann U (2016): Serum Concentrations of Tumor Necrosis Factor- $\alpha$  and its Soluble Receptors in Soldiers with and without Combat-related Posttraumatic Stress Disorder: Influence of Age and Body Mass Index. Chinese Medical Journal (Engl) 129(6):751-752. DOI: 10.4103/0366-6999.178039

*Psychiatrische Behandlungen sind mit Veränderungen der Serumkonzentrationen des TNF- $\alpha$  und seiner löslichen Rezeptoren (sTNF-R) p55 und p75 assoziiert. Unter Therapie erhöht sich die Konzentration von TNF- $\alpha$ , während die Spiegel von sTNF-R p55 und sTNF-R p75 signifikant abnehmen. Dies deutet darauf hin, dass spezifische stationäre Psychotherapie, aber auch unspezifische unterstützende ambulante Behandlung für PTSD mit Veränderungen im TNF- $\alpha$ -System assoziiert sind. Dies kann eine immunologische Wirkung der Psychotherapie darstellen.* **PHY-2016-3** | Himmerich H, Willmund G, Zimmermann P, Wolf J, Bühler A, Kirkby K, Dalton B, Holdt L, Teupser D, Wesemann U (2016): Serum concentrations of TNF- $\alpha$  and its soluble receptors during psychotherapy in German soldiers suffering from combat-related PTSD. Psychiatria Danubina 28(3):293-298



Quelle: Bundeswehr/Sebastian Wilke

In der Dunkelzifferstudie der Bundeswehr war zudem festgestellt worden, dass auch die Ablagerungen von Cortisol in Haaren mit der Entwicklung posttraumatischer Symptome im Rahmen eines Auslandseinsatzes in Verbindung stehen.

*In einer Untersuchung an Soldaten vor und 12-Monate nach einem Auslandseinsatz konnte gezeigt werden, dass niedrige Haarcortisol-Spiegel zu Einsatzbeginn (diese weisen auf eine vorherige traumatische Stressexposition hin) ein möglicher Marker für die anschließende Entwicklung von PTBS-Symptomen nach erneuter Traumaexposition sind.*

**PUBLIKATION** | Stedte-Schmiedgen S, Stalder T, Schönfeld S, Wittchen H, Trautmann S, Alexander N, Miller R, Kirschbaum C (2015): Hair cortisol concentrations and cortisol stress reactivity predict PTSD symptom increase after

trauma exposure during military deployment. Psychoneuroendocrinology (59): 123-33 DOI: 10.1016/j.psyneuen.2015.05.007

Mit Hilfe der funktionellen Magnetresonanztomographie können Aussagen über die Hirnstruktur und den Hirnstoffwechsel in verschiedenen Regionen gemacht werden. Insbesondere die Botenstoffe GABA und Glutamat waren in bestimmten Bereichen des Gehirns, die für die Regulation von Emotionen verantwortlich sind, bei Patienten mit hoher Belastung durch posttraumatischen Stress signifikant verändert.

*In einer vergleichenden Untersuchung von Soldaten mit einsatzbedingter PTBS und Trauma-exponierten gesunden Soldaten konnte gezeigt werden, dass die Glutamatkonzentration signifikant mit der Stärke der Belastung durch Kampfhandlungen und mit der Gesamtbelastung aller Probanden ansteigt. Des Weiteren war die Stärke der PTBS Symptomatik signifikant positiv mit der GABA Konzentration assoziiert.*  
**Dissertationschrift** | Labuhn E (2017): Auswirkungen einsatzbedingter psychischer Belastungsniveaus auf die Aktivierung des Anterioren Cingulum bei Bundeswehresoldaten mit und ohne Posttraumatische Belastungsstörung.

Die Dauer von Einsätzen scheint sich dabei auf den Umfang cerebraler Veränderungen auszuwirken. Mit zunehmenden Gesamteinsatztagen der Soldaten konnten geringere Gehirn-Volumina (entsprechend einer Schädigung) unter anderem im präfrontalen Kortex als auch im anterioren cingulären Kortex nachgewiesen werden.

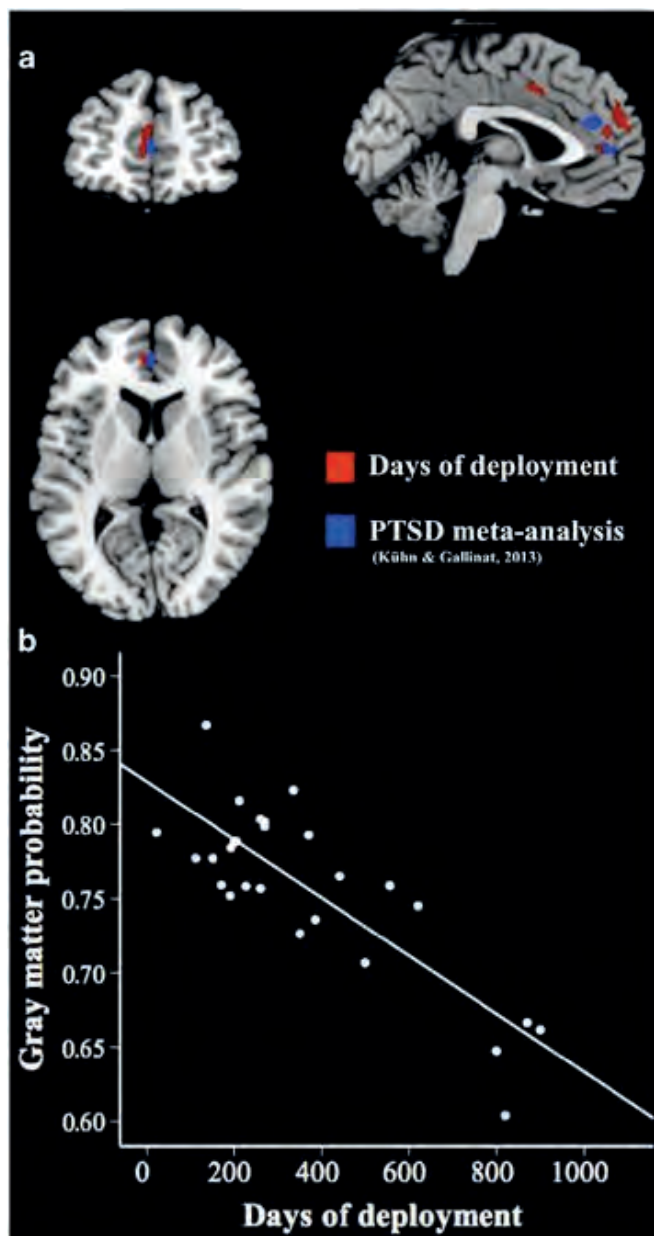
In einem kürzlich abgeschlossenen Studienprojekt wurden Auswirkungen einer wiederholten oder langfristigen Einsatzbelastung auf die Hirnstruktur anhand einer Stichprobe mit 27 einsatz-exponierten Soldaten mittels einer voxel-basierenden MRT-Morphometrie untersucht. Es wurde eine negative Korrelation zwischen der Dauer des militärischen Einsatzes und der grauen Substanzvolumina im ventro-medialen präfrontalen Kortex (vmPFC) und dem dorsalen anterioren cingulären Kortex (ACC) nachgewiesen. Ebenfalls wurde eine negative Beziehung zwischen dem einsetzungsdauerkorrelierten Volumen der grauen Substanz und psychischen Symptomen, aber nicht zwischen militärischem Einsatz und psychischen Symptomen per se nachgewiesen. Eine höhere Anzahl an Gesamteinsatztagen scheint also mit kleineren regionalen Hirnvolumina bei einsatz-exponierten Personen unabhängig von Erkrankungen wie der PTSD verbunden zu sein.

**PHY-2017-1** | Butler O, Adolf J, Gleich T, Willmund G, Zimmermann P, Lindenberger U, Gallinat J, Kühn S. Military deployment correlates with smaller prefrontal gray matter volume and psychological symptoms in a subclinical population. Transl Psychiatry. 2017 Feb 14;7(2): e1031. DOI: 10.1038/tp.2016.288.

Therapie wiederum wirkt offenbar protektiv: Unter stationärer Psychotherapie nahm das Volumen der Hippocampus-Region, ebenfalls ein Teil des Emotions-Verarbeitungssystems, im Vergleich zu einer Kontrollgruppe signifikant zu.

*Ein Vergleich der Bildgebungsdaten von Soldaten mit einsatzbedingter PTBS und erfolgter Therapie und Soldaten mit PTBS einer Warteliste wies bei den Therapiepatienten einen signifikanten Zuwachs des Hippocampusvolumens sowie tendenziell eine Volumenzunahme der Amygdala nach.*

**PHY-2018-2** | Butler O, Willmund G, Gleich T, Gallinat J, Kühn S, Zimmermann P (2017): Hippocampal gray matter increases following multimodal psychological treatment for combat-related posttraumatic stress disorder. Brain and behavior 8(5) DOI: 10.1002/brb3.956.



Quelle: DOI: 10.1038/tp.2016.288.

Die Metaanalyse stellt den Zusammenhang zwischen Einsatztagen und strukturellen hirnmorphologischen Veränderungen (Volumenabnahme der grauen Substanz) dar.

## Fazit

Psychische Erkrankungen, insbesondere auch nach militärischen Auslandseinsätzen, sollten als Teil eines umfassenden körperlichen und psychischen Netzwerkes fein aufeinander abgestimmter physiologischer Prozesse verstanden werden, die messbare Korrelate haben. Dies kann zu einer Entstigmatisierung und zu einem Umdenken in der Bundeswehr beitragen, da sich psychische Erkrankungen nun vermehrt der wahrgenommenen „Objektivität“ der körperlichen Einsatzfolgen annähern.

Zudem können Verknüpfungen zwischen physiologischen Markern und psychischen Erkrankungen dazu dienen, objektivierbare Messgrößen für das Vorhandensein und den Schweregrad psychischer Erkrankungen in Diagnostik und Begutachtung zu identifizieren und auch den Heilungsverlauf in einer positiven Veränderung dieser Marker abzubilden. Dabei darf aufgrund der hohen Komplexität der Zusammenhänge aber nicht so weit gegangen werden, physiologische Messwerte als Beweismittel, z.B. in gutachterlichen Prozessen, aufzufassen und zu verwenden. Sie werden auch in Zukunft immer nur ein ergänzendes Hilfsmittel für den ärztlich-psychologischen Gesamteindruck sein.

## THEMA 3

### Prävention – Vorbeugen ist besser als Heilen

Leit-These:

Präventionsmaßnahmen können in der Vor- und Nachbereitung von Auslandseinsätzen erheblich zur psychischen Stabilität von Soldaten beitragen. Sie stellt eine kameradschaftliche Verpflichtung für alle Führungsebenen dar!



Quelle: Bundeswehrkrankenhaus Berlin/Thilo Pulpanek

Prävention psychischer Belastungen und Erkrankungen hat in den letzten Jahren sowohl im zivilen als auch im militärischen Kontext eine zunehmende Bedeutung erlangt. In der Bundeswehr liegt die Zuständigkeit für Prävention im Schwerpunkt beim Psychologischen Dienst und dort bei der Truppenpsychologie. Hintergrund sind wachsende berufsbezogene Stressoren, z.B. durch Auslandseinsätze, aber auch die Erkenntnis, dass eine wirksame Prävention Krankheits-symptome verhindern oder abschwächen kann. Sie erleichtert zudem die Früherkennung und Frühbehandlung, weil sowohl die Betroffenen wie auch ihr dienstliches Umfeld bereits vor der Entstehung von Belastungsfolgestörungen eine entsprechende Vorbereitung und Information erhalten und dann bei Bedarf angemessen reagieren können.

Prävention setzt an verschiedenen Stellen in der Versorgungslandschaft an: Mit der in der Einführung befindlichen „Erfassung der psychischen Fitness“ soll Einsatzrückkehrern ein Angebot zur symptom-unabhängigen Rückmeldung über ihre psychische Fitness gemacht werden, woraus sich bedarfsorientiert gezielte Maßnahmen zur Wiederherstellung und sogar Steigerung derselben ableiten lassen.

In der Bundeswehr wurde die Bedeutung derartiger Maßnahmen in den letzten beiden Jahrzehnten mehr und mehr erkannt. Unter Federführung von BMVg FüSK III 2 und fachlicher Mitwirkung des Psychologischen Dienstes soll noch in 2019 mit der Implementierung begonnen werden (Grundlage ist das Konzept K-9000/011 „Erhalt und Steigerung der psychischen Fitness von Soldatinnen und Soldaten“). Es ist beabsichtigt, allen Einsatzrückkehrern nach dem Auslandseinsatz oder nach einsatzgleichen Missionen – idealerweise im Rahmen der Einsatznachbereitungsseminare – die freiwillige Teilnahme an der Erfassung ihrer psychischen Fitness im Rahmen von computer-assistierter Testpsychologie und ergänzt um individuelle Einzelgespräche mit einem Truppenpsychologen/einer Truppenpsychologin anzubieten. Zweck dieser Erfassung ist es, zu sensibilisieren und zu weitergehenden Stärkungs- und Präventionsmaßnahmen zu motivieren, nicht jedoch, einzelne Soldaten zu selektieren bzw. von Auslandseinsätzen auszuschließen. Die wichtigste Voraussetzung für eine effektive Erfassung der psychischen Fitness war die Auswahl von geeigneten Instrumenten, die sowohl eine valide Treffsicherheit haben als auch unter zeitlichen und organisatorischen Vorgaben gut anwendbar sind.

*In einem Pilotprojekt zum Konzept K-9000/011 „Erhalt und Steigerung der Psychischen Fitness von Soldatinnen und Soldaten“ wurden durch den Psychologischen Dienst der Bundeswehr Soldaten (N=361) mit testpsychologischer Selbsteinschätzung sowie psychologischen Einzelgesprächen vor und nach ihrem Einsatz in Afghanistan erfasst. Anhand eines statistischen Modells konnte eine Differenzierung der Teilnehmer mit einer Sensitivität von 70 bzw. 75% und einer Spezifität von 75 und 86% erreicht werden, die vor und nach dem Einsatz eine gute oder weniger gute psychische Ressourcenlage hatten. GES-2018-3 | Wesemann U, Willmund GD, Ungerer J, Kreim G, Zimmermann P, Stein M, Bühler A, Kaiser J,*

Kowalski JT (2017): *Assessing Psychological Fitness in the Military – Development of an Effective and Economic Screening Instrument*, *Military Medicine*, Volume 183, Issue 7-8, July-August 2018, Pages e261–e269, <https://doi.org/10.1093/milmed/usy021>.

Bei Hinweisen auf persönliche psychische Belastungsfolgen von Soldaten, die sich im Rahmen der Erfassung ergeben, bietet die Bundeswehr individuelle Stärkungs- und Präventionsmaßnahmen zu Wiederherstellung, Erhalt und Steigerung der psychischen Fitness. Dabei spielt auch bereits im Vorfeld von zu erwartenden Belastungen Aufklärung (Psychoedukation) im Rahmen der Primärprävention eine zentrale Rolle. Am ehesten geeignet erscheinen dazu Maßnahmen der Stressvorbereitung durch virtuelle Übungen, gekoppelt mit Verfahren der aktiven Entspannung sowie die Verbesserung sozialer Kompetenzen und Ressourcen, um im Falle konkreter Belastungen Ausgleich durch soziale Bezugssysteme nutzen zu können. Ein stützendes soziales Umfeld hat sich in zahlreichen Studien als wesentliches Element der Krankheitsprävention erwiesen.

Durch ein derartiges kombiniertes Vorgehen werden insgesamt persönliche Ressourcen aktiviert und gestärkt, deren Bedeutung sich im Zusammenhang mit psychischer Symptombildung auch in Studien innerhalb der Bundeswehr bereits gezeigt hat.

*Traumatische Einsatzenerfahrungen beeinflussen die psychische Ressourcenlage von Soldaten. Die Abnahme der personalen Ressourcen steht signifikant mit der Gesamtschwere der Traumasymptomatik, der Depressionssymptomatik und der allgemeinen Beschwerdebelastung in Zusammenhang. Ein Mangel an psychischen Ressourcen steigert die Gesamtschwere der Trauma- und Depressionssymptomatik und der allgemeinen Beschwerdebelastung signifikant. GES-2015-10 | Alliger-Horn C, Kretschmer T, Hessenbruch I, Tagay S, Zimmermann P (2015): Wie Ressourcen die Symptombildung von Einsatzsoldaten beeinflussen. Eine empirische Prüfung anhand des Essener-Ressourcen-Inventars (ERI). *Trauma, Zeitschrift für Psychotraumatologie und ihre Anwendung* 13(3):74-81*

Eine geeignete Methode, um Prävention standardisiert und unter lerntheoretischen Gesichtspunkten effektiv und motivationssteigernd anzubieten, scheint die Nutzung moderner Medien zu sein. Der Psychologische Dienst der Bundeswehr hat dafür in Kooperation mit zivilen Partnern die Computerbasierte blended-learning-Plattform CHARLY entwickelt. In einem anderthalbtägigen Gruppentraining werden Teilnehmern virtuelle Stress-Szenarien multimedial dargeboten, verbunden mit der Vermittlung und unmittelbarem Anwendungstraining von Copingstrategien. Zur Förderung der persönlichen Compliance und intrinsischen Motivation finden die Trainingseinheiten in sog. „Best-Score-Championship-Settings“ statt. In Zusammenarbeit mit dem PTZ wurde eine Wirksamkeitsstudie bei Sanitätspersonal erfolgreich durchgeführt.



*Der Vergleich der Trainingsplattform CHARLY mit einer Routineausbildung zeigt, dass eine computerbasierte, adaptive Lernplattform mit standardisierten Inhalten zur Stressprävention einer persönlichen, nicht-standardisierten Stressausbildung überlegen ist. In einer randomisierten, kontrollierten longitudinalen Untersuchung an Sanitätspersonal zeigte sich dies in signifikant geringerer Symptombelastung nach einem Einsatz in Afghanistan. TGV-2016-1 | Wesemann U, Kowalski J, Jacobsen T, Jacobsen T, Beudt S, Jacobs H, Fehr J, Büchler J, Zimmermann P (2016) Evaluation of a technology-based adaptive learning and prevention program for stress response - a randomized controlled trial. Military Medicine 181(8): 863-71. DOI: 10.7205/MILMED-D-15-00100*

Nach Exposition mit belastenden Ereignissen können Verfahren der Sekundärprävention auf den Prozess der Verarbeitung bzw. Krankheitsentstehung einwirken. Auch hier scheint wiederum Psychoedukation von großer Bedeutung. Diese sollte niederschwellig und ggf. auch anonymisiert angeboten werden, da insbesondere in hierarchischen Systemen wie dem Militär Schamgefühle den Krankheitsprozess begleiten, zu Stigmatisierungsängsten führen und dadurch die Kontaktaufnahme mit dem Hilfesystem erschweren und verzögern.

Somit bieten sich auch bei der Sekundärprävention wiederum die neuen Medien als erste Kontaktoptionen an. Die zielgruppenspezifisch gestaltete Web-Seite „www.PTBS-hilfe.de“ bietet hier eine erste niederschwellige Informationsquelle nicht nur für die Betroffenen selbst, sondern auch für deren Angehörige, Truppenärzte, Truppenpsychologen und Vorgesetzte. Diese Kontaktoptionen werden ergänzt durch personalisierte Beratungsangebote wie die 24/7-Telefonhotline des Psychotraumazentrums (0800-5887957).

*Niederschwellige psychosoziale Versorgungsangebote unter Nutzung der Neuen Medien erlangen einen zunehmenden Stellenwert. Online-Angebote, Telefonhotline und das Computerprogramm CHARLY stellen einen wichtigen Bestandteil militärischer psychosozialer Unterstützungssysteme dar. Ein auf verschiedene Nutzergruppen zugeschnittenes Angebotsspektrum sollte vorgehalten werden. TGV-2013-1 | Zimmermann P, Alliger-Horn C, Willmund G, Dunker S, Kowalski J (2013): Integration moderner Medien in das psychosoziale Versorgungsangebot deutscher Soldaten. ZPPM Zeitschrift für Psychotraumatologie, Psychotherapiewissenschaft, Psychologische Medizin 11(2):35–49*

Insbesondere auch für Technik-affine Betroffene, kann die Smartphone-App („Coach PTBS“) die oben genannten Präventionselemente in leicht zugänglicher Form interaktiv vermitteln. Sie wurde vom PTZ und der TU Dresden inhaltlich entwickelt und bereits im Jahr der Freischaltung mehrere tausend Mal heruntergeladen.

Sekundärprävention als gesundheitsfürsorgliche Maßnahme nach Auslandseinsätzen hat bei der Bundeswehr eine längere Tradition. Die bereits oben erwähnten Einsatznachbereitungseminare sind für alle Einsatzteilnehmer seit Jahren

verpflichtend, um durch dazu ausgebildete Gesprächsmoderatoren in persönlichen Gruppengesprächen den Einsatz gedanklich abschließen und eventuell sichtbar belastete Einsatzrückkehrer gezielt ansprechen zu können. Ein therapeutischer Anspruch besteht dabei jedoch nicht.

Zum Teil wurden modifizierte Einsatznachbereitungseminare für besondere Zielgruppen wie bspw. Kampfmittelbesitzer oder Rettungsmediziner mit Erfolg erprobt (PTZ – unveröffentlichte Daten).

Ebenfalls seit einigen Jahren etabliert sind intensiviertere und verlängerte Formate für die Sekundärprävention, die sogenannten Präventivkuren. Diese können nach dem Auftreten von Einsatzstressoren unbürokratisch beantragt und auf Kosten der Bundeswehr in zivilen Kliniken durchgeführt werden. Mit ihnen soll auch Einsatzrückkehrern ohne Indikation eine Ressourcenstärkung und ein nachhaltiger Erhalt ihrer psychischen Fitness angeboten werden. Sie vermitteln den teilnehmenden Soldaten zudem Anerkennung und Wertschätzung seitens ihres Dienstherrn und erfahren mittlerweile eine hohe Akzeptanz. Insbesondere sport- und bewegungsbezogene Angebote werden von den Teilnehmern als wichtig und hilfreich bewertet.

*In einer Untersuchung wurden 500 Teilnehmer einer 3-wöchigen präventiven stationären Maßnahme sowie 60 Kontrollprobanden mittels des Fragebogens PTSS-10 und einem Evaluationsinstrument der Deutschen Rentenversicherung befragt. Die Akzeptanz der Maßnahme im Ganzen, vor allem aber der bewegungs- und sporttherapeutischen Module, war ausgesprochen hoch. PRV-2015-1 | Zimmermann P, Kowalski J, Niggemeier-Groben A, Sauer M, Leonhardt R, Ströhle A (2015): Evaluation of an inpatient preventive treatment program for soldiers returning from deployment. Work 50(1):103–110. DOI: 10.3233/WOR-131665.*

#### Fazit

Die hier präsentierten Daten weisen darauf hin, dass eine Prävention psychischer Erkrankungen nach Extrembelastungen wie Auslandseinsätzen möglich ist. Sie kann an verschiedenen Kompetenzbereichen der Persönlichkeit ansetzen, sollte perspektivisch auch eine Stärkung moralischer Bezugssysteme integrieren.

Wirksame Prävention setzt eine solide Grundlagenausbildung von Führungskräften im Umgang mit psychischen Belastungen von Mitarbeitern voraus, die im Idealfall schon frühzeitig in der Unteroffiziers-/Offiziersausbildung ansetzen sollte.

Screening und Prävention werden so zu einer militärischen Führungsaufgabe, die zukünftig einen noch deutlich größeren Stellenwert erhalten sollte.

## THEMA 4

### Klinische Forschung zu Behandlungsmethoden: Was wirkt?

#### Leit-These:

Eine wirksame Behandlung von Einsatztraumatisierungen in der Bundeswehr ist möglich, sofern ausreichend Ressourcen verfügbar sind und militärspezifische Anpassungen erfolgen.



Quelle: Bundeswehrkrankenhaus Berlin/Thilo Pulpanek

Die Behandlung psychischer Erkrankungen von Soldaten, insbesondere nach Auslandseinsätzen, ist ein originärer Auftrag der Bundeswehrkrankenhäuser und Fachärztlichen Untersuchungsstellen der Facharztzentren. Dort vereinigen sich psychotherapeutische und psychotraumatologische Expertise mit profunder militärischer und Einsatzerfahrung.

In den letzten Jahren haben sich stationäre Behandlungssettings entwickelt, die sich in besonderer Weise auf die Bedürfnisse und spezifischen Besonderheiten militärischer Patienten eingerichtet haben.

*Es sind Überblicks-Publikationen über aktuelle Entwicklungen in den Bereichen Prävention, Behandlung und Begutachtung psychischer Erkrankungen in der Bundeswehr verfügbar. UBS-2016-2 | Zimmermann P, Wesemann U, Willmund G, Alliger-Horn C (2016): Traumafolgestörungen in der Bundeswehr Konzepte der Prävention und Behandlung. Nervenheilkunde 6: 391-395*

Aus diesem Grund ist es notwendig, die in den Bundeswehrkrankenhäusern praktizierten Behandlungsansätze bezüglich ihrer Wirksamkeit wissenschaftlich zu evaluieren. Dies ist nicht zuletzt auch der Fürsorge gegenüber erkrankten Soldaten geschuldet und schafft die Voraussetzung, dass sich die Bundeswehr in der öffentlichen und medialen Wahrnehmung als verantwortungsvoller und fürsorglicher Arbeitgeber präsentieren kann.

Die traumatherapeutische Technik EMDR (Eye Movement Desensitization and Reprocessing) hat sich für Soldaten als besonders praktikabel und wirksam erwiesen. Kontrollierte Studien des Psychotraumazentrums, die 2015 auch seitens der deutschsprachigen Gesellschaft für Psychotraumatologie mit einem Forschungspreis ausgezeichnet wurden, haben deutliche Hinweise auf hohe Effektstärken erbracht.

*In einer Untersuchung an Bundeswehrsoldaten mit einer PTBS wird die Wirksamkeit von EMDR (Eye Movement Desensitization and Reprocessing Therapy) und IRRT (Imagery Rescripting and Reprocessing Therapy) als traumatherapeutische Verfahren untersucht und verglichen. Beide Verfahren zeigen hohe Effektstärken in der Behandlung von kriegstraumatisierten Soldaten. BEM-2015-2 | Alliger-Horn C, Mitte K, Zimmermann P (2015): Vergleichende Wirksamkeit von IRRT und EMDR bei kriegstraumatisierten deutschen Soldaten. Trauma und Gewalt 9(3):204-215*

*In einer Effektivitätsstudie (prä-post-Design) konnte gezeigt werden, dass EMDR eine bei Soldaten gegenüber einer Kontrollgruppe signifikant wirksamere Behandlungsform für die Reduktion von Symptomen einer PTBS oder Depression nach traumatisierenden Ereignissen ist. BEM-2016-1 | Köhler K, Eggert P, Lorenz S, Herr K, Willmund G, Zimmermann P, Alliger-Horn C (2016): Effectiveness of Eye Movement Desensitization and Reprocessing (EMDR) in German Armed Forces Soldiers with Posttraumatic Stress Disorder (PTSD) under Routine In-Patient Care Conditions. Military Medicine 182(5), e1672-e1680. DOI: 10.7205/MILMED-D-16-00307.*

Die Therapieergebnisse wurden von verschiedenen Faktoren beeinflusst, die zukünftig bei der Planung therapeutischer Prozesse berücksichtigt werden sollten.

*Die Anzahl der erlebten Traumatisierungen und die Summe der Begleiterkrankungen (Komorbiditäten) bei Soldaten sind wesentliche Prädiktoren für die kurz- und langfristige Veränderung der Trauma- und Beschwerdesymptomatik innerhalb einer Therapie. BEM-2014-1 | Alliger-Horn C, Zimmermann P, Mitte K (2014): Prädiktoren für den Behandlungsverlauf kognitiv-behavioraler Gruppentherapie einsatzbedingter Erkrankungen deutscher Bundeswehrsoldaten. Verhaltenstherapie 24(4):244–251*

Dennoch können mit diesen Ansätzen nicht alle einsatzverwundeten Soldaten in gleicher Weise angesprochen werden. Nicht selten bleibt trotz Therapie eine Restsymptomatik zurück. Obwohl diese Problematik auch im zivilen Bereich bekannt ist, gilt das wissenschaftliche Bemühen des Psychotraumazentrums zusätzlichen, militärspezifischen Ansätzen, die einen noch tieferen Zugang zu der Thematik ermöglichen und damit einen umfänglicheren Heilungsprozess ermöglichen sollen.

So stellte sich beispielsweise heraus, dass die Auseinandersetzung von Soldaten mit eigenen Wertorientierungen und moralischen Verletzungen im Rahmen militärischer Auslandseinsätze eng mit psychischer Symptombildung in Verbindung steht.

*In einer Untersuchung an Einsatzrückkehrern konnte gezeigt werden, dass Wertorientierungen (v.a. Hedonismus, Benevolenz und Universalismus) einen signifikanten Einfluss auf depressive, ängstliche, somatoforme und PTBS-Syndrome haben. GES-2015-12 | Zimmermann P, Firnkes S, Kowalski J, Backus J, Alliger-Horn C, Willmund G, Hellenthal A, Bauer A, Petermann F, Maercker A (2015): Zusammenhänge zwischen Psychischer Symptomatik und Persönlichen Werten bei Bundeswehrsoldaten nach einem Auslandseinsatz. Psychiatrische Praxis 42(8):436-42. DOI: 10.1055/s-0034-1370242*

*Moralische Verletzungen spielen in der Pathogenese psychischer Erkrankungen nach belastenden Erlebnissen in Auslandseinsätzen eine zentrale Rolle. Einsatzerlebnisse in Zusammenhang mit der Zivilbevölkerung scheinen eine besonders starke Auswirkung auf psychische Erkrankungen bei Bundeswehrsoldaten zu haben. Der Effekt wird offenbar über das Konstrukt moralischer Verletzungen vermittelt. GES 2017-2 | Hellenthal A, Zimmermann P, Willmund G, Lovinusz A, Fiebig R, Maercker A, Alliger-Horn C (2017): Einsatzerlebnisse, Moralische Verletzungen, Werte und psychische Erkrankungen bei Einsatzsoldaten der Bundeswehr. Verhaltenstherapie (9/2017), published online. DOI: 10.1159/000470848*

Dementsprechend können Wertorientierungen auch psychotherapeutische Prozesse beeinflussen. Dies wurde in einer ersten Pilotstudie an alkoholkranken Soldaten festgestellt.

Wertorientierungen bei Soldaten haben einen Einfluss auf die Schwere einer Alkoholkrankheit und können in der Diagnostik und Therapie des Alkoholabhängigkeitssyndroms genutzt werden. Der Wertetyp Hedonismus ist signifikant positiv, Stimulation negativ mit der Schwere der Alkoholabhängigkeit assoziiert. Im Verlauf eines qualifizierten Entzuges erhöhte sich die Abstinenzzuversicht signifikant, der Wert Tradition beeinflusste das Therapieergebnis positiv **GES-2015-11** | Zimmermann P, Kahn C, Alliger-Horn C, Willmund G, Hellenthal A, Jaeckel R, Schomerus G, Wesemann U (2015): Assoziation von Wertorientierungen mit der Schwere einer Alkoholabhängigkeit bei Soldaten in qualifizierter Entzugsbehandlung. *Nervenheilkunde* 10:803-808

Bei der Suche nach geeigneten therapeutischen Verfahren, um die moralische und Wertethematik angemessen abzubilden, fiel die Wahl unter anderem auf die ACT-Therapie (Acceptance and Commitment Therapie). Eine erste, noch unveröffentlichte Pilotstudie erbrachte Hinweise, dass psychische Symptome durch diese Therapieform verbessert werden können und es gleichzeitig auch zu einem Wandel von Wertorientierungen kommt.

Noch zentrierter ausgerichtet auf die Situation der Einsatzverarbeitung ist ein dreiwöchiges Gruppenkonzept des PTZ, das speziell für Soldaten mit einsatzbedingten psychischen Erkrankungen konzipiert wurde. Ein Manual zur Behandlung moralischer Verletzungen wurde im Juni 2019 zum freien Download in Deutsch und Englisch publiziert und ist unter [www.wehrmed.de](http://www.wehrmed.de) abrufbar.



Eine erste Evaluation ergab, dass das Phänomen Scham, das bei dieser Personengruppe oft erheblich zum Leidensdruck beiträgt und zu Verzögerungen im therapeutischen Prozess führen kann, signifikant positiv beeinflussbar ist. Dieser Prozess betrifft vor allem die Ebene von Aggressivität gegenüber sich selbst und anderen als Folge von Scham. **GES-2018-9** | Alliger-Horn C, Hessenbruch I, Fischer C, Thiel T, Varn A, Willmund G, Zimmermann P (2018): „Moral injury“ bei kriegstraumatisierten deutschen Bundeswehrsoldaten. *Psychotherapeut* 63(4):322-328, DOI.org/10.1007/s00278-018-0287-z (Publikationstitel)

Ein umfassender und nachhaltiger psychotherapeutischer Veränderungsprozess erfordert zudem die Behandlung von Begleiterkrankungen und ggf. grundlegenden Persönlichkeitsproblematiken, die neben der auslösenden Erkrankung bestehen. In Bundeswehrkrankenhäusern werden deshalb

Gruppenprogramme angeboten, die sich diesen Themenfeldern widmen.

Das Psychotraumazentrum hat mehrere dieser Gruppensettings evaluiert und Hinweise auf eine Wirksamkeit bei Soldaten gefunden, so unter anderem bei der Alkoholkrankung, der Gruppenbehandlung persönlichkeitsstruktureller Unsicherheiten (Gruppentraining sozialer Kompetenzen GSK) sowie bei der Gruppenbehandlung neurotischer Beziehungskonflikte (stationäre Kurzgruppenpsychotherapie).

Stationäre Kurzgruppenpsychotherapie war bei stationär behandelten Bundeswehrsoldaten mit neurotischen Störungen einer Kontrollgruppe signifikant überlegen. Sie kann im Zusammenwirken mit komplementären Komponenten bei der Reduktion psychischer Symptomatik hilfreich sein. Sie hat möglicherweise auch Potenzial in der Prävention. **BEM-2008-1** | Zimmermann P, Kröger N, Willmund G, Ströhle A, Heinz A, Hahne H (2008): In-patient, short-term group psychotherapy - a therapeutic option for Bundeswehr soldiers? *Psycho-Social-Medicine* (5):1-8

Soldaten mit vermeidenden Persönlichkeitsstrukturen können wirksam mit einer gezielten, stationären Psychotherapie behandelt werden und zeigen danach geringere psychische Gesamtbelastung. **BEM-2013-2** | Zimmermann P, Alliger-Horn C, Kowalski J, Plate S, Wallner F, Wolff E, Ströhle A (2013): Treatment of avoidant personality traits in a German armed forces inpatient psychiatric setting. *Military Medicine* 178(2):213-217

Die Einbeziehung von Angehörigen in den Behandlungsprozess ist von großer Bedeutung für den Heilungserfolg. Zahlreiche Studien haben Hinweise erbracht, dass die Güte der sozialen Unterstützung ein zentraler Einflussfaktor für das psychische Wohlbefinden von Menschen unter Belastung darstellt, auch und insbesondere im militärischen Kontext.

Eine systematische Literaturanalyse ergab, dass Kohäsion und soziale Unterstützung durch gesellschaftliche Gruppen wie Kameraden, Bevölkerung und Streitkräfte einen wesentlichen protektiven Einfluss auf einsatzbedingte psychische Traumafolgestörungen bei Soldaten haben. **PSU-2013-2** | Waltereit R, Kowalski J, Zimmermann P (2013): Kohäsion und soziale Unterstützung des Soldaten in relevanten gesellschaftlichen Gruppen. Einfluss auf einsatzbedingte psychische Traumastörungen. *Trauma und Gewalt* 7(1):2-8

In den Bundeswehrkrankenhäusern wird Angehörigenarbeit als ambulante offene Gruppe oder als mehrtägige Blockveranstaltung angeboten. Letztere werden unter anderem durch die Soldaten- und Veteranenstiftung des Deutschen Bundeswehrverbandes und das Seelsorgeprojekt des Evangelischen Kirchenamtes finanziell, personell und inhaltlich unterstützt. Insbesondere für die Angehörigen reduzierte sich dadurch die psychische Belastung, zudem wurden die Lebensqualität sowie das gegenseitige Unterstützungsgefühl gestärkt.

2011 wurden erstmals psychoedukative Seminare für Angehörige traumatisierter Soldaten konzipiert und durchgeführt. Die Seminare führten in einer offenen Studie zu einer auch katamnestic nachweisbaren signifikanten Steigerung der Lebensqualität und des Unterstützungsgefühls insbesondere bei den Partnerinnen der Traumatisierten. **PSU-2015-1** | Wesemann U, Jensen S, Kowalski J, Gewandt A, Kröger C, Fischer C, Rose C, Zimmermann P (2015): Einsatzbedingte posttraumatische Belastungsstörung im sozialen Umfeld von SoldatInnen. Eine explorative Studie zur Entwicklung und Evaluierung eines Angehörigenseminars. Trauma und Gewalt 9(3):216-225

Angehörigenarbeit kann seit 2013 zudem durch ein Kinderbuch ergänzt werden, das durch das Evangelische Kirchenamt (EKA) und das Psychotraumazentrum erarbeitet wurde. Es stellt die Folgen von Traumatisierungen und ihre Behandlung kindgerecht dar.

Einen innovativen therapeutischen Ansatz stellt die Unterstützung von Angehörigenarbeit durch tiergestützte Interventionen dar. Eine Pilotstudie des Psychotraumazentrums erbrachte Hinweise, dass sich pferdegestützte therapeutische Seminare bei Paaren mit posttraumatischer Erkrankung signifikant auf die psychische Befindlichkeit auswirken.

Die Ergebnisse der Pilotstudie zeigen, dass durch die Intervention die Partnerschaftsqualität verbessert, negative Stimmungen und Denken und bei Betroffenen, Stresssymptome sowie Probleme in der Partnerschaft nachhaltig signifikant reduziert werden können. Besonders Partner von Betroffenen profitieren von der Maßnahme. **PSU-2017-1** | Köhler K, Rose C, Parent I, Fischer C, Zimmermann P, Willmund G (2017): Die Wirksamkeit von pferdeunterstützter Intervention auf Partnerschaftsqualität, Symptomschwere einer PTBS, Stress und Depressivität von Soldaten und deren Partner. Trauma, 15, 80-91.

#### Fazit

Insgesamt ist die Datenbasis für die Wirksamkeit klinisch-therapeutischer Arbeit mit psychisch erkrankten Soldaten inzwischen in der Bundeswehr als gut fundiert einzuschätzen. Das Konzept psychotherapeutischer Behandlung von Einsatzsoldaten innerhalb der Systemstrukturen (Sanitätsdienst) in multimodalen Settings unter Einbezug von Angehörigen hat sich bewährt. Die entsprechenden Ressourcen sollten dem jeweiligen Inanspruchnahmeverhalten flexibel angepasst werden, um lange Wartezeiten und damit verbundene Chronifizierungsprozesse zu vermeiden.

Gleichzeitig sollten auch inhaltliche Adaptationen abhängig von den im Schwerpunkt zugrundeliegenden Einsatzszenarien vorgenommen werden. Zivile stationäre und ambulante Einrichtungen sind eine unverzichtbare Unterstützung der Bundeswehr-eigenen Ressourcen, insbesondere durch die Verfügbarkeit von spezialisierten Angeboten, die in der Bundeswehr nicht vorgehalten werden, sowie in der Vor- und Nachbehandlung. Sie können jedoch keinen Ersatz darstellen.

## Moralische Verletzungen und Wertorientierungen bei Einsatzsoldaten<sup>1</sup> – ein neues Manual zur fokussierten gruppentherapeutischen Behandlung

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### Einleitung

Moralische Verletzungen stellen eine häufige Begleiterscheinung einsatzbedingter psychischer Erkrankungen in der Bundeswehr dar. Sie haben nicht selten auch eine spirituelle Dimension, da sie Glaubensüberzeugungen betreffen.

Das Psychotraumazentrum der Bundeswehr (PTZBw) hat daher einen neuen manualisierten gruppentherapeutischen Ansatz konzipiert, der die traumatherapeutische Standardtherapie ergänzen kann. Das Manual steht nunmehr sowohl deutsch- als auch englischsprachig zum Download bereit. In diesem Beitrag werden Rational, Entstehung und Evaluation des Therapieprogramms zusammengefasst.

### Hintergrund

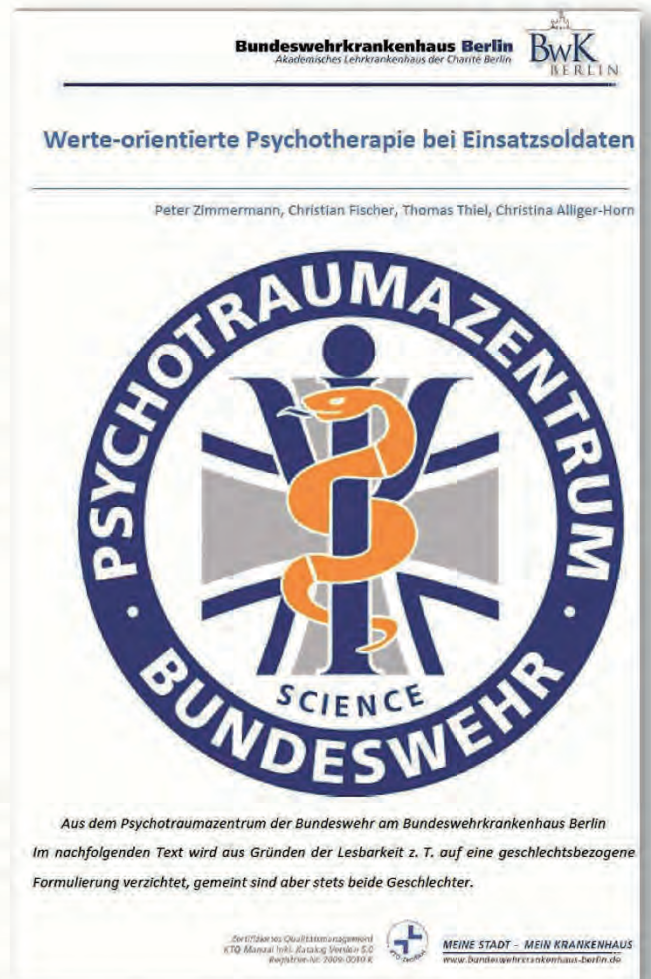
Die Teilnahme an einem militärischen Auslandseinsatz bedeutet für viele Soldaten eine das weitere Leben prägende Erfahrung. Während der Monate außerhalb Deutschlands werden vielfältige Eindrücke gewonnen, so z. B. durch das enge kameradschaftliche Miteinander in den Feldlagern, nicht zuletzt auch mit Soldaten anderer Nationen, aber auch durch den Kontakt mit der einheimischen Kultur und Bevölkerung.

Diese Begegnungen können außerordentlich bereichernd sein und dazu führen, dass psychische Reifungsprozesse einsetzen, die neue positive Sichtweisen zu Leben und Umwelt ermöglichen. So werden beispielsweise vielfach die Vorzüge und Besonderheiten der Lebenswirklichkeit in Deutschland deutlich intensiver und oft auch wertschätzender wahrgenommen.

Damit kann ebenso eine Veränderung persönlicher Wertorientierungen einhergehen: Militärangehörige begeben sich in die persönliche Herausforderung von Einsätzen, geprägt von ihren im Heimatland in vielen Jahren eines familiären, gesellschaftlichen und nicht zuletzt auch militärischen Sozialisationsprozesses gelernten Einstellungen und Wertorientierungen. Diese bedeuten für sie ein moralisches Fundament, das ihr Denken und ihre Handlungen vor Ort mitbestimmt und auch Stabilität in Belastungs- und Krisensituationen verleiht. Werte sind ein Koordinatensystem, das Orientierung und innerlichen Halt bietet.

Persönliche Werte können auf der anderen Seite aber auch bei der Entstehung einsatzbezogener Belastungen oder gar Erkrankungen mitwirken. In Studien des PTZBw zeigte sich, dass ein reflektierter intensiver Werte-Bezug von Soldaten eine Schutzwirkung gegenüber der Entstehung von Depressivität im Einsatzverlauf haben kann. Im Vordergrund stehen dabei Traditionsbewusstsein und Konformität (Zimmermann et al., 2018). Demgegenüber können stark altruistische und kameradschaftliche Werte, wie die Orientierung am Wohl anderer Menschen

<sup>1</sup> In diesem Beitrag wird aus Gründen der besseren Lesbarkeit z. T. auf eine geschlechtsbezogene Formulierung verzichtet, gemeint sind jedoch stets beide Geschlechter.



(Benevolenz und Universalismus), zu einem verstärkten subjektiven Leidensdruck beitragen, z. B. bei einer posttraumatischen Belastungsstörung (Zimmermann et al., 2014 und 2016). Menschen mit diesen Werten sind psychisch nicht verwundbarer als ihre Kameraden. Durch ihre Fähigkeit, mit anderen mitzufühlen, nehmen sie aber das Leid ihrer Kameraden und Mitmenschen, das sie im Einsatz beobachten, stärker auch als eigene Belastung wahr.

Besonders ausgeprägt zeigt sich der Einfluss eigener Wertesysteme auf die psychische Gesundheit, wenn es zu sogenannten moralischen Verletzungen kommt (Moral Injury). Darunter versteht man die Verletzung eines Menschen, die sich nicht auf einer körperlichen oder psychischen Ebene abspielt, sondern die das moralische Erleben in Frage stellt.

Dies kann durch *andere Personen* verursacht werden, beispielsweise wenn in der lokalen Bevölkerung Gewalt gegen Frauen und/oder Kinder ausgeübt wird. Ein ausgeprägter Zorn auf die Verursacher ist häufig die Folge, der über Jahre hinweg ein hartnäckiges Grübeln verursachen und die Lebensqualität mindern kann.

Eine moralische Verletzung kann aber auch entstehen, wenn das *eigene Verhalten* im Einsatz mit Wertorientierungen und moralischem Empfinden in Konflikt gerät. Die Teilnahme an Kampfhandlungen kann beispielsweise mit Schuldgefühlen einhergehen und sich im zeitlichen Verlauf chronifizieren; es kann in Scham übergehen – verbunden z. B. mit der anhaltenden Bewertung, ein wenig liebenswerter oder wertvoller Mensch zu sein. Scham wiederum zieht in vielen Fällen das Bedürfnis nach sich, sich vom sozialen Umfeld oder auch vor sich selbst zurückzuziehen. Die Betroffenen verstecken sich buchstäblich vor ihrem Leben und vereinsamen. Depression, aber auch Aggressivität, können die Folge sein.

Moral Injury konnte dabei in neueren US-amerikanischen Studien (Bryant et al., 2017) faktorenanalytisch von der Kernsymptomatik der Posttraumatischen Belastungsstörung (PTBS) abgegrenzt werden. Es scheint sich um einen eigenständigen Symptomkomplex zu handeln, bei dem Schuld und Scham, aber auch soziale Entfremdung und sozialer Rückzug sowie Anhedonie im Vordergrund stehen, weniger dagegen Anspannungs- und Angstsymptome oder Intrusionen/Flashbacks, wie bei der PTBS.

### Manual zur Therapie moralischer Verletzungen

Bei der Behandlung posttraumatischer psychischer Erkrankungen nehmen moralische Aspekte des Einsatzgeschehens einen zunehmenden Stellenwert ein. So werden im PTZBw seit 2014 traumatisierte Soldaten nicht nur traumatherapeutisch, zum Beispiel mit der EMDR-Methode („Eye Movement Desensitization and Reprocessing“), behandelt. Es kommt zusätzlich auch ein neues Behandlungsmodul zur Anwendung, bei dem jeweils im Gruppenrahmen mit 5-8 Betroffenen die skizzierten moralischen Konflikte und Veränderungen in Wertesystemen bearbeitet werden. Voraussetzung für eine Teilnahme ist eine einsatzbedingte psychische Erkrankung (PTBS, Angst, Anpassungsstörung etc.) aktiver oder ehemaliger Soldaten. Es sollte bei diesen bereits eine therapeutische Vorerfahrung bestehen, z. B. im Rahmen einer stationären Stabilisierung oder sogar einer ersten erfolgten therapeutischen Traumakonfrontation.

Wenn die Indikation geklärt ist, werden die Patienten einer Gruppe zugeordnet, die drei- bis viermal pro Jahr zusammengestellt wird. Diese Gruppentherapie wird über einen Zeitraum von einer Woche im stationären oder teilstationären Setting des PTZBw durchgeführt und kann dabei mit weiteren traumabezogenen Gruppenmodulen (z. B. kognitiv-behavioralen Ansätzen oder einem sozialen Kompetenztraining) sinnvoll kombiniert werden.

Inhaltlich werden zunächst individuelle Wertorientierungen und ihre Bedeutung für das tägliche Leben besprochen. Fokussiert wird dabei auf die Veränderung im Verlauf des/der Auslandseinsätze mit den dazugehörigen Folgen im dienstlichen und privaten Alltag. In einem nächsten Schritt wird anhand von Beispielen gemeinsam mit der Gruppe betrachtet, wie es zu Verletzungen eigener Wertvorstellungen („Moralische Verletzung“) kommen kann. Dies kann aufgrund eigenen vermeintlichen Fehlverhaltens geschehen oder auch durch Beobachtung des Verhaltens anderer (zum Beispiel der Zivilbevölkerung).

Gefühle wie Zorn oder Schuldgefühle werden gemeinsam thematisiert, wobei der Gruppenrahmen sich ausgesprochen stützend und stabilisierend auswirkt, da die meisten Betroffenen ähnliche Erfahrungen teilen und so eine starke Gruppenkohäsion entsteht. Wenn die (finanziellen) Möglichkeiten bestehen (z. B. durch die Unterstützung aus dem ASEM-Seelsorgeprojekt), können Teile des Moduls in einer Seminareinrichtung außerhalb der Klinik durchgeführt werden. Dies vermittelt den Patienten zusätzlich auch ein Gefühl von Wertschätzung, was sich günstig auf die Einstellung zu sich selbst auswirken kann.

### Das Manual kann unter den folgenden Links in deutscher und englischer Sprache heruntergeladen werden:

[www.wehrmed.de](http://www.wehrmed.de)

[www.sanitaetsdienst-bundeswehr.de/downloads](http://www.sanitaetsdienst-bundeswehr.de/downloads)

Diese Arbeit findet im PTZBw mit Unterstützung und Begleitung der Militärseelsorge (Arbeitsfeld Seelsorge des Evangelischen Kirchenamtes – ASEM) statt, wobei sich die interdisziplinäre Gruppenleitung aus den Professionen Psychiatrie, Psychologie, Militärseelsorge und Fachpflege gerade für die ethische Fragestellung als besonders geeignet erwiesen hat. Beispielsweise können bei ausgeprägten Schuldgefühlen oder Scham seitens der Seelsorge eingebrachte Angebote wie Andachten, Beichte oder Segen ausgesprochen hilfreich sein, wenn die Betroffenen dafür offen sind.

Eine erste wissenschaftliche Auswertung des Moduls ergab, dass sich wesentliche Dimensionen des Schamerlebens durch diesen Ansatz verbessern lassen. Die „Compass of Shame“-Skala zeigte beispielsweise signifikant positive Veränderungen in drei von vier Subskalen, die auch katamnestic stabil waren (Alliger-Horn et al., 2018).

Zur Unterstützung der therapeutischen Arbeit ist 2017 eine Graphic Novel erarbeitet worden, die die psychosozialen Veränderungen rund um moralische Verletzungen in leicht verständlicher Form aufbereitet. Diese kann im Psychotraumazentrum kostenfrei angefordert werden ([bwkrhsberlinpsychotraumazentrum@bundeswehr.org](mailto:bwkrhsberlinpsychotraumazentrum@bundeswehr.org)).

### Zusammenfassung

Die gezielte gruppentherapeutische Bearbeitung moralischer Verletzungen von Einsatzsoldaten der Bundeswehr hat sich als ein wirksames Element eines wehrpsychiatrischen Gesamtbehandlungsplans bewährt. Eine Ausweitung der Anwendung auf weitere Therapieeinrichtungen der Bundeswehr sowie gegebenenfalls in den Bereich der vorbeugenden Gesundheitsfürsorge können empfohlen werden. Auch in anderen westlichen Streitkräften zeichnen sich dementsprechende Entwicklungen ab.

(Literatur bei den Verfassern und im Manual „Werte-orientierte Psychotherapie bei Einsatzsoldaten“)

### Für die Verfasser

Oberstarzt Priv.-Doz. Dr. Peter Zimmermann

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# THEMA 5

## Hinter dem Horizont: Innovative Verfahren in Prävention und Therapie

Leit-These:

Niedrigschwellige Angebote für Betroffene und Angehörige ermöglichen eine professionelle Information und Psychoedukation, einen frühen Behandlungsbeginn und damit eine zeitige Wiedereingliederung in den Dienst.

The advertisement features a green background with the 'CoachPTBS' logo at the top left. The main title 'CoachPTBS' is in a large green box. Below it, the text 'IHR WEGWEISER BEI PSYCHISCHEN FOLGESTÖRUNGEN NACH DEM EINSATZ' is written in white. A yellow button says 'Jetzt herunterladen!'. A smartphone displays the app's interface with five menu items: 'Informieren', 'Selbsteinschätzung', 'Symptome bearbeiten', 'Stimmungslogbuch', and 'Unterstützung finden'. To the right of the phone are three checkmarks with the text: 'INFORMIERT SEIN ÜBER ALLES.', 'BESCHWERDEN LINDERN.', and 'HILFE IMMER UND ÜBERALL.'. At the bottom, there are two QR codes for the Play Store and App Store, and the 'Sanitätsdienst' logo.

Quelle: Patmo.de/Bundeswehr - Layout: HF Frank Eggen/PTZ



In der psychosozialen Versorgung der Bundeswehr hat sich in den letzten Jahren ein breites Forschungsfeld für innovative Verfahren, z. B. unter Nutzung der neuen Medien entwickelt, insbesondere in der Unterstützung psychotherapeutischer Konzepte, aber auch in der Prävention psychischer Erkrankungen. Diese Ansätze können dazu beitragen, besondere Zielgruppen, wie zum Beispiel junge Menschen, anzusprechen und zu Interventionen zu motivieren, bei denen herkömmliche Verfahren auf Widerstände treffen würden. Zudem können sie durch verbesserte Möglichkeiten der Systematisierung sowie durch intensiviertere Nutzung von Anschauungsmaterialien das „Erlebnis Psychotherapie“ erweitern und vertiefen.

*Niederschwellige psychosoziale Versorgungsangebote unter Nutzung der Neuen Medien erlangen einen zunehmenden Stellenwert. Online-Angebote, Telefonhotline und das Computerprogramm CHARLY stellen einen wichtigen Bestandteil militärischer psychosozialer Versorgungssysteme dar. Ein auf verschiedene Nutzergruppen zugeschnittenes Angebotsspektrum sollte vorgehalten werden. TGV-2013-1 | Zimmermann P, Alliger-Horn C, Willmund G, Dunker S, Kowalski J (2013): Integration moderner Medien in das psychosoziale Versorgungsangebot deutscher Soldaten. ZPPM Zeitschrift für Psychotraumatologie, Psychotherapiewissenschaft, Psychologische Medizin 11(2):35–49.*

Im Bereich der Prävention hat der psychologische Dienst der Bundeswehr das Computerprogramm CHARLY entwickelt und in Kooperation mit dem Psychotraumazentrum evaluiert. CHARLY ist ein Ansatz des blended-Learning und vermittelt in einem anderthalbtägigen Curriculum wichtige Grundlagen zu den psychosozialen Folgen von Einsatzbelastungen: angefangen bei vielfältigen Informationen über Stressstraining bis hin zu Entspannungsverfahren und sozialem Kompetenztraining. Eine erste randomisierte, kontrollierte longitudinale Studie erbrachte überzeugende Vorteile von CHARLY gegenüber herkömmlicher Standardprävention.

*Der Vergleich der Trainingsplattform CHARLY mit einer Routineausbildung zeigt, dass eine computerbasierte, adaptive Lernplattform mit standardisierten Inhalten zur Stressprävention einer persönlichen, nichtstandardisierten Stressausbildung überlegen ist. In einer randomisierten longitudinalen Untersuchung an Sanitätspersonal zeigte sich dies in signifikant geringerer Symptombelastung nach einem Einsatz in Afghanistan. TGV-2016-1 | Wesemann U, Kowalski J, Jacobsen T, Jacobsen T, Beudt S, Jacobs H, Fehr J, Büchler J, Zimmermann P (2016) Evaluation of a technology-based adaptive learning and prevention program for stress response - a randomized controlled trial. Military Medicine 181(8): 863-71. DOI: 10.7205/MILMED-D-15-00100*

Im Falle schon bestehender Belastungen oder Erkrankungen ist ein häufiges Problem, dass die Betroffenen mit verschiedenen Ängsten vor Karrierenachteilen oder Stigmatisierung konfrontiert sind. In dieser Phase der Orientierung können Internet-basierte Informations- und Kontaktportale den Einstieg in eine Betreuung erleichtern. Ergänzend können sich

gezielte entstigmatisierende Gruppenprogramme (z. B. „In Würde zu sich stehen“) günstig auf die vielfältigen Stigmatisierungsängste von Soldaten auswirken.

Die Websites Angriff-auf-die-Seele.de und PTBS-Hilfe.de haben sich in der Praxis bewährt. Sie werden ergänzt durch eine kostenlose, anonymisierte 24/7 Telefonhotline der Bundeswehr (0800-5887957) sowie durch Trauma-Ambulanzen in den Bundeswehrkrankenhäusern, die bei aufkommendem therapeutischem Interesse den weiteren Weg zeitnah und effizient bahnen.

*116 Online-Anfragen, die bis August 2009 über das Online-Portal „Angriff auf die Seele“ eingingen, wurden im Rahmen einer Pilotstudie nach ihren Inhalten, den Nutzern und dem Einsatzbezug evaluiert. Soldaten (bzw. deren Angehörige) nach Einsatz in Afghanistan nutzten das Angebot signifikant häufiger als Beteiligte der Kosovo- und Bosnien-Kontingente. 12,1 % der Nutzer konnten unmittelbar zu ambulanten Gesprächen innerhalb der Bundeswehr vermittelt werden, 1,7 % in den zivilen Bereich, 4,3 % erhielten umgehend eine stationäre Psychotherapie in einem Bundeswehrkrankenhaus. Die Auswertung dieses niedrigschwelligen Kontaktangebotes weist auf die Bedeutung der Online-Beratung psychosozial belasteter Berufsgruppen hin und kann die Aufnahme therapeutischer Maßnahmen bahnen und möglicherweise so einen deutlich früheren Therapiebeginn ermöglichen.*

**TGV-2010-1 | Zimmermann P, Alliger-Horn C, Wallner H, Barnett W, Meermann R (2010): Psychosoziale online-Beratung für Bundeswehrsoldaten mit einsatzbedingten psychischen Störungen. Trauma und Gewalt 4 (3), S. 242–249.**

*Die Analyse von 542 eingegangenen Telefonkontakten der Bundeswehr-PTBS-Hotline 0800 588 7957 zwischen Mai 2009 bis Juli 2011 zeigte, dass aktive Soldaten und Veteranen gefolgt von Familienangehörigen und Ehegatten die häufigsten Nutzer der Hotline darstellen. Die Nutzung des niedrigschwelligen Angebotes spricht dafür, dass Angehörige sich erheblich mit der Erkrankung von Soldaten auseinandersetzen und Hilfsangebote verstärkt nutzen. TGV-2011-1 | Gabriel U, Jacobsen T, Hauffa R, Zimmermann P, Kowalski J (2011): Evaluation des telefonischen Beratungsangebotes für Soldaten mit einsatzbedingten psychischen Belastungen und deren Angehörige. Wehrmedizinische Monatsschrift 55(10):228–230*

Derzeit laufen am Psychotraumazentrum Berlin verschiedene Projekte, die das verfügbare multimediale Spektrum bei positiver Evaluation deutlich erweitern werden. Zum einen wird die Psychotherapie posttraumatischer Belastungsstörungen durch sogenanntes Serious Gaming unterstützt. Die Teilnehmer führen zusätzlich zur Traumatherapie nach den Sitzungen computerbasierte Konzentrationsspiele durch, die den therapeutischen Verarbeitungseffekt anregen und verstärken sollen. Mit funktionellen MRT-Untersuchungen können etwaige Unterschiede zu einer Kontrollgruppe entdeckt werden, die Befunde werden voraussichtlich 2019 publiziert.

Übergreifend in Prävention und Therapie kommt eine seit Mitte 2016 neu auf dem Markt eingeführte App des Psycho-traumazentrums in Kooperation mit der Technischen Universität Dresden und der Universität der Bundeswehr in München zum Einsatz. Diese integriert verschiedene Informationsangebote mit übenden Ansätzen wie zum Beispiel Stimmungsbarometern und Entspannungstrainings. Auch hier sind Auswertungen in Vorbereitung.

### Diversifizierung

In einem Forschungsprojekt mit der UniBw München soll der Einsatz von digitalen Anwendungen in der Nachsorge traumatischer Ereignisse für Einsatzkräfte untersucht werden (ZEUS).

### Fazit

Innovative technologiegestützte Verfahren scheinen sich in der Unterstützung therapeutischer und präventiver Konzeptionen in der Bundeswehr zu bewähren, insbesondere angesichts hoher Stigmatisierungsängste bei Soldaten sowie zusätzlicher medialer Gestaltungsmöglichkeiten. Sie sollten weiterentwickelt und beforscht werden, beispielsweise könnte sich in der berufsbezogenen Rehabilitation einsatzbelasteter Soldaten eine weitere Einsatzmöglichkeit ergeben.

Als ein weiteres potentielles Anwendungsfeld könnte sich zukünftig ein größerer Stellenwert von Telemedizin bewähren, da im militärischen Kontext nicht selten ungünstige Rahmenbedingungen für therapeutische Ansätze gegeben sind, z. B. durch weite Entfernungen zwischen Therapeuten und Klienten. Sie können aber den persönlichen Kontakt zwischen Therapeuten und Patienten nicht ersetzen, sondern nur ergänzen.

**WIE DIE BUNDESWEHR BEI PTBS HILFT**

Betreuung & Fürsorge > PTBS-Hilfe

Jeder verarbeitet belastende Ereignisse anders. Aber manche Menschen tragen sie mit sich. Alpträume und Unruhe quälen sie. Typische Zeichen einer Posttraumatischen Belastungsstörung, die auch nach einem Auslandseinsatz auftreten kann. Die Bundeswehr lässt Betroffene nicht allein und begleitet sie, ihre Familien und Helfer auf dem Weg zur Genesung.

## PTBS ERKENNEN UND VERSTEHEN

Soldatinnen und Soldaten sind im Einsatz besonderen psychischen Belastungen ausgesetzt. Sie verlassen ihre gewohnte Umgebung, sind monatelang von Familie und Freunden getrennt und leben in einer unsicheren, oft gefährlichen Situation. Im schlimmsten Fall können solche Belastungen zu psychischen Erkrankungen, wie zum Beispiel PTBS, führen.

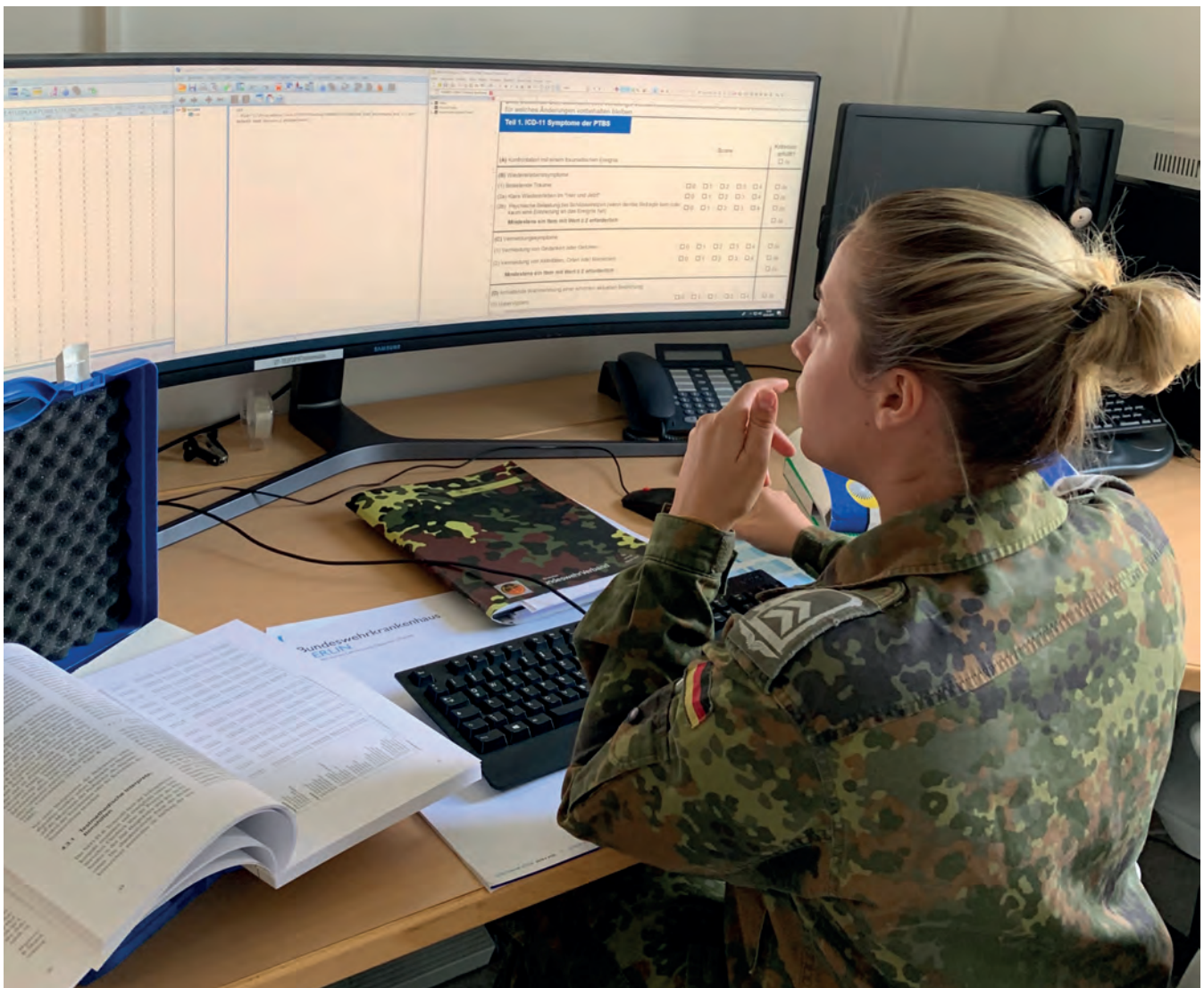
Quelle: Screenshot der Neuauflage der Webseite [www.ptbs-hilfe.de](http://www.ptbs-hilfe.de); Bundeswehr/Frank Eggen

## THEMA 6

# Schlussfolgerungen, Zukunftsaussichten und Forschungsausrichtung über 2020 hinaus

Leit-These:

Multiprofessionelle Forschung ermöglicht die Weiterentwicklung und kontinuierliche Optimierung der psychosozialen Versorgung in der Bundeswehr.



Quelle: Bundeswehrkrankenhaus Berlin/Heidi Dittmann-Leschkowski

Der Forschungsauftrag des Psychotraumazentrums der Bundeswehr (PTZ) ist darauf ausgerichtet, die psychosoziale Versorgungssituation von Angehörigen der Bundeswehr zu untersuchen und durch Forschungsergebnisse weiterzuentwickeln. In der jetzigen Aufstellung bündelt das PTZ für diesen Zweck klinische und wissenschaftliche Expertise. Der Auftrag des Zentrums besteht darin, die Bereiche der Prävention, Entstehung, Diagnostik, Behandlung und Nachsorge einsatzbedingter und nicht einsatzbedingter psychischer Erkrankungen durch multiprofessionelle wissenschaftliche Expertise und Einbezug von anderen dienstleistenden Versorgenden wie Sozialdienst, Psychologischem Dienst und Seelsorge kontinuierlich zu optimieren. Dabei soll ein direkter, unmittelbarer gesundheitlicher Nutzen für die betroffenen Soldaten und ihr psychosoziales Umfeld generiert werden. Aufgrund der multiprofessionellen Personalausstattung werden Auftragsleistungen seitens der Referate BMVg FüSK San 1 und FüSK San 3, P III 1 und P III 5 erfüllt.

Bestehende Fähigkeitslücken in der psychosozialen Versorgung sollen identifiziert und geschlossen werden. Dazu wird keine Grundlagenforschung sondern anwendungsnahe Forschung betrieben. Entwicklungsvorhaben werden im Rahmen der Sonderforschung selbst durchgeführt oder als Zuwendung maßgeblich begleitet. Die Bündelung von psychiatrischer und psychotherapeutischer Behandlung sowie klinisch orientierter, multiprofessioneller Forschung ist seit Gründung des Psychotraumazentrums der Leitsatz, der eine anwendungs- und patientenorientierte Weiterentwicklung der psychosozialen Fähigkeiten des Sanitätsdienstes und der Bundeswehr ermöglichen soll. Die nahe am Patienten stattfindende, an dessen Bedürfnissen orientierte Forschung soll eine rasche Translation von innovativen Forschungsprodukten in den klinischen Alltag bahnen. So konnte zum Beispiel in enger Zusammenarbeit mit Bundeswehr-Institutionen und der TU Dresden die umfangreichste Digital-Applikation für die Behandlungsunterstützung für psychisch erkrankte Bundeswehrangehörige und deren Familien innerhalb einer kurzen Entwicklungszeit direkt der Translation und Vermarktung zugeführt werden.

Die Forschungssektion des PTZ betreibt fortlaufende Registeruntersuchungen zum Inanspruchnahmeverhalten wehrpsychiatrischer Leistungen von Patienten mit einsatzbedingten psychischen Störungen sowie zu suizidalem Verhalten in der Bundeswehr (Suizidregister). Darüber hinaus werden Methoden zur Prävention und Behandlung sowie Betreuung psychisch-erkranktem Personals entwickelt. In Zusammenarbeit mit dem Psychologischen Dienst der Bundeswehr wurden Zukunftsprojekte wie die Blended-Learning-Plattform „CHARLY“ zur Prävention psychischer Belastungen und auch Methoden des Rahmenkonzepts „Psychische Fitness“ wissenschaftlich begleitet und im Auftrag des Psychologischen Dienstes evaluiert. Diversifizierung in andere Bereiche von Behörden mit Sicherheits- und Ordnungsaufgaben sind dabei möglich, so wird derzeit im Land Berlin das Programm „Charly BOS“ im Rahmen eines Forschungs- und Entwicklungsprogramms bei Polizei und Feuerwehr eingeführt. Das

PTZ ist mit nationalen Behörden mit Ordnungs- und Sicherheitsaufgaben (BOS) gerade aufgrund der regionalen Lage in der Bundeshauptstadt und der ähnlichen Bedrohungsszenarien eng vernetzt, so gelangen beispielsweise in den vergangenen Jahren Forschungsarbeiten zu den Auswirkungen von Terroranschlägen. Dabei liegt das primäre Interesse des PTZ darin, mögliche Ableitungen auf die Situation von militärischen Einsatzkräften z.B. im Bereich der Nachsorge potenziell traumatischer Einflüsse herzustellen.

Das Psychotraumazentrum ist in nationalen Arbeitsgruppen zur Leitlinien-Entwicklung für die Bereiche der Diagnostik und Behandlung psychoreaktiver Störungen sowie in Fachreferaten „Einsatzkräfte“ der Fachgesellschaften Deutsche Gesellschaft für Psychiatrie, Psychotherapie und Neurologie (DGPPN) sowie der Deutschsprachigen Gesellschaft für Psychotraumatologie (DeGPT) vertreten sowie in einigen NATO Research Task Groups integriert. Das Zentrum ist mit universitären (zum Beispiel Charité, Humboldt-Universität zu Berlin, FU Berlin, TU Dresden, LMU München, Med. Hochschule Hannover, Univ. Witten-Herdecke, Univ. Ulm, BwUniversität München, HSU Hamburg, UKE Hamburg) und außeruniversitären Forschungseinrichtungen vernetzt (Max-Planck-Institut für Bildungsforschung Berlin, Max-Planck-Institut für Psychiatrie München, ZMSBw, InstPrävMedBw).

**Der aktuelle Forschungs- und Entwicklungsplan sieht Schwerpunkte in den Forschungsjahren 2020-2025 in folgenden Themengebieten vor:**

Laufende Forschungsarbeiten zum Thema „Suizidalität in den Streitkräften“ zeigen, dass Suizidalität unmittelbar mit psychischen Erkrankungen, im Speziellen aus dem depressiven Formenkreis, einhergeht. Als Ableitung daraus soll im Forschungszeitraum das Projekt „Bündnis für psychische Gesundheit in der Bundeswehr“ mit einem mehrdimensionalen Ansatz für psychische Gesundheit sensibilisieren, Stigmatisierungseffekte abmildern sowie die Früherkennungs- und Behandlungsmöglichkeiten verbessern. Diese Intervention, die sich mit zielgruppenspezifischen Modulen an Betroffene, Angehörige, Führungskräfte aber auch Versorgende richtet, soll zudem in der Wirksamkeit evaluiert werden. Im Fokus stehen dabei entsprechende Fortbildungen und Lehrgänge für Truppenärzte, Angehörige des Sozialdienstes und des Psychologischen Dienstes sowie der Seelsorge. Führungskräfte sollen sensibilisiert und im Umgang mit Erkrankten trainiert werden. In der Zusammenschau sollen die Beteiligten mehr miteinander, aufeinander abgestimmt auf solche Herausforderungen reagieren.

Der darauf aufbauende langfristige Forschungsschwerpunkt „Integrierte Multi-professionelle Psychosoziale Versorgung“ soll 2019 gemeinsam mit den Bereichen Wehrmedizin, Psychologischer Dienst, Sozialdienst und Seelsorge erarbeitet werden. Mit diesem Projekt sollen die in der Bundeswehr hervorragenden Möglichkeiten der gemeinsamen psychosozialen Versorgung evaluiert und anwendungsnahe weiterentwickelt werden. Durch frühen Einbezug der zuständigen

Fachreferate des BMVg soll deren Forschungsbedarf unmittelbar und untereinander koordiniert berücksichtigt werden, so dass spezifische, aufeinander abgestimmte und wissenschaftlich-fundierte Produkte (zum Beispiel Manuale, Digitalanwendungen, Interventionen) für die benannten Fachdienste erarbeitet werden können. Mittelfristig ist eine qualitativ-quantitative Evaluation zu einer ersten Bedarfsfeststellung vorgesehen.

Im Hinblick der Suizidprävention sollen in Abstimmung mit NATO-Partnern Maßnahmen zur Sensibilisierung von Führungskräften und medizinischen sowie psychosozialen Versorgenden in Kooperation der NATO-Arbeitsgruppe „RTG HFM-277 Leadership Tools in Suicide Prevention“ erarbeitet werden. Weiterhin sieht der Fünfjahresplan die Fortsetzung des sogenannten Suizidregisters sowie die Erweiterung um historische Datenbestände vor.

Die Wiedereingliederung von Angehörigen der Streitkräfte mit psychischen Erkrankungen ist eine besondere Herausforderung, da diese Erkrankungen mit einem hohen Chronifizierungsrisiko einhergehen. Lange Zeiten der Dienstunfähigkeit können die Folge sein. Im Zeitraum 2020-2025 soll die Weiterentwicklung der Rehabilitationsbedingungen als eigener Schwerpunkt im Forschungsplan fokussiert werden. So sollen mittelfristig Maßnahmen im Rahmen eines poststationären Rehabilitationsmoduls entwickelt, adaptiert und auch regional realisiert werden. Eine begleitende, prospektive Evaluation der Wirksamkeit ist vorgesehen. In diesem Zusammenhang sollen auch Bedingungsfaktoren, sogenannte Prädiktoren, für ein gutes Rehabilitationsergebnis und eine frühe Reintegration in den Arbeitsalltag erarbeitet werden. Auch im Forschungsbereich „Rehabilitation“ ist ein multiprofessionelles Vorgehen und Einbezug aller psychosozial-versorgenden Dienste schon in der Studienplanung vorgesehen, da dieses Forschungsprodukt viele Dienste auch außerhalb der Wehrmedizin berührt.

In zwei anderen, bereits laufenden Projekten werden Wiedereingliederungsraten nach stationärer psychiatrischer Behandlung sowie mögliche Prädiktoren für eine erfolgreiche Wiedereingliederung untersucht.

Die Erfassung von Stressfolgen sowie Maßnahmen der Prävention sowie unmittelbaren Einsatznachsorgemaßnahmen soll als Forschungsschwerpunkt 2020-2025 wie in den Jahren zuvor bearbeitet werden. Mittelfristig sind Projekte wie eine Kohortenstudie zu Einsatzbelastungen bei Bundeswehrosoldaten geplant, die 2020 beginnen sollen. Ein weiteres mittelfristiges Forschungsziel ist dabei, Unterschiede in der Bedürfnislage hinsichtlich der Einsatznachsorge von zivilen und militärischen Einsatzkräften zu erfassen und ggf. berufsgruppenspezifische Einsatznachsorge-Methoden zu entwickeln. Als Kooperationspartner konnte die Berufsfeuerwehr Berlin, die Berufsfeuerwehr Köln, der Deutsche Feuerwehrverband sowie das Landeskriminalamt Berlin gewonnen werden.

Hinsichtlich der Methoden psychotherapeutischer Interventionen von einsatzbedingten Störungen sowie deren Wirksamkeit wurden in den vergangenen Jahren auch seitens des

PTZ einige Forschungsergebnisse publiziert. Spezifische traumatherapeutische Verfahren wie EMDR und IRRT aber auch begleitende Gruppenverfahren wurden evaluiert. Auf jüngsten Ergebnissen basierend wurden Therapiemodule zur Behandlung von moralischen Verletzungen manualisiert und publiziert. Im Forschungszeitraum 2020-2025 soll ein Fokus auf die Entwicklung und Wirksamkeitsprüfung von komplexertherapeutischen Verfahren wie Entspannungstechniken, bewegungstherapeutischen aber auch tiergestützten Maßnahmen gelegt werden, da hier empirische Untersuchungen gerade im deutschsprachigen Raum fehlen.

Als weiterer Schwerpunkt wird das Thema „Digitalisierung in der psychosozialen Versorgung“ erneut in das Forschungsprogramm aufgenommen. Die Entwicklung von therapieunterstützenden Anwendungen und Nutzung moderner Medien kann gerade im Bereich der Stigmatisierung eine wesentliche Schwellenabsenkung hin zu einer früheren Therapieaufnahme herbeiführen. Die Entwicklung von „smarten“, digitalen Medizinprodukten für Betroffene, Behandelnde und psychosozial Versorgende soll durch Usability- und Wirksamkeitsstudien untersucht werden. Mögliche Kooperationspartner werden dabei in der Bundeswehr als auch im zivilen Wissenschaftssektor gesehen. Weiterhin ist geplant, in Zusammenarbeit mit anderen staatlichen Einrichtungen (unter anderem mit dem Auswärtigen Amt) neue moderne Methoden wie das maschinelle Lernen und Nutzung möglicher „artificial intelligence“ sowohl in der Anwendungs- und Entwicklungsforschung (z.B. Smartphone-Applikationen) als auch als Auswertungsmethode in der Statistik zu erproben und im weiteren Verlauf auch anzuwenden. Daraus sollen als Beispiel Verfahren zur Risikoabschätzung von psychiatrischen Fallzahlen und zu Schweregraden unter bestimmten militärischen Szenarien abgeleitet werden können, um Leitungsinformationen durch Datenbankauswertungen bei Bedarf zeitnah erstellen zu können.

**Der aktuelle Forschungs- und Entwicklungsplan sieht zur Weiterentwicklung der Forschungsressourcen des PTZ in den Forschungsjahren 2020-2025 noch stärkere internationale und nationale Kooperationen vor.**

Die erfolgreich etablierten Kooperationen mit zahlreichen nationalen Kooperationspartnern zahlreicher Hochschulen sollen weiter verstärkt und noch breiter gefächert werden. Für den Forschungszeitraum 2020-2025 ist zudem eine noch stärkere Vernetzung mit Bundeswehr-eigenen Institutionen wie den Bundeswehr-Universitäten, dem Zentrum für Sozialwissenschaften und Militärgeschichte der Bundeswehr, dem Zentrum für Innere Führung und dem InstPrävMed sowie den Fachreferaten der Wehrpsychologie und des Sozialdienstes wie auch der Militärseelsorge mit EKA und KMBA vorgesehen.

Darüber hinaus wird durch den Ausbau bisheriger NATO-Kooperationen ein internationaler wissenschaftlich-militärischer Forschungsverbund angestrebt. Wesentliche Perspektive in der Ausrichtung der Forschungssektion des Psychotraumazentrums soll somit die Internationalisierung

der Projekte hin zu multinationalen Multi-Center-Studien einnehmen. Die Mitarbeit in internationalen NATO-Arbeitsgruppen (wie den HFM-RTG) ermöglicht, über den eigenen Horizont hinaus an dem Wissen anderer Nationen aktiv teilzuhaben und gemeinsame Projekte zu entwickeln, wie dies im vergangenen Forschungsplan 2015-2020 mit RTG HFM-277 Leadership Tools in Suicide Prevention sowie RTG HFM-258 The Impact of Military Life on Children of Military Families umgesetzt worden ist. Im Forschungszeitraum 2020-2025 ist die Anregung bzw. Teilnahme anderer „Research Task Groups“ seitens PTZ fokussiert.

Auch außerhalb der Streitkräfte sollen Vernetzungen mit internationalen, zivilen Instituten im Forschungszeitraum 2020-2025 verstärkt werden. Im Forschungszeitraum 2015-2020 wurden Kooperationen mit international renommierten Institutionen wie dem King's College London etabliert. Gemeinsame Forschungsarbeiten und Publikationen ermöglichen auch die Bearbeitung von Forschungsfragen mit binationalen Perspektiven. Im Forschungsplan 2020-2025 sollen diese Anstrengungen gerade innerhalb Europas ausgebaut werden, um auch den politischen Forderungen weitreichend gerecht zu werden. Durch gemeinsame Nutzung von Datensätzen können in Zukunft gerade die fortlaufenden Registerstudien hinsichtlich der Epidemiologie psychischer Erkrankungen, des Inanspruchnahmeverhaltens psychiatrischer, psychotherapeutischer und psychosozialer Angebote oder der Risikokonstellationen von Suizidalität profitieren und an Aussagekraft gewinnen. In diesem Zusammenhang soll die Mitarbeit in den sogenannten „Research Task Groups“ der NATO in mehreren Bereichen des PTZ umgesetzt bzw. auch zukünftig ausgeweitet werden. Erfolgreiche Programme und Methoden anderer Nationen können durchaus adaptiert und implementiert werden, was vor allem Entwicklungszeit und -kosten reduzieren kann.

Als Beispiel kann hier das sogenannte MAGEN-Programm als ein Instrument der Gesundheitsvorsorge zur Selbst- und Kameradenhilfe in psychischen Hochstress-Situationen dienen, das ursprünglich von den Israel Defense Forces entwickelt worden ist. Auch Briten und Niederländer sowie die USA haben ein ähnliches Programm in Teilen als Truppenausbildung übernommen. 2016 begann das Psychotraumazentrum in einem Pilotprojekt, ein an MAGEN angelehntes Curriculum auszubilden und zu evaluieren. Im Forschungszeitraum 2020-2025 sollen die Ergebnisse der deutschen MAGEN-Adaption BESSER veröffentlicht werden.

#### Fazit:

In den folgenden Jahren werden nun noch deutlicher neben der posttraumatischen Belastungsstörung die anderen psychischen Störungen wie Angststörungen, Suchtmittelgebrauchsstörungen, depressive Störungen in den Forschungsfokus rücken müssen. Diese Krankheitsbilder treten häufig parallel oder konsekutiv-bedingend als sogenannte komorbide Störungen auf und können zudem auch direkt auf traumatische Ereignisse zurückgehen.

Gerade im Hinblick auf die langfristige psychische Gesundheit der Soldaten werden in den nächsten Jahren niedrigschwellige Interventionen entwickelt und evaluiert, die es erlauben, dass ein früher, unkomplizierter und vor allem kompetenter Behandlungsbeginn bereits im präklinischen allgemeinmedizinischen Versorgungssegment initiiert wird. Auch die Evaluationen der komplementärtherapeutischen Maßnahmen sind erforderlich, um deren Wirksamkeit empirisch belegen zu können. Mit mehreren Projekten soll die medizinische Rehabilitation, die arbeits- und dienstspezifische Rehabilitation sowie die dienstliche Wiedereingliederung untersucht und optimiert werden.

Zudem sollten die psychotherapeutischen Behandlungsangebote in Bundeswehreinrichtungen, aber auch bei zivilen Kooperationspartnern, zunehmend Epiphänomene der Verarbeitung von Auslandseinsätzen sowie auch Entwicklung von Methoden der psychiatrischen bzw. psychosozialen Versorgung in den Fokus rücken. Dazu gehört der Wandel von Wertorientierungen, aber auch Schuldgefühle und Scham, die eng mit psychiatrischer Symptombildung assoziiert sind. Dabei sind eine interdisziplinäre Zusammenarbeit und eine entsprechende Begleitforschung unerlässlich.

Auch im Bereich der Interventionen ist mittel- und langfristig eine internationale Vernetzung notwendig, da auch hier von den Erfahrungen untereinander gelernt werden kann und ggf. einheitliche NATO-Standards hinsichtlich Behandlung und Forschung erreicht werden können.

# MENTAL HEALTH FOR ARMED FORCES ON OPERATIONS

*Trends in Research and Development 2010 - 2025*



Source: Bundeswehr/Jana Neumann

# Psychotrauma Centre of the Bundeswehr, 1st bilingual edition, Berlin, 2020

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The attached bibliography presents a selection of publications from the field of military psychiatry. This list of publications is by no means exhaustive.

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# INTRODUCTION

## Central thesis:

With an increasingly long history of operations abroad, the Bundeswehr urgently requires a preventive and therapeutic strategy that integrates all areas of psychosocial care.

The study and treatment of psychological disorders associated with military action and operations has a long tradition. Descriptions of emotional responses to combat stress and their psychosocial ramifications date back as far as classical antiquity. One example is Homer's description of Achilles' rage outside Troy.

Reactions such as shell shock on the Western Front in World War I and gastric ailments among German soldiers in World War II occurred in such numbers that available medical and logistical capacities were stretched to their limits.

Scientific studies of wars of the modern era, such as the Vietnam War or the Gulf Wars, have also concluded that combat stress results in various psychological responses and disorders (e.g. Gulf War syndrome).

For many years after World War II, psychiatry in the Bundeswehr was guided by the principles of diagnosis and of assessing soldiers' fitness for military service. This changed when missions abroad commenced in the early 1990s. The number of cases of mental illness increased, at first slowly, then more and more noticeably from the early 2000s. These cases were directly related to deployments abroad.

As a result of this increase, it became necessary to substantially enhance the therapeutic concepts employed at Bundeswehr hospitals and to develop new treatment options. The main focus has been on post-traumatic stress disorder.

It soon became clear that the experiences of other armed forces in earlier war scenarios were only somewhat applicable to the Bundeswehr, which is a force on operations as well as a parliamentary army based on the guiding principle of the citizen in uniform. Thus there arose a need for innovative scientific expertise that could inform and drive the necessary developments and changes. To this end, the German Bundestag decided in 2008 to create a Psychotrauma Centre to meet these challenges. The Bundeswehr quickly provided

the personnel and material needed to establish the initial capability, which was further developed in the following years.

The Psychotrauma Centre of the Bundeswehr was established as part of the Bundeswehr Hospital Berlin. In its current structure it combines clinical and scientific expertise. The centre is the only one of its kind in Germany. Its purpose is to advance the knowledge of the origin, diagnosis, prevention, treatment and aftercare of psychological disorders – whether related to deployments or not – through scientific projects and to generate a direct health benefit for affected soldiers and their psychosocial environment. Cooperation with other institutions and organisational elements of the Bundeswehr is essential, as is providing them with advice and support in accomplishing their missions. Positive examples of cooperation include direct cooperation within military structures as well as the cooperation of military psychiatry and the Psychotrauma Centre with the ASEM pastoral care project of the Office of the Protestant Church for the Bundeswehr and with the Soldiers and Veterans Foundation of the German Bundeswehr Association.

The first important project of the Psychotrauma Centre started in 2009. A large-scale and high-quality prevalence study on mental illness in the Bundeswehr was commenced and conducted over the following years in cooperation with the Technical University of Dresden. This study produced scientifically sound data on the disease burden of mental disorders and the conditions under which they arise. This data became the main basis for further developments and projects in psychosocial care in the Bundeswehr. A 12-month prevalence of 20-23% of soldiers experiencing mental illness was the wake-up call needed to develop preventive and therapeutic countermeasures.

Some of these measures will be presented in this introduction and explored in more detail over the following chapters.

One of the preventive research fields is the ongoing and very successful cooperation of the Psychotrauma Centre with the Bundeswehr Psychological Service. The effectiveness of the latter's computer program CHARLY was assessed in a longitudinal controlled study. Since CHARLY was shown to be superior to standard preventive measures before deployment abroad, it has been adopted as part of standard procedure in the Medical Service and will be extended to other branches of service. The software has also been adapted for other authorities that carry out public order and security tasks (Charly BOS) and is currently being analysed in projects with fire services and the police.

Psychiatric-psychotherapeutic treatment and especially the treatment of psychotrauma was increasingly established in Bundeswehr hospitals beginning in the mid-1990s. It was unclear, however, whether treatments taken from the civilian sector had a positive and sustainable effect on soldiers. Several controlled trials at the Psychotrauma Centre proved that inpatient treatment had been clinically effective in up to 80% of soldiers, which was a significantly greater percentage than in the untreated control group. In 2015, this research was honoured with an award by the Deutschsprachige Gesellschaft für Psychotraumatologie, an association for psychotraumatology in German-speaking countries. Despite these successes of trauma therapy in Bundeswehr facilities, many patients still experience residual symptoms. This is why the Psychotrauma Centre of the Bundeswehr continues to search for innovative therapeutic approaches in order to address symptoms that show a limited response to established treatments. Serious games are one example of an additional therapeutic module in trauma therapy. Initial studies have shown that the use of such games is beneficial.

Another project includes integrative, interdisciplinary therapeutic approaches to managing often profoundly disturbing and traumatic experiences made on deployments. In close cooperation with the military chaplaincy, especially the ASEM pastoral care project of the Office of the Protestant Church, a therapeutic approach was conceived that puts personal values and the moral injury of deployment soldiers at the heart of treatment. Initial studies have shown a close connection between these injuries and the development of psychiatric symptoms. Therapy based on morals and values is perceived by patients as very helpful, and current scientific evaluations show encouraging results.

Mental illness has a significant impact on the social environment of those affected. Patients' families thus play a vital role in the healing process. That is why the therapeutic and scientific work of the Psychotrauma Centre also focuses on studying the stress that partners and children of traumatised

soldiers experience as well as on developing treatment options tailored to them, including animal-assisted methods. This work has produced not only a number of scientific studies but also a book for the children of traumatised soldiers and several information brochures. The publications of the Psychotrauma Centre are available free of charge and are in considerable demand among soldiers.

Recently, the clinical and scientific interests of the Psychotrauma Centre have been expanding to include technology-based methods and techniques. In mid-2016 the first scientifically validated German-language app for soldiers with psychological trauma was developed and released. The app provides psychoeducation and guidance on self-help (e.g. tips on how to respond in an emergency, relaxation techniques, etc.) and will be constantly developed and improved by the Psychotrauma Centre in cooperation with the Technical University of Dresden and the Bundeswehr University of Munich. In addition, soldiers are offered services provided by the Psychotrauma Centre such as online counselling and internet-based forms of psychotherapy. Digital applications such as the CoachPTSD app and specific group programmes are also designed to help to remove the stigma that comes with mental illness.

There is a need, particularly at present, to answer questions such as how mental illness can be prevented from becoming chronic and how we can ensure an optimum balance between rehabilitation measures. To this end, research initiatives have been intensified in the field of rehabilitation and reintegration in cooperation with other psychosocial services of the Bundeswehr and the regional medical treatment facilities.

In recent years, the Psychotrauma Centre of the Bundeswehr has developed into a well-connected central point of contact and a competence centre for mental illness, whether related to deployments abroad or not. This was achieved in close cooperation with the psychiatric departments of Bundeswehr hospitals and medical support centres as well as with the psychosocial services of the Bundeswehr. Its great appeal is also evident in many civilian and military lecture events and conferences both in Germany and abroad. This is underscored by the forum for further training and discussion, which is hosted every year in early December to discuss new trends in psychotraumatology with a broad military and civilian expert audience.

We must nevertheless now maintain and further develop military psychiatry in the Bundeswehr in order to consolidate the advances already made. The results of the previously mentioned study of unreported cases (underreporting

study) suggest that, as a result of deployments abroad, thousands of active and retired soldiers of the Bundeswehr have developed clinically significant mental health problems that remain untreated.

Visits to Bundeswehr psychiatric facilities are thus likely to increase over the next years. Given the level of psychiatric expertise available in the military, these facilities are unrivalled in Germany, and civilian measures can be merely supplementary. An important challenge will thus be the sustainable development and appropriate adaptation of the personnel and material structures of existing treatment facilities at Bundeswehr hospitals and psychiatric specialty clinics. This process will continue to be supported by the scientific expertise of the Psychotrauma Centre. This support should include large-scale international civil-military cooperation projects. One such example is the project recently initiated at the Psychotrauma Centre to prevent depression and suicide. The goal is to prevent a rise in depressive disorders, which are sometimes associated with suicidal tendencies.

The main goal of these activities is to improve the long-term quality of life and daily stability of soldiers who have sustained psychological injury while serving their country.

This reader sums up key research findings and services provided by German military psychiatry and in particular the Psychotrauma Centre with the aim of providing a condensed account of the progress made in recent years based on selected examples. Conclusions will also be drawn from the results of finished projects regarding necessary future measures and structural changes. The reader will hopefully encourage others to become actively involved in the extensive and constructive process of continuously improving psychosocial care for German soldiers.

## Conclusions

Psychosocial care in the Bundeswehr has undergone extensive changes in the last 20 years. One of the most significant examples is the establishment and further development of the Psychotrauma Centre as a centre of scientific excellence. Various research projects in which the Psychotrauma Centre has been involved have contributed to an extensive set of data, which in turn has stimulated further developments in the diagnosis, prevention, therapy and evaluation of mental disorders in the German armed forces.

## *Please note:*

*The individual chapters are designed to be self-explanatory and can be read on their own. For this reason, there may be thematic overlap between chapters. For reasons of clarity, not all recent research articles in the Bundeswehr have been included in the main text. An anthology of selected abstracts can be found in the appendix.*

*In the interest of improved readability, only masculine forms have been used in the following text. All pronouns and designations refer in equal measure to both sexes.*

## TOPIC 1

# Mental health in Bundeswehr soldiers since the start of missions abroad: Trends and risk profiles

### Central theses:

- Deployments abroad affect the mental health of many soldiers
- Numerous factors play a part, not least personal values
- Providing care to vulnerable soldiers is a leadership task



For the Bundeswehr, participation in international missions in the various crisis regions worldwide has brought about profound changes in terms of the psychological responses of deployed soldiers and consequently the significance of mental illness in the medical care system.

Epidemiological studies conducted between 2009 and 2013 of soldiers deployed to Afghanistan and a control group of soldiers who had never been deployed (underreporting study) produced the first conclusive results. More than 20% of all soldiers with or without deployment experience were diagnosed with a mental illness (deployed soldiers: affective disorders (e.g. depression) 7.8%; PTSD 2.9%; anxiety disorders 10.8%; somatoform disorders 2.5%; alcohol abuse and addiction 3.6%).

*Deployed soldiers run a higher risk of experiencing combat-related or other traumatic events. The 12-month prevalence of PTSD (OR: 2.4), anxiety (OR: 1.4), and alcohol abuse (OR: 1.9) was much higher among them than among soldiers without deployment experience. Pre-existing mental disorders increased the risk significantly. GES-2013-1 | Wittchen H, Schönfeld S, Kirschbaum C, Trautmann S, Thurau C, Siegert J, Höfler M, Hauffa R, Zimmermann P (2013): Rates of Mental Disorders Among German Soldiers Deployed to Afghanistan: Increased Risk of PTSD or of Mental Disorders In Journal of Depression and Anxiety 2(1):1-7 DOI: 10.4172/2167-1044.1000133*

According to recent surveys, mental illness is also widespread among Germany's civilian population. Those disorders, however, differ from those experienced by military personnel. It should be noted that soldiers must face exceptional challenges in terms of mental stability due to the demanding nature of their responsibilities.

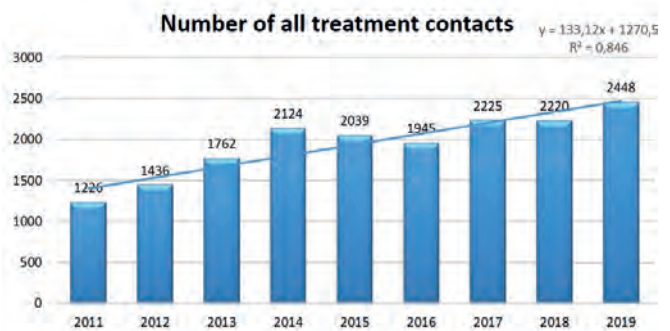
*The 12-month prevalence of psychogenic disorders in soldiers with deployment experience is somewhat similar to that in a civilian sample. It is lower in soldiers with no history of deployment. Significant differences between military personnel and civilians regarding the prevalence of individual diagnoses were only apparent for alcohol and nicotine dependence, with lower values in both military samples. Elevated rates of panic, agoraphobia and PTSD were observed in deployed soldiers with high combat exposure. GES-2016-2 | Trautmann S, Goodwin L, Höfler M, Jacobi F, Strehle J, Zimmermann P, Wittchen H (2016): Prevalence and severity of mental disorders in military personnel: a standardised comparison with civilians. Epidemiology and Psychiatric Sciences (18):1-10 DOI: 10.1017/S204579601600024X*

These changing rates of prevalence are not only evident in epidemiological field studies but also in the health care systems of Bundeswehr hospitals.

*An evaluation of Bundeswehr statistics on hospitals and general practitioners showed that significantly more Bundeswehr soldiers sought inpatient or outpatient treatment for mental disorders in 2006 than in 2000. The differences*

*were mainly due to a rise in acute stress reactions (F43). The proportion of psychiatric patients, especially those with acute stress reactions, among the total number of inpatients treated at Bundeswehr hospitals also increased. GES-2009-1 | Zimmermann P, Hahne HH, Ströhle A (2009): Psychiatrische Erkrankungen bei Bundeswehrsoldaten. Veränderungen in der Inanspruchnahme medizinischer Versorgungssysteme im Vergleich der Jahre 2000 und 2006. Trauma und Gewalt 3(4):316-327*

Since 2010, the Psychotrauma Centre has kept operational statistics on mental illness in the Bundeswehr. They showed a considerable increase over several years in the number of patients seeking treatment for mental disorders at psychiatric facilities of the Bundeswehr. Since 2014, however, the statistics have plateaued at a high level. This development is partly due to the limited capacities of Bundeswehr hospitals. As a result, the needs of soldiers with deployment-related disorders compete for available resources with those of their fellow soldiers with other, non-deployment-related symptoms.



Source: Psychotrauma Centre deployment statistics  
The number of patients at military psychiatric facilities and the number of treatment contacts are continuously increasing (trend analysis (R<sup>2</sup>=84,6%)).

*Military missions abroad carry a high risk of psychological traumatisation. Data from 2010 to 2011 show that an increasing number of soldiers made initial contact with psychiatric and psychotherapeutic services after their return from deployment. Particularly the increase in the number of female soldiers first presenting with symptoms of deployment-related stress is notable. The share of Kosovo returnees was greater than that of soldiers returning from Afghanistan. Most patients first seeking help were diagnosed with a stress reaction, with affective disorders being the second most common diagnosis. Findings suggest that the increase in incidence is specific to gender and area of deployment.*

**GES-2012-3 | Kowalski J, Hauffa R, Jacobs H, Höllmer H, Gerber W, Zimmermann P (2012): Einsatzbedingte Belastungen bei Soldaten der Bundeswehr Inanspruchnahme psychiatrisch-psychotherapeutischer Behandlung. Deutsches Ärzteblatt International 109(35-36):569-575 DOI: 10.3238/arztebl.2012.0569.**

On missions, too, surveys were conducted on the utilisation of the services provided by deployed psychiatrists until 2014.

These surveys revealed a shift in disorders diagnosed between 2009 and 2012. As hostilities decreased, so did diagnoses of acute stress reaction and post-traumatic stress disorder, while the number of cases of adjustment disorder due to work-related or personal conflicts increased.

*A comparison of deployment-related psychiatric diagnoses in the years 2009 and 2011/12 revealed a significantly higher occurrence of acute stress disorder in 2009, while in 2011/12 there were a greater number of cases of adjustment disorders. This diagnostic discrepancy can hypothetically be traced back to the different kinds of stressors the soldiers were facing during their deployment. GES-2012-7 | Ungerer J, Weeke, A, Zimmermann P, Jenuwein M, Petermann F, Kowalski J (2013): Akute psychische Störungen deutscher Soldatinnen und Soldaten in Afghanistan. Zeitschrift für Psychiatrie, Psychologie und Psychotherapie (2013), 61, pp. 273-277. DOI: 10.1024/1661-4747/a000170.*

A more recent study confirmed this trend. It noted a significant increase in depressive symptoms and sleep disorders, but not in PTSD, in soldiers on deployment.

*In a prospective study comparing 118 soldiers deployed to Afghanistan with a non-deployed control group (N=146), the former group was found to experience increased depressive symptoms and daytime sleepiness and reduced quality of sleep. The most important predictor of poor quality of sleep during deployment was impaired quality of sleep before deployment. The number of soldiers with impaired sleep quality decreased significantly after deployment. Teaching techniques to improve sleep before deployment could presumably improve the quality of sleep during deployment. GES-2017-1 | Danker-Hopfe H, Sauter C, Kowalski JT, Kropp S, Ströhle A, Wesemann U, Zimmermann P (2017): Sleep quality of German soldiers before, during and after deployment in Afghanistan—a prospective study. Journal of Sleep Research 26(3):353-363 DOI: 10.1111/jsr. 12522.*

Increased rates of nicotine dependence during deployment, as was found to be the case in a cohort study of combat forces, is highly relevant in terms of health policy.

*A comparison between the nicotine consumption of a mechanised infantry battalion deployed to Afghanistan and one stationed in Germany showed tobacco dependence to be significantly increased in the deployed group. This increase can be attributed to the circumstances and burdens specific to deployment that the group experienced. GES-2017-7 | Wesemann U, Schura R, Kowalski J, Kropp S, Danker-Hopfe H, Rau H, Ströhle A, Thiele J, Zimmermann P (2015): Association of Deployment and Tobacco Dependence among Soldiers. Gesundheitswesen 2015 Oct 22. DOI: <http://dx.DOI.org/10.1055/s-0035-1559707>.*

Owing to the considerable prevalence of mental illness among soldiers, one research area of the Psychotrauma Centre focuses on risk and protection factors. The Bundeswehr

prevalence study (underreporting study) has already identified pre-existing mental health problems, the number of experienced stressors, lack of social support and difficulties in regulating emotion as relevant predictors.

*Using standardised diagnostic interviews (CIDI) with integrated questionnaires, 358 male soldiers were examined before and 12 months after their deployment for risk factors of PTSD, depression and anxiety disorders. Stressful experiences, a lack of social support and difficulties in emotion regulation were significant risk factors, especially with regard to later PTSD symptoms. GES-2015-5 | Trautmann S, Schoenfeld S, Heinrich A, Schafer J, Zimmermann P, Wittchen H (2015): Risk factors for common mental disorders in the context of military deployment: a longitudinal study. European Psychiatry Vol. 30, p 303 DOI: 10.1016/S0924-9338(15)30244-3*

Coping with the everyday stress of military service in Germany or abroad and the level of training associated with that service appear to be important factors that, among deployed members of the Special Forces Command for instance, led to lower stress levels.

*Special forces soldiers deployed abroad experience less chronic stress than their peers serving in Germany. Deployment is considered a challenge, and the intense operational training that such soldiers have undergone could have a preventive effect under field conditions. GES-2015-3 | Ungerer J, Kowalski J, Kreim G, Hauffa R, Kropp S, Zimmermann P (2015): Chronischer Stress bei Spezialkräften der Bundeswehr. Unterschiedliches Stresserleben bei Kommandosoldaten im alltäglichen Dienst und Auslandseinsatz. Trauma und Gewalt 9(3):236-243*

Signs in the risk profile also point towards individual factors. During clinical treatment, traumatised soldiers in leadership positions (officers) reported fewer trauma symptoms (intrusions) than fellow service members with less responsibility.

*A study of 74 soldiers treated for PTSD in inpatient or outpatient settings analysed correlations between the severity of PTSD at the beginning of treatment, symptom clusters and psychosocial parameters. Soldiers with deployment-related PTSD experienced significantly more hyperarousal than soldiers with PTSD unrelated to deployment. Trauma symptoms such as intrusive thoughts were significantly less pronounced in soldiers in leadership positions than in soldiers from other ranks. In soldiers with delayed onset of PTSD, overall severity and intrusive thoughts were also less pronounced.*

**GES-2012-7 | Jenuwein M, Zimmermann P, Ungerer J, Fuchs S, Beudt S, Jacobsen T, Alliger-Horn C, Gerber WD, Niederberger U, Petermann F, Kowalski J (2012): Zum Schweregrad der Posttraumatischen Belastungsstörung im militärischen Kontext. Zeitschrift für Psychiatrie, Psychologie und Psychotherapie (2012), 60, pp. 309- 314. DOI: 10.1024/1661-4747/a000131.**

Soldiers repatriated to Germany because they cannot cope with the operational environment for health reasons are a particularly important target group of risk analyses.

*A comparison between a questionnaire-based survey of ISAF soldiers and the medical records of soldiers from the same contingent who were repatriated for mental health reasons showed that the risk of repatriation varied among those soldiers. Rank and file soldiers under the age of 26 who had participated in combat as well as soldiers deployed to Kunduz were at a particularly high risk.* **GES-2015-2** | Zimmermann P, Seiffert A, Herr K, Radunz N, Leonhard R, Gallinat J, Heß J (2015): Risk Factors for Mental Health Aeromedical Evacuation Among German Armed Forces Soldiers Deployed to Afghanistan. *Military Behavioral Health* 3(1):23-28. DOI: 10.1080/21635781.2014.995247.

### **The influence of values and morals**

Furthermore, the personal values and moral standards of soldiers seem to influence the frequency and severity of mental illness in the military context. During assignment abroad, soldiers may experience things that conflict with their deeply held values and standards. This can cause moral injury to develop alongside mental disorders.

*A questionnaire-based study of soldiers returning from deployment showed that personal values of soldiers (especially hedonism, benevolence and universalism) had a significant effect on the probability and severity of PTSD and other psychological symptoms after deployment. These findings could contribute to the further development of therapeutic approaches.* **GES-2014-4** | Zimmermann P, Firnkes S, Kowalski J, Backus J, Siegel S, Willmund G, Maercker A (2014): Personal values in soldiers after military deployment: associations with mental health and resilience. *European Journal of Psychotraumatology* 5:1-9. DOI: 10.3402/ejpt.v5.22939.

*Personal values of soldiers have an impact on the severity of alcohol dependence and should be given more weight in the diagnosis and therapy of alcohol disorders. In a study of soldiers receiving inpatient treatment for alcohol dependence, the value type of hedonism was found to have a significant positive association with symptom severity, while that of stimulation was found to be negatively associated. Confidence in abstinence increased significantly during therapy, with a positive influence of tradition on treatment outcome.* **GES-2015-11** | Zimmermann P, Kahn C, Alliger-Horn C, Willmund G, Hellenthal A, Jaeckel R, Schomerus G, Wesemann U (2015): Assoziation von Werteorientierungen mit der Schwere einer Alkoholabhängigkeit bei Soldaten in qualifizierter Entzugsbehandlung. *Nervenheilkunde* 10:803-808

*Moral injury plays an important role in the pathogenesis of mental disorders after stressful experiences during deployment abroad. Combat experiences involving civilians seem to have a particularly strong effect on the mental health of military personnel of the German armed forces. This effect seems to be mediated by the construct of moral injury.*

**GES-2017-2** | Hellenthal A, Zimmermann P, Willmund G, Lovinusz A, Fiebig R, Maercker A, Alliger-Horn C (2017): Einsatzenerlebnisse, Moralische Verletzungen, Werte und psychische Erkrankungen bei Einsatzsoldaten der Bundeswehr. *Verhaltenstherapie* (9/2017), published online. DOI: 10.1159/000470848

### **Conclusions**

The data collected on risk profiles and development trends of mental disorders among deployed soldiers suggests that participation in missions abroad often has a negative impact on the mental health of soldiers. Specific groups at risk of developing a mental illness on deployment can be identified. The outlined risk profiles should primarily be communicated to leaders in the armed services and the Medical Service in order to provide certain vulnerable groups with specialised care before, during and after deployment, for instance in the form of structured preventive measures (see also Topic 3). Those measures should focus on mental stress in the narrower sense but should also take into consideration broader dimensions of human experience such as personal values. One option could be specific moral-ethical training.



## Topic 2

# Changes in brain structure and physiology in the context of psychological trauma

### Central thesis:

Studies of physiological parameters in soldiers with deployment-related trauma have verified the objective, physical component of psychological disorders. These findings show how seriously these disorders should be taken in the Bundeswehr.



Source: Bundeswehr/Jonas Weber

In recent years, a number of studies in the Bundeswehr have focused on physiological and structural changes of the brain as well as hormonal changes after traumatic experiences. Post-traumatic disorders were shown to extensively affect major regulatory processes of the human body. In some cases it was even possible to visualise the impact with medical imaging procedures. Among other things, post-traumatic disorders are associated with a dysregulation of various stress hormone systems, particularly noradrenaline and cortisol.

**With effective pharmacologic and psychotherapeutic treatment, such changes are often reversible.**

The development of disorders left untreated in the long term, on the other hand, explains why health problems such as PTSD are often associated with an increased risk of cardiovascular or metabolic disease and ultimately with an increased mortality rate.

Initial studies of this issue have been conducted at the Psychotrauma Centre and suggest that heart rate variability declines considerably in soldiers with post-traumatic stress disorder as well as general work-related stress. In the course of psychotherapy, however, cardiac activity can significantly improve again.

*PTSD is associated with comprehensive disruption of various physiological regulation mechanisms that could be measured with the parameters of heart rate variability (HRV). A systematic review showed a correlation between PTSD and reduced HRV. HRV could therefore be a potential marker for disorders and could complement clinical diagnosis and follow-up in patients with PTSD.* **PHY-2015-5** | Sammito S, Thielmann B, Zimmermann P, Böckelmann I (2015): Influence of Post-Traumatic-Stress-Disorder on Heart Rate Variability as Marker of the Autonomic Nervous System: A Systematic Review. *Fortschritte der Neurologie Psychiatrie* 83(1):30-7. DOI: 10.1055/s-0034-1398779

*A first cross-sectional comparison of HRV parameters of Bundeswehr soldiers with and without deployment-related disorders suggests that HRV, especially SDNN, can be used as an objective parameter of stress in different work-related forms of stress and for measuring the severity of symptoms in PTSD patients.* **Dissertation (submitted)** | Paus F (2019): Die Herzratenvariabilität (HRV) als Marker für Stressbelastung und Symptomlast bei Posttraumatischer Belastungsstörung (PTBS) im militärischen Kontext

It became evident that there are similar correlations for the hormone TNF-alpha.

*In the search for humoral predictors of the severity and course of PTSD, TNF- $\alpha$  serum concentration and its soluble receptors as well as ethnicity, age and BMI as influencing variables have to be taken into account.* **PHY-2016-1** | Himmerich H, Wolf J, Zimmermann P, Bühler A, Holdt L, Teupser D, Kirkby K, Willmund G, Wesemann U (2016): Serum Con-

centrations of Tumor Necrosis Factor- $\alpha$  and its Soluble Receptors in Soldiers with and without Combat-related Post-traumatic Stress Disorder: Influence of Age and Body Mass Index. *Chinese Medical Journal (Engl)* 129(6):751-752. DOI: 10.4103/0366-6999.178039

*Psychiatric treatment is associated with changes in serum concentrations of TNF- $\alpha$  and its soluble receptors (sTNF-R) p55 and p75. TNF- $\alpha$  concentration increases under the influence of treatment while levels of sTNF-R p55 and sTNF-R p75 decrease significantly. This suggests that both specific inpatient psychotherapy and non-specific supportive outpatient treatment for PTSD are associated with changes in the TNF- $\alpha$  system. This may represent an immunological effect of psychotherapy.* **PHY-2016-3** | Himmerich H, Willmund G, Zimmermann P, Wolf J, Bühler A, Kirkby K, Dalton B, Holdt L, Teupser D, Wesemann U (2016): Serum concentrations of TNF- $\alpha$  and its soluble receptors during psychotherapy in German soldiers suffering from combat-related PTSD. *Psychiatria Danubina* 28(3):293-298



Source: Bundeswehr/Sebastian Wilke

In the Bundeswehr underreporting study, hair cortisol concentrations were found to be correlated with the development of deployment-related post-traumatic symptoms.

*A study of soldiers before and 12 months after deployment showed that low hair cortisol concentrations at the beginning of deployment (which suggest previous traumatic stress exposure) can be a marker for subsequent development of PTSD upon renewed trauma exposure.*

**PUBLICATION** | Stedte-Schmiedgen S, Stalder T, Schönfeld S, Wittchen H, Trautmann S, Alexander N, Miller R, Kirschbaum C (2015): Hair cortisol concentrations and cortisol stress reactivity predict PTSD symptom increase after trauma exposure during military deployment. *Psychoneuroendocrinology* (59): 123-33 DOI: 10.1016/j.psyneuen.2015.05.007

The cerebral structure and metabolism in different brain regions can be analysed with functional MRI. In patients with severe symptoms of post-traumatic stress disorders, there were significant changes in the neurotransmitters GABA and

glutamate in brain regions associated with emotion regulation.

*A study comparing soldiers diagnosed with deployment-related PTSD with healthy soldiers who had been exposed to trauma showed that in all subjects glutamate levels increased significantly with the severity of combat-related stress and overall stress. In addition, the severity of PTSD symptoms had a significant positive association with GABA concentration.* **Dissertation** | Labuhn E (2017): Auswirkungen einsatzbedingter psychischer Belastungsniveaus auf die Aktivierung des Anterioren Cingulum bei Bundeswehresoldaten mit und ohne Posttraumatische Belastungsstörung.

Deployment duration seems to affect the extent of cerebral changes. With an increasing total number of deployment days, smaller brain volumes (associated with damage) were observed in the prefrontal cortex as well as in the anterior cingulate cortex.

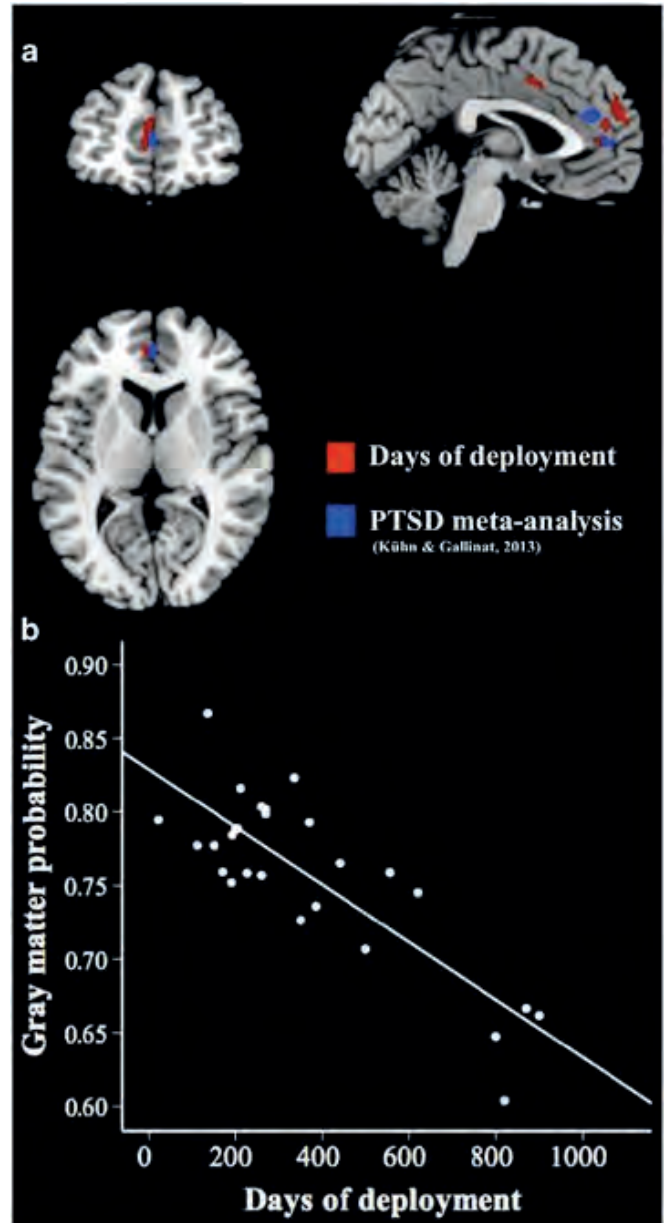
In a recent study project, the impact of repeated or long-term operational stress exposure on brain structure was analysed in a sample of 27 combat trauma-exposed soldiers using voxel-based MRI morphometry. The study found evidence of a negative correlation between the duration of deployment and grey matter volume in the ventromedial prefrontal cortex (vmPFC) and the dorsal anterior cingulate cortex (ACC). A negative correlation was also found between deployment-related grey matter volumes and psychological symptoms, but not between military deployment as such and psychological symptoms. A greater total number of deployment days thus seems to be correlated with smaller regional brain volumes in individuals exposed to deployment stress irrespective of disorders such as PTSD.

**PHY-2017-1** | Butler O, Adolf J, Gleich T, Willmund G, Zimmermann P, Lindenberger U, Gallinat J, Kühn S. Military deployment correlates with smaller prefrontal gray matter volume and psychological symptoms in a subclinical population. *Transl Psychiatry*. 2017 Feb 14;7(2): e1031. DOI: 10.1038/tp.2016.288.

Treatment seems to have a protective effect, however. In patients receiving inpatient psychotherapy, the volume of the hippocampus, a region where emotions are processed, significantly increased compared with a control group.

*A comparison of imaging data of soldiers with deployment-related PTSD after treatment and soldiers with PTSD on a waiting list showed a significant increase in hippocampal volume in treated patients as well as a tendency towards an increase in volume of the amygdala.*

**PHY-2018-2** | Butler O, Willmund G, Gleich T, Gallinat J, Kühn S, Zimmermann P (2017): Hippocampal gray matter increases following multimodal psychological treatment for combat-related posttraumatic stress disorder. *Brain and behavior* 8(5) DOI: 10.1002/brb3.956.



Source: DOI: 10.1038/tp.2016.288.

The meta-analysis showed a correlation between days of deployment and morphological changes in the brain structure (decrease in volume of grey matter).

## Conclusions

Mental illness, especially following deployment, should be considered part of an extensive physical and psychological network of finely attuned physiological processes with measurable correlates. This idea can contribute to destigmatisation and a change of mindset in the Bundeswehr, as mental disorders are more and more perceived as almost as "objective" as physical changes resulting from deployment.

What is more, links between physiological markers and mental disorders can be used to identify objective measurable variables to diagnose and evaluate the existence and severity of mental disorders and to visualise the recovery process by documenting the positive change in markers. Due to the highly complex nature of these correlations, however, such physiological indicators must not be considered or used as evidence, for example in assessment processes. They will always remain a supplementary tool for a medical professional to gain a psychological impression.

## TOPIC 3

### Prevention is better than cure

Central thesis:

Preventive measures before and after deployments can considerably strengthen the mental stability of soldiers. All levels of command must ensure that such measures are taken!



Source: Bundeswehr Hospital Berlin/Thilo Pulpanek

In recent years, the prevention of mental stress and disorders has become increasingly important both in the civilian and military sectors. In the Bundeswehr, responsibility for prevention lies mainly with the Psychological Service, specifically with military psychologists. Occupational stress is increasing among soldiers. Deployments abroad are one reason for this. We now know that effective prevention measures can prevent or mitigate symptoms. Furthermore, prevention facilitates early detection and treatment as patients and their work environment are well informed and prepared even before secondary disorders develop, allowing them to take the appropriate steps when necessary.

Preventive measures can be taken at various points in the care system. The psychological fitness screening tool, which is currently being introduced, will provide soldiers returning from deployment with feedback about their psychological fitness, irrespective of symptoms. The results of this screening will be used to identify specific measures for restoring and even increasing their psychological fitness.

Over the last two decades, the Bundeswehr has increasingly recognised the significance of such measures. Implementation will begin before the end of 2019 under the direction of Branch FüSK III 2 in the Directorate-General for Forces Policy at the Federal Ministry of Defence and with the technical assistance of the Psychological Service (Concept K-9000/011 on Maintaining and Increasing the Psychological Fitness of Soldiers will serve as a foundation). The intention is to offer all soldiers returning from deployment abroad or similar missions an opportunity to participate in psychological fitness testing. Ideally, testing will be conducted in post-deployment seminars and will comprise computer-assisted psychological testing as well as one-on-one talks with a military psychologist. This testing is meant to raise awareness and motivate soldiers to seek out further preventive measures. The purpose is not, however, to single out individual soldiers or exclude them from missions. The most important requirement for the effective screening of psychological fitness was the selection of suitable tools that ensure accuracy and require little time and few resources.

*In a pilot project based on Concept K-9000/011 on Maintaining and Increasing the Psychological Fitness of Soldiers, the Bundeswehr Psychological Service examined soldiers (N=361) before and after deployment to Afghanistan using self-assessment and interviews. Using a statistical model, the study was able to differentiate – with 70 and 75% sensitivity and 75 and 86% specificity – between participants who before and after deployment either had good psychological resources at their disposal or not. GES-2018-3 | Wesemann U, Willmund GD, Ungerer J, Kreim G, Zimmermann P, Stein M, Bühler A, Kaiser J, Kowalski JT (2017): Assessing Psychological Fitness in the Military-Development of an Effective and Economic Screening Instrument, Military Medicine, Volume 183, Issue 7-8, July-August 2018, Pages e261-e269, <https://doi.org/10.1093/milmed/usy021>.*

If the screening indicates that a soldier is suffering from psychological stress, the Bundeswehr will offer individual

measures to restore, maintain and increase his or her psychological fitness. Education (psycho-education) also plays a central role in primary prevention. A promising approach seems to lie in preparing for stress through virtual exercises in combination with active relaxation as well as improving social skills and resources in order to be able to rely on social support networks should specific stress occur. Studies have repeatedly shown that a supportive social environment is an essential element of preventing mental illness.

Bundeswehr studies have proven that such a combined approach activates and strengthens personal resources, which play an important role in the development of psychological symptoms.

*Traumatic operational experiences affect the personal resources of soldiers. A decrease in personal resources is significantly connected with the overall severity of trauma symptoms, depressive symptoms and the general severity of symptoms. A lack of personal resources significantly increases the overall severity of trauma symptoms, depressive symptoms and the general severity of symptoms.*

**GES-2015-10 | Alliger-Horn C, Kretschmer T, Hessenbruch I, Tagay S, Zimmermann P (2015):** Wie Ressourcen die Symptombildung von Einsatzsoldaten beeinflussen. Eine empirische Prüfung anhand des Essener-Ressourcen-Inventars (ERI). *Trauma, Zeitschrift für Psychotraumatologie und ihre Anwendung* 13(3):74-81

Using modern media seems an appropriate way of providing standardised prevention that is motivating and effective in terms of learning theory. In cooperation with civilian partners, the Bundeswehr Psychological Service has therefore developed the computer-based blended-learning platform CHARLY. In a 1.5 day group seminar, participants experience virtual stress scenarios and are taught how to use coping strategies. Training sessions feature best scores and championships to promote personal compliance and motivation. In cooperation with the Psychotrauma Centre, an efficacy study was successfully carried out among medical personnel.

*The comparison of the learning platform CHARLY with routine training shows that a computer-based, adaptive learning platform with standardised content on stress prevention is superior to personal, non-standardised stress training. This was proven when, in a randomised controlled longitudinal trial of medical personnel, symptoms after deployment to Afghanistan were shown to be significantly less severe.*

**TGV-2016-1 | Wesemann U, Kowalski J, Jacobsen T, Jacobsen T, Beudt S, Jacobs H, Fehr J, Büchler J, Zimmermann P (2016)** Evaluation of a technology-based adaptive learning and prevention program for stress response - a randomized controlled trial. *Military Medicine* 181(8): 863-71. DOI: 10.7205/MILMED-D-15-00100

After the exposure to a stressful event, measures of secondary prevention can affect the process of coping or, as the case may be, the development of disorders. Again, psycho-

education seems to be of great importance. It should be offered as a low-threshold (possibly anonymous) service as feelings of shame and a resulting fear of stigmatisation are often associated with mental illness, particularly in hierarchical systems such as the military, which may make it harder for patients to seek the help they need.

In secondary prevention, new media are thus also a highly useful way of first making contact. The website [www.PTBS-hilfe.de](http://www.PTBS-hilfe.de), which was specifically designed for the target group, is an initial low-threshold source of information not only for those affected but also for their families, unit physicians, military psychologists and superiors. These approaches are complemented by personalised counselling services, such as the 24/7 helpline of the Psychotrauma Centre (0800-5887957).

*Low-threshold psychosocial support services that make use of new media are becoming increasingly important. Online services, helplines and the computer program CHARLY are important elements of military psychosocial support systems. A variety of services tailored to the needs of the different user groups should be available. TGV-2013-1 | Zimmermann P, Alliger-Horn C, Willmund G, Dunker S, Kowalski J (2013): Integration moderner Medien in das psychosoziale Versorgungsangebot deutscher Soldaten. ZPPM Zeitschrift für Psychotraumatologie, Psychotherapiewissenschaft, Psychologische Medizin 11(2):35-49*

An app called Coach PTBS (PTBS = PTSD) can provide smartphone users with easy access to the elements of prevention outlined above. It was developed by the Psychotrauma Centre and the Technical University of Dresden and has been downloaded thousands of times since its release.

As a post-deployment health care measure, secondary prevention has a long tradition in the Bundeswehr. For years now, the above-mentioned post-deployment seminars have been compulsory for all returning service members. Specially trained moderators help them in group settings to bring their mission to a close and will approach any soldiers who appear to be suffering from psychological stress. The idea is not, however, to provide actual therapy.

Modified post-deployment seminars for certain target groups, such as explosive ordnance disposal technicians and emergency physicians, have been successfully tested (Psychotrauma Centre – unpublished data).

More intensive and extended preventive treatment programmes are another form of secondary prevention and have also been common practice for several years. In an unbureaucratic process, soldiers who have experienced exposure to deployment stressors can apply for such inpatient treatment at a civilian facility at the expense of the Bundeswehr. These treatment programmes help returning soldiers without signs or symptoms strengthen their resources and maintain their psychological fitness in the long term. The programmes also provide participating soldiers with a sense of recognition and appreciation by their employer and are

thus met with a very positive response. Participants consider sports and exercise programmes particularly important and useful.

*In a study, 500 participants in a 3-week preventive inpatient programme and 60 control subjects were assessed using the PTSS-10 questionnaire and an evaluation instrument of the German pension insurance fund. Approval of the programme in general and of the sports and exercise module in particular was very high. PRV-2015-1 | Zimmermann P, Kowalski J, Niggemeier-Groben A, Sauer M, Leonhardt R, Ströhle A (2015): Evaluation of an inpatient preventive treatment program for soldiers returning from deployment. Work 50(1):103-110. DOI: 10.3233/WOR-131665.*

#### Conclusions

The data presented here suggest that the prevention of mental illness after extremely stressful experiences, such as deployments abroad, is possible. Prevention can focus on various areas of personal competence and should also strengthen moral support networks in the long term.

Effective prevention requires command personnel to be well trained in dealing with soldiers who are experiencing psychological stress. Ideally, such training should already be part of their NCO/officer training.

Screening and prevention will be part of the tasks of future leaders and will become ever more significant.

## TOPIC 4

### Clinical research on treatment methods: What is effective?

#### Central thesis:

Traumatisation resulting from Bundeswehr deployments can be treated provided there are enough resources and military-specific adaptations are made.



Source: Bundeswehr Hospital Berlin/Thilo Pulpanek



Treating mentally ill soldiers, especially after deployment abroad, is one of the primary tasks of Bundeswehr hospitals and psychiatric services at specialist medical centres. These facilities combine expertise in psychotherapy and psychotraumatology with extensive military operational experience.

In recent years, inpatient care settings have been developed that are specifically adapted to the needs and special circumstances of military patients.

*Overviews of current developments in the fields of prevention, treatment and assessment of mental disorders in the Bundeswehr are available in the literature. UBS-2016-2 | Zimmermann P, Wesemann U, Willmund G, Alliger-Horn C (2016): Traumafolgestörungen in der Bundeswehr Konzepte der Prävention und Behandlung. Nervenheilkunde 6: 391-395*

That is why a scientific evaluation of the treatment methods applied in Bundeswehr hospitals is required. The armed forces have a duty to care for their soldiers, and this also allows the general public and the media to see the Bundeswehr as a responsible and caring employer.

The trauma therapy technique of eye movement desensitisation and reprocessing (EMDR) has proven particularly practical and effective for soldiers. Controlled studies conducted by the Psychotrauma Centre, which in 2015 were honoured with a research award by the Deutschsprachige Gesellschaft für Psychotraumatologie, an association for psychotraumatology active in German-speaking countries, strongly suggest large effect sizes.

*A study of Bundeswehr soldiers with PTSD examined the effectiveness of eye movement desensitisation and reprocessing therapy (EMDR) and imagery rescripting and reprocessing therapy (IRRT) in trauma therapy. Both methods showed large effect sizes in the treatment of war-traumatised soldiers. BEM-2015-2 | Alliger-Horn C, Mitte K, Zimmermann P (2015): Vergleichende Wirksamkeit von IRRT und EMDR bei kriegstraumatisierten deutschen Soldaten. Trauma und Gewalt 9(3):204-215*

*In an effectiveness study (pre-post design) comparing soldiers with a control group, EMDR was shown to be significantly more effective at reducing symptoms of PTSD or depression after exposure to traumatic events. BEM-2016-1 | Köhler K, Eggert P, Lorenz S, Herr K, Willmund G, Zimmermann P, Alliger-Horn C (2016): Effectiveness of Eye Movement Desensitization and Reprocessing (EMDR) in German Armed Forces Soldiers with Posttraumatic Stress Disorder (PTSD) under Routine In-Patient Care Conditions. Military Medicine 182(5), e1672-e1680. DOI: 10.7205/MILMED-D-16-00307.*

The therapy outcomes were influenced by various factors which in future will be taken into account when planning therapeutic processes.

*The number of traumatic incidents and the sum of comorbidities in soldiers are key predictors for short- and long-term changes in trauma and disorder symptoms in the course of therapy. BEM-2014-1 | Alliger-Horn C, Zimmermann P, Mitte K (2014): Prädiktoren für den Behandlungsverlauf kognitiv-behavioraler Gruppentherapie einsatzbedingter Erkrankungen deutscher Bundeswehrsoldaten. Verhaltenstherapie 24(4):244-251*

These approaches, however, are not equally suited to all soldiers thus injured on deployment. Some symptoms often persist despite treatment. Even though this problem is also known in the civilian sector, the scientific efforts of the Psychotrauma Centre are focused on additional, military-specific approaches that address this issue more thoroughly and thus allow for more comprehensive recovery.

For instance, it became evident that the development of psychological symptoms was closely linked to soldiers critically reflecting on their personal values and moral injury occurring during deployment.

*A study among returning soldiers showed that personal values (especially hedonism, benevolence and universalism) have a significant impact on depressive, anxiety, and somatoform syndromes and PTSD. GES-2015-12 | Zimmermann P, Firnkens S, Kowalski J, Backus J, Alliger-Horn C, Willmund G, Hellenthal A, Bauer A, Petermann F, Maercker A (2015): Zusammenhänge zwischen Psychischer Symptomatik und Persönlichen Werten bei Bundeswehrsoldaten nach einem Auslandseinsatz. Psychiatrische Praxis 42(8):436-42. DOI: 10.1055/s-0034-1370242*

*Moral injury plays an important role in the pathogenesis of mental disorders after stressful experiences during deployment abroad. Combat experiences involving civilians seem to have a particularly strong effect on the mental health of military personnel of the German armed forces. This effect seems to be mediated by the construct of moral injury.*

**GES 2017-2 | Hellenthal A, Zimmermann P, Willmund G, Lovinusz A, Fiebig R, Maercker A, Alliger-Horn C (2017): Einsatzerlebnisse, Moralische Verletzungen, Werte und psychische Erkrankungen bei Einsatzsoldaten der Bundeswehr. Verhaltenstherapie (9/2017), published online. DOI: 10.1159/000470848**

Accordingly, personal values can influence psychotherapeutic processes. This was ascertained in a first pilot study of soldiers with alcoholism.

*Personal values of soldiers have an impact on the severity of alcohol dependence and can be useful in its diagnosis and treatment. The value type of hedonism has a significant positive association with symptom severity, while that of stimulation is negatively associated. Confidence in abstinence increased significantly during therapy, with a positive influence of tradition on treatment outcome. GES-2015-11 | Zimmermann P, Kahn C, Alliger-Horn C, Willmund G, Hellenthal A, Jaeckel R, Schomerus G, Wesemann U (2015): Assoziation*

von Werteorientierungen mit der Schwere einer Alkoholabhängigkeit bei Soldaten in qualifizierter Entzugsbehandlung. *Nervenheilkunde* 10:803-808

In the search for suitable therapeutic approaches that adequately address the issues of morals and values, the concept of acceptance and commitment therapy (ACT) was one of those eventually chosen. A first, still unpublished pilot study suggests that this form of treatment can improve psychological symptoms and also trigger a change in personal values.

A three-week group concept of the Psychotrauma Centre specifically designed for soldiers with deployment-related mental disorders is even more focused on the challenge of coping with operational experiences. In June 2019, a manual on the treatment of moral injury was published as a free download. It is available at [www.wehrmed.de](http://www.wehrmed.de).



*A first evaluation showed that the phenomenon of shame, which can often greatly increase the suffering of those affected and delay the therapeutic process, can be positively influenced to a significant degree. This mainly involves aggression towards oneself and others as a result of shame.*

**GES-2018-9** | Alliger-Horn C, Hessenbruch I, Fischer C, Thiel T, Varn A, Willmund G, Zimmermann P (2018): „Moral injury“ bei kriegstraumatisierten deutschen Bundeswehrsoldaten. *Psychotherapeut* 63(4):322-328, DOI.org/10.1007/s00278-018-0287-z (publication title)

A comprehensive and lasting psychotherapeutic process of change also requires treatment of comorbidities and any fundamental personality problems that may exist alongside the underlying disorder. The Bundeswehr hospitals thus offer group programmes dedicated to those issues.

The Psychotrauma Centre has evaluated several of those group settings and has found evidence of their effectiveness, for example in the treatment of alcoholism, group therapy for insecurities related to personality structure (social skills group training) as well as in group treatment of neurotic relationship conflicts (short-term inpatient group psychotherapy).

*Inpatient short-term group psychotherapy of Bundeswehr soldiers diagnosed with neurotic disorders showed significantly better results than a control group. In combination with additional setting components, such therapy may even be helpful in improving psychological symptoms. It may even have the potential to be applied in prevention.*

**BEM-2008-1** | Zimmermann P, Kröger N, Willmund G, Ströhle A, Heinz A, Hahne H (2008): In-patient, short-term group psychotherapy - a therapeutic option for Bundeswehr soldiers? *Psycho- Social-Medicine* (5):1-8

*Inpatient psychiatric treatment settings have a favourable effect on symptom severity in military personnel with avoidant personality traits.* **BEM-2013-2** | Zimmermann P, Alliger-Horn C, Kowalski J, Plate S, Wallner F, Wolff E, Ströhle A (2013): Treatment of avoidant personality traits in a German armed forces inpatient Psychiatric setting. *Military Medicine* 178(2):213-217

Involving families in the treatment process is of great importance for successful recovery. Many studies have shown the quality of social support to be a key influencing factor affecting the mental well-being of people under stress, particularly in a military context.

*A systematic literature review revealed that group cohesion and support from relevant social groups, such as fellow soldiers, the public and the armed forces in general, have a substantial protective effect on deployment-related post-traumatic disorders in soldiers.* **PSU-2013-2** | Waltereit R, Kowalski J, Zimmermann P (2013): Kohäsion und soziale Unterstützung des Soldaten in relevanten gesellschaftlichen Gruppen. Einfluss auf einsatzbedingte psychische Traumastörungen. *Trauma und Gewalt* 7(1):2-8

Bundeswehr hospitals provide families with support in the form of outpatient open group settings or as events over several days. The latter enjoy the financial, personnel and conceptual support of the Soldiers and Veterans Foundation of the German Bundeswehr Association and the pastoral care project of the Office of the Protestant Church. The families of those affected in particular experienced improvements in stress levels and quality of life as well as a sense of mutual support.

*In 2011, psychoeducative seminars for spouses of traumatised soldiers were developed and held for the first time. An open study showed that the seminars led to an improvement in quality of life and sense of support that was significant and evident in catamnesis, particularly in the partners of the traumatised soldiers.* **PSU-2015-1** | Wesemann U, Jensen S, Kowalski J, Gewandt A, Kröger C, Fischer C, Rose C, Zimmermann P (2015): Einsatzbedingte posttraumatische Belastungsstörung im sozialen Umfeld von Soldatinnen. Eine explorative Studie zur Entwicklung und Evaluierung eines Angehörigenseminars. *Trauma und Gewalt* 9(3):216-225

In 2013, a children's book was compiled by the Office of the Protestant Church and the Psychotrauma Centre for families of soldiers. It illustrates the consequences of traumatisation and its treatment in a manner suitable to children.

An innovative therapeutic approach to supporting families lies in animal-assisted interventions. A pilot study by the Psychotrauma Centre suggested that horse-assisted therapeutic

seminars have a significant impact on the mental health of couples dealing with post-traumatic disorders.

*The results of this pilot study showed that such intervention can improve partnership quality and significantly and sustainably reduce negative moods and thinking and – where applicable – stress symptoms and partnership problems. Partners of affected soldiers particularly benefit from this approach. PSU-2017-1 | Köhler K, Rose C, Parent I, Fischer C, Zimmermann P, Willmund G (2017): Die Wirksamkeit von pferdeunterstützter Intervention auf Partnerschaftsqualität, Symptomschwere einer PTBS, Stress und Depressivität von Soldaten und deren Partner. Trauma, 15, 80-91.*

#### Conclusions

Overall, the effectiveness of inpatient treatment of mentally ill Bundeswehr soldiers is based on an extensive set of data. The concept of treating soldiers returning from deployment in multi-modal psychotherapeutic settings in the Medical Service with the involvement of their families has proven successful. The relevant resources should be flexibly adapted to individual demand in order to avoid long waiting times and resulting chronification.

At the same time, treatments should be adapted to the operational scenarios in which the traumatic experience originated.

Civilian inpatient and outpatient facilities are an indispensable addition to Bundeswehr resources, especially as they offer specialised programmes that are unavailable in the Bundeswehr, as well as in preliminary and follow-up treatment. They cannot, however, be a substitute for Bundeswehr resources.

## Moral injury and personal values in soldiers with deployment experience – A new manual for focused group therapy

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### Introduction

Deployment-related mental illness in the Bundeswehr is often accompanied by moral injury. Such injury often has a spiritual dimension because it touches on religious beliefs.

For this reason, the Psychotrauma Centre of the Bundeswehr has developed a manual for a new group therapy approach that can complement standard trauma therapy. This manual can be downloaded in German or English. This article will summarise of the rationale behind the therapy programme, its development and evaluation.

### Background

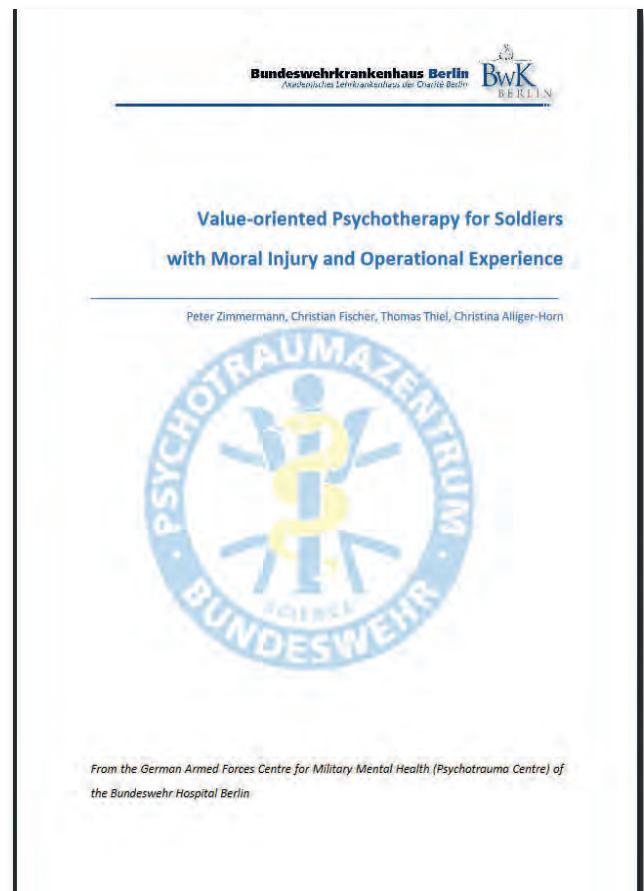
For many soldiers, participation in a military operation abroad can be a life-changing experience. During their lengthy periods away from Germany, they have a wide variety of new experiences, for example the close comradeship inside camps, working with soldiers from other nations, and contact with local cultures and people.

These experiences can be exceptionally rewarding and can result in psychological maturation processes that open up new and positive ways of looking at life and the world. For example, the advantages and distinctive characteristics of life in Germany are perceived more intensely and often with greater appreciation.

Missions abroad can also involve a change in personal values. When they face the personal challenge of deployments, soldiers take with them the attitudes and personal values they have acquired over many years in their home country as part of a socialisation process in their families, in society, and last but not least in the military. For them, these are a moral foundation that shapes their thinking and their actions while on deployment and lends them stability in stress and critical situations. Values are a system of coordinates that provides orientation and security.

On the other hand, personal values can also affect the development of deployment-related stress or illnesses. Studies conducted by the Psychotrauma Centre of the Bundeswehr have shown that reflective and intense awareness of personal values can help protect soldiers from developing depression on deployment. The most significant factors are a sense of tradition and conformity (Zimmerman et al., 2018). In contrast, values that strongly emphasise altruism and companionship as well the wellbeing of others (benevolence and universalism) can contribute to increased subjective psychological stress, for example in the event of a posttraumatic stress disorder (Zimmermann et al., 2014 and 2016). People with these values are psychologically no more vulnerable than their comrades. However, their ability to sympathise with others means that they are sometimes more aware of the distress of

their comrades and others around them than of the strain they themselves are under.



An individual's own value system can have a particularly large influence on his mental health in the event of moral injury. Moral injury does not occur on a physical or psychological level but instead calls into question an individual's moral experience.

Such an injury can be inflicted by other people, for example when an act of violence is carried out against women or children. Often this results in anger towards the perpetrator, which can lead to brooding for many years and can have an adverse effect on the quality of life.

Moral injury can also occur when an individual's own behaviour on deployment comes into conflict with his personal values and moral principles. Participation in combat, for example, can be accompanied by feelings of guilt, which over time can become chronic. Such feelings can turn into shame, combined, for example, with the persistent feeling of not being a likeable or valuable person. In many cases, shame entails the need to withdraw from one's social environment or even from oneself. Those affected literally hide from their own lives and become lonely. This can lead not only to depression but also to aggression.

Recent American studies (Bryant et al., 2017) have separated moral injury from the key symptoms of posttraumatic stress disorder (PTSD). Moral injury appears to be a syndrome in

its own right, with a focus on guilt, shame, alienation, withdrawal from society, and anhedonia. Typical PTSD symptoms such as tension, anxiety, intrusive thoughts, and flashbacks play a less significant role.

### **Manual on the treatment of moral injury**

Moral aspects of operational experience play an increasingly important role in the treatment of post-traumatic mental illnesses. For example, since 2014 the Psychotrauma Centre of the Bundeswehr has been treating trauma not only with eye movement desensitisation and reprocessing (EMDR) but also with other methods. One such method is a new treatment module in which five to eight affected individuals work together in a group to process moral conflicts and changes in personal values. To take part, individuals must be active or former soldiers with a deployment-related psychological disorder (PTSD, anxiety, adjustment disorder etc.) and must have had previous therapy, e.g. as part of an inpatient stabilisation measure or even initial trauma confrontation therapy.

When the signs and symptoms have been established, the patient is allocated to a group that meets three to four times a year. Group therapy takes place over a period of one week in an inpatient or semi-inpatient setting at the Psychotrauma Centre of the Bundeswehr. It can be combined with further trauma-related group modules (e.g. cognitive-behavioural approaches or social skills training).

Therapy begins with participants discussing their personal values and the significance of these values for their everyday lives. Attention is paid to changes that occurred during their deployments and the impact of these changes on their everyday professional and private lives. The group then studies examples of how personal values can be injured (moral injury). Such injury can happen as a result of an individual's own alleged wrongdoing or by observing the behaviour of others (e.g. the civilian population).

Feelings such as anger and guilt are discussed, and the group format provides a high level of support and stability since the majority of participants share similar experiences. This results in strong group cohesion. Provided the (financial) means are available (e.g. through support from the ASEM pastoral care project of the Office of the Protestant Church), parts of the module can be conducted in facilities outside the hospital. This also gives the patients a feeling of being appreciated, which can have a favourable effect on their attitude towards themselves.

### **The manual can be downloaded in German and English at**

[www.wehrmed.de](http://www.wehrmed.de)  
[www.sanitaetsdienst-bundeswehr.de/downloads](http://www.sanitaetsdienst-bundeswehr.de/downloads)

This work is carried out at the Psychotrauma Centre of the Bundeswehr, with support and guidance provided by the chaplain service (ASEM pastoral care project of the Office of the Protestant Church for the Bundeswehr). Interdisciplinary group leadership teams including professionals from psychiatry, psychology, military chaplaincy and nursing have also proven effective, particularly when it comes to ethical issues.

Patients with pronounced feelings of guilt or shame, for example, can benefit greatly from the pastoral care service, which offers prayer, confession and blessings, provided they are open to such support.

An initial scientific analysis of the module revealed that this approach can improve important dimensions of the experience of shame. The Compass of Shame scale, for example, showed significantly positive changes in three of four subscales, which also remained stable at follow-up (Alliger-Horn et al., 2018).

In 2017, a graphic novel was created as an aid to therapy. It presents the psychosocial changes associated with moral injury in an easy-to-understand way. It is available free of charge from the Psychotrauma Centre ([bwkrsberlinpsychotraumazentrum@bundeswehr.org](mailto:bwkrsberlinpsychotraumazentrum@bundeswehr.org)).

### **Summary**

The use of group therapy to deal with moral injury in Bundeswehr soldiers has proven to be an effective element of an overall military psychiatry treatment plan. We recommend extending its use to other Bundeswehr treatment facilities and, if applicable, to the area of preventive health care. Similar developments are taking place in other Western armed forces.

(Bibliography available from the authors and in the manual "Value-oriented Psychotherapy in Soldiers with Deployment Experience")

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## TOPIC 5

# Beyond the horizon: Innovative methods in prevention and treatment

### Central thesis:

Low-threshold services for affected soldiers and relatives facilitate professional information and psychoeducation, early treatment, and thus timely reintegration into regular military duties.



The advertisement features a green background with the CoachPTBS logo at the top left. The main title 'CoachPTBS' is in a large green box. Below it, the text 'IHR WEGWEISER BEI PSYCHISCHEN FOLGESTÖRUNGEN NACH DEM EINSATZ' is displayed. A smartphone in the center shows the app's interface with five menu items: 'Informieren', 'Selbsteinschätzung', 'Symptome bearbeiten', 'Stimmungsbuch', and 'Unterstützung finden'. To the right, a yellow button says 'Jetzt herunterladen!'. Three checkmarks list benefits: 'INFORMIERT SEIN ÜBER ALLES.', 'BESCHWERDEN LINDERN.', and 'HILFE IMMER UND ÜBERALL.'. QR codes and app store logos are at the bottom right, and the Sanitätsdienst logo is at the bottom center.

**CoachPTBS**

IHR WEGWEISER BEI PSYCHISCHEN FOLGESTÖRUNGEN NACH DEM EINSATZ

**Jetzt herunterladen!**

- ✓ INFORMIERT SEIN ÜBER ALLES.
- ✓ BESCHWERDEN LINDERN.
- ✓ HILFE IMMER UND ÜBERALL.

Sanitätsdienst

Source: Patmo.de/Bundeswehr - Layout: HF Frank Eggen/PTZ

In recent years, a broad field of research into innovative methods, e.g. using new media, has developed in the field of psychosocial care in the Bundeswehr, particularly in support of psychotherapeutic concepts and to prevent mental illness. Certain groups who may resist conventional approaches, such as young people, may be more responsive to these methods and more motivated to take part in an intervention. Such approaches could also expand and intensify the experience of psychotherapy through improved opportunities for systematisation and increased use of visual aids.

*Low-threshold psychosocial support services that make use of new media are becoming increasingly important. Online services, helplines and the computer program CHARLY are important elements of military psychosocial support systems. A variety of services tailored to the needs of the different user groups should be available.* **TGV-2013-1** | Zimmermann P, Alliger-Horn C, Willmund G, Dunker S, Kowalski J (2013): Integration moderner Medien in das psychosoziale Versorgungsangebot deutscher Soldaten. ZPPM Zeitschrift für Psychotraumatologie, Psychotherapiewissenschaft, Psychologische Medizin 11(2):35-49.

In terms of prevention, the Bundeswehr Psychological Service has developed the computer program CHARLY and evaluated it in cooperation with the Psychotrauma Centre. CHARLY is a blended-learning approach that teaches important basics of psychosocial ramifications of deployment-related stress in a one-and-a-half-day curriculum, from comprehensive information on stress training to relaxation techniques and social skills training. A first randomised controlled longitudinal trial has shown CHARLY to have conclusive advantages over conventional methods of prevention.

*A comparison of the learning platform CHARLY with routine training showed that a computer-based, adaptive learning platform with standardised content on stress prevention is superior to personal, non-standardised stress training. This was proven when, in a randomised controlled longitudinal trial of medical personnel, symptoms after deployment to Afghanistan were shown to be significantly less severe.*

**TGV-2016-1** | Wesemann U, Kowalski J, Jacobsen T, Jacobsen T, Beudt S, Jacobs H, Fehr J, Büchler J, Zimmermann P (2016) Evaluation of a technology-based adaptive learning and prevention program for stress response - a randomized controlled trial. Military Medicine 181(8): 863-71. DOI: 10.7205/MILMED-D-15-00100

A common issue for patients with pre-existing stress or disorders is their fear of stigmatisation or damage to their career. At such a stage of orientation, internet-based information and contact portals can facilitate access to care. Group destigmatisation programmes can also have a positive impact on the various concerns of soldiers.

The German-language websites [Angriff-auf-die-Seele.de](http://Angriff-auf-die-Seele.de) and [PTBS-Hilfe.de](http://PTBS-Hilfe.de) have proven helpful. Additionally, once there is an interest in therapy, the free and anonymous 24/7 helpline operated by the Bundeswehr (0800-5887957) as well as

dedicated outpatient trauma treatment at Bundeswehr hospitals can help organise further steps quickly and efficiently.

*A pilot study evaluated 116 online inquiries submitted via the online counselling portal [Angriff auf die Seele](http://Angriff-auf-die-Seele.de) by August 2009 in terms of content, the users and the missions referred to. Soldiers returning from Afghanistan (and/or their relatives) used the website significantly more often than members of the Kosovo and Bosnia contingents. Referrals to outpatient consultations within the Bundeswehr were made in 12.1% of cases while 1.7% were referred to the civilian sector and 4.3% received immediate inpatient psychotherapy at a Bundeswehr hospital. The evaluation of this low-threshold contact portal indicates the importance of online counselling for professionals exposed to high levels of psychosocial stress. Such services can pave the way for starting therapeutic measures and thus make it possible to take up therapy earlier.*

**TGV-2010-1** | Zimmermann P, Alliger-Horn C, Wallner H, Barnett W, Meermann R (2010): Psychosoziale online-Beratung für Bundeswehrsoldaten mit einsatzbedingten psychischen Störungen. Trauma und Gewalt 4 (3), S. 242-249.

*An analysis of 542 calls to the Bundeswehr PTSD helpline (0800 588 7957) between May 2009 and July 2011 showed that active-duty soldiers and veterans used the helpline most frequently, followed by their relatives and spouses. The extent to which this low-threshold helpline is used suggests that relatives are keen to understand the mental disorders that soldiers are affected by and increasingly rely on outside support.* **TGV-2011-1** | Gabriel U, Jacobsen T, Hauffa R, Zimmermann P, Kowalski J (2011): Evaluation des telefonischen Beratungsangebotes für Soldaten mit einsatzbedingten psychischen Belastungen und deren Angehörige. Wehrmedizinische Monatsschrift 55(10):228-230

There are currently several projects at the PTZ in Berlin that will considerably expand the available range of multimedia options if positively evaluated. For instance, treatment of post-traumatic stress disorder is supported by serious gaming. After each trauma therapy session, participants play computer-based concentration games intended to stimulate and intensify the effects of psychotherapy. Possible differences to a control group can be detected with functional MRI. Findings will likely be published in 2019.

An app used for both prevention and therapy was developed by the Psychotrauma Centre in cooperation with the Technical University of Dresden and the Bundeswehr University of Munich and released in mid-2016. This app combines information with practical exercises, such as a mood tracker and relaxation exercises. The app is also currently under evaluation.

### Diversification

A research project conducted in cooperation with the Bundeswehr University Munich is designed to examine the use

of digital applications to provide care to soldiers who have experienced traumatic incidents on deployment.

## Conclusions

Innovative technological approaches are proving successful in support of therapeutic and preventive concepts in the Bundeswehr, particularly in light of the widespread fear of stigmatisation among soldiers as well as the additional media options available. They should be further developed and researched as they could be used in the work-related rehabilitation of soldiers with deployment-related disorders.

Telemedicine is another treatment option and could play a more significant role in future, since traditional therapeutic approaches are sometimes difficult in military contexts (long distances between therapists and patients). They can, however, merely supplement and not replace face-to-face contact between therapists and patients.



The screenshot shows a website page for the Bundeswehr's PTSD support service. The page features a navigation menu on the left with categories like 'Aktuelles', 'Über die Bundeswehr', 'Organisation', 'Einätze', 'Ausrüstung & Technik', 'Betreuung & Fürsorge', and 'Karriere'. The main content area has a large image of two soldiers in camouflage gear, with the headline 'WIE DIE BUNDESWEHR BEI PTBS HILFT'. Below the image, there is a breadcrumb trail: 'Betreuung & Fürsorge > PTBS-Hilfe'. The text explains that everyone processes stressful events differently, but some people experience nightmares and restlessness, which are typical signs of Post-Traumatic Stress Disorder (PTSD). It states that the Bundeswehr does not leave affected individuals alone and provides support to their families and helpers on the path to recovery. A prominent section header reads 'PTBS ERKENNEN UND VERSTEHEN'. Below this, a small text block notes that soldiers and women in service are exposed to particular psychological stressors, often away from family and friends in dangerous situations, which can lead to mental illnesses like PTSD.

Source: Screenshot of the planned new edition of the website [www.ptbs-hilfe.de](http://www.ptbs-hilfe.de); Bundeswehr/Frank Eggen

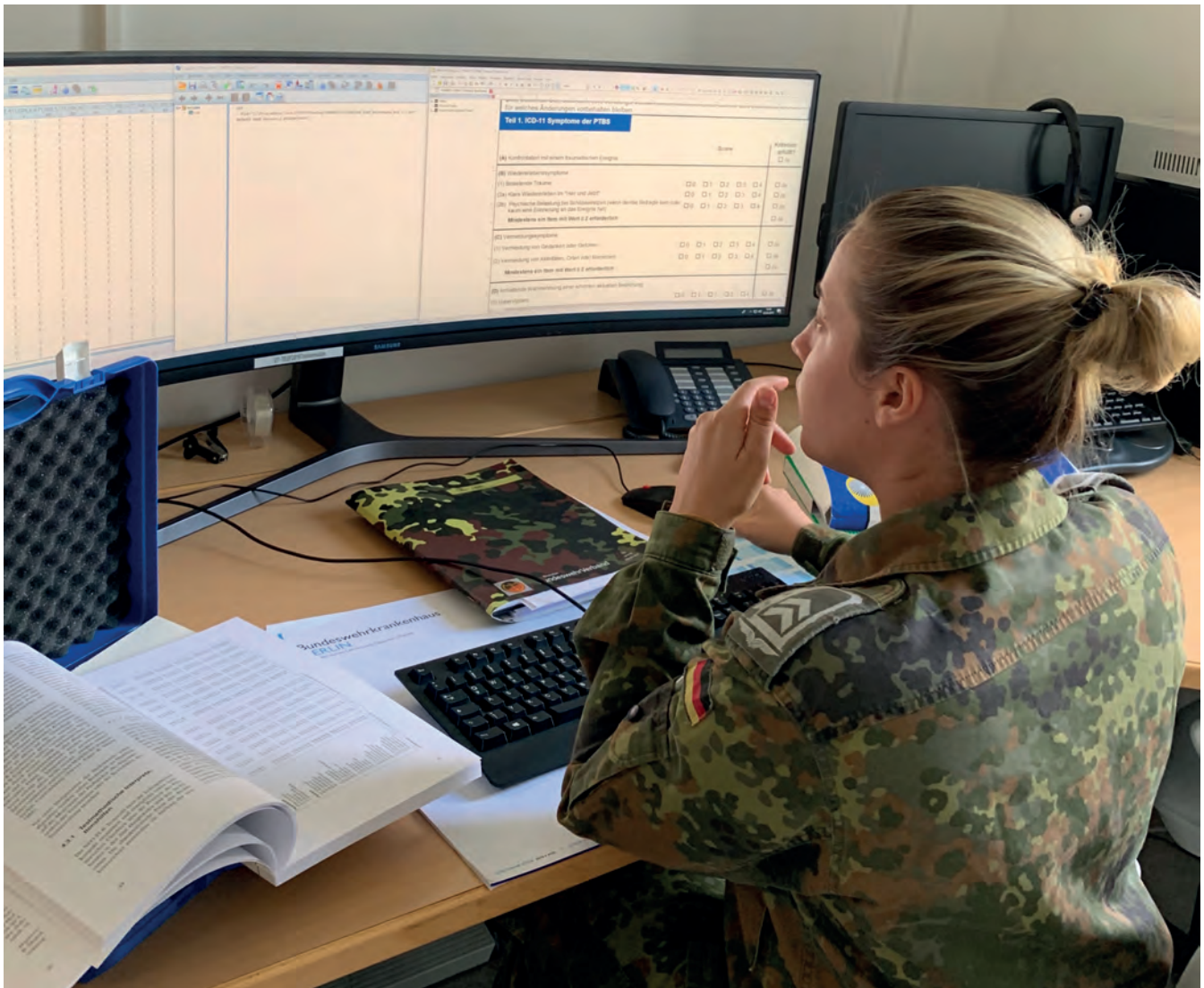


## TOPIC 6

# Conclusions, prospects and research orientation beyond 2020

Central thesis:

Multiprofessional research makes possible the further development and continuous optimisation of psychosocial care in the Bundeswehr.



Source: Bundeswehr Hospital Berlin/Dittmann-Leschkowski

The research mission of the Psychotrauma Centre of the Bundeswehr is to examine the psychosocial care of Bundeswehr personnel and to use research findings to enhance this care. In its current structure, the Psychotrauma Centre pools clinical and scientific expertise for this purpose. The Centre's mission is to continuously optimise the prevention, diagnosis, treatment and aftercare of psychological disorders – whether related to deployment or not – through multiprofessional scientific expertise and the involvement of other service providers such as the Bundeswehr social services, the psychological service and the chaplain service. The intention is to generate a direct health benefit for affected soldiers and their psychosocial environment. The Psychotrauma Centre carries out tasks assigned by the FMoD branches FüSK San 1, FüSK San 3, P III 1 and P III 5.

Existing capability gaps in psychosocial care must be identified and filled. Applied research is performed to achieve this goal, not basic research. We conduct research projects ourselves and also supervise projects carried out by external institutions. Pooling psychiatric and psychotherapeutic treatment with clinically oriented, multiprofessional research has been the guiding principle of the Psychotrauma Centre ever since its founding. This principle also ensures the development of the psychosocial capacities of the Medical Service and the Bundeswehr in a direction that is practical and patient-oriented. Research that focuses on patients and their needs will allow for the quick implementation of innovative research products in clinical practice. For example, close cooperation with Bundeswehr institutions and the Technical University of Dresden resulted in the rapid development, introduction and marketing of the most comprehensive digital application for supporting the treatment of Bundeswehr personnel with psychological problems and their families.

The research section of the Psychotrauma Centre conducts continuous registry studies on the utilisation of psychotherapeutic and psychiatric services by patients with deployment-related disorders and on suicidal behaviour in the Bundeswehr (suicide register). In addition, measures are developed for the prevention and treatment of mental health problems. In cooperation with the Bundeswehr Psychological Service, the Psychotrauma Centre gives advice and support to future-oriented projects such as the blended-learning platform CHARLY for the prevention of psychological stress and methods of the psychological fitness framework concept. On behalf of the Bundeswehr Psychological Service, it also evaluates such projects. The Psychotrauma Centre is also working together with authorities in the field of law enforcement and public safety. For example, the federal state of Berlin is introducing Charly BOS into its police and fire services as part of a research and development programme. The Psychotrauma Centre has close contact with national authorities involved in law enforcement and public safety, particularly because of its location in the German capital and the fact that it faces similar threat scenarios. Research work on the effects of terrorist attacks has, for example, been successfully completed in recent years. However,

the primary interest of the Psychotrauma Centre is to support military personnel, for example when it comes to follow-up care after potentially traumatic incidents.

The Psychotrauma Centre is represented in national working groups that develop guidelines for the diagnosis and treatment of psychological trauma as well as in working groups of the German Association for Psychiatry, Psychotherapy and Neurology and the German-Speaking Society for Psychotraumatology. It is also active in several NATO research task groups. The Centre cooperates closely with universities (for example the Charité, the Humboldt University of Berlin, the Free University of Berlin, the Technical University of Dresden, the Ludwig Maximilians University of Munich, Hannover Medical School, Witten/Herdecke University, Ulm University, Bundeswehr University of Munich, Helmut Schmidt University of Hamburg, Medical Centre of Hamburg-Eppendorf) and non-university research institutions (Max Planck Institute for Human Development in Berlin, Max Planck Institute of Psychiatry in Munich, Bundeswehr Centre of Military History and Social Sciences, Bundeswehr Institute of Preventive Medicine).

**For the years 2020 to 2025, the current research and development plan focuses on the following areas:**

Ongoing research on suicide in the armed forces shows that suicidal tendencies are directly connected to mental disorders, in particular depression. Against this background, the Alliance for Mental Health in the Bundeswehr aims to raise awareness of mental fitness, reduce stigmatisation, and improve early diagnosis and treatment options in a multidimensional approach. This project, which has modules for patients, family members, command personnel, and caregivers, will be evaluated in terms of its effectiveness. The focus is on training for unit physicians, members of the Bundeswehr social services, the psychological service, and the chaplain service. Training will raise the awareness of command personnel and help them deal with soldiers who are experiencing psychological problems. Participants will learn to respond to such challenges in a cooperative and coordinated manner.

In 2019, the Psychotrauma Centre will be working together with military GPs, the psychological service, the social services, and the chaplain service to develop the long-term research field of integrated multiprofessional psychosocial care. This project will evaluate and enhance the excellent ways in which psychosocial care is provided jointly in the Bundeswehr.

With the early involvement of the competent technical branches in the Federal Ministry of Defence, their research needs will be examined so that specific, coordinated, and scientifically tested products (such as manuals, digital applications, interventions) can be developed for them. This evaluation will lead to an initial identification of needs in the medium term.

The Psychotrauma Centre is also working with NATO Human Factors and Medicine Research Task Group 277 (Leadership Tools in Suicide Prevention) to raise awareness of suicide prevention among command personnel and medical and psychosocial caregivers. Another goal of the five-year plan is to continue updating the suicide register and to add data from the past.

The reintegration of soldiers with psychological disorders is a special challenge as these disorders are associated with a high risk of chronification. As a result, such personnel may be unfit for military service for long periods of time. Enhancing rehabilitation will be a priority in the research plan for 2020 to 2025. For example, post-inpatient rehabilitation measures will be developed, adapted if necessary, and implemented in the medium term. An accompanying prospective evaluation of effectiveness will be carried out. In this context, we will identify predictors of good rehabilitation results and early reintegration into everyday military service. Research on rehabilitation necessitates a multiprofessional approach and involves all psychosocial services at the early stage of study planning. This is because rehabilitation affects many services outside military medicine. Two other ongoing projects are examining reintegration rates after inpatient psychiatric treatment and potential predictors of successful reintegration.

As in previous years, research in the years 2020 to 2025 will focus on assessing the effects of stress and preventive and immediate post-deployment follow-up measures. Medium-term projects include a cohort study evaluating deployment-related stress in Bundeswehr soldiers, which will begin in 2020. Another medium-term research objective is to identify the different needs of civilian and military personnel regarding post-deployment follow-up measures and, if necessary, to develop measures for the specific needs of occupational groups. The fire departments of Berlin and Cologne, the German Firefighters' Association, and the Berlin Criminal Investigation Department have joined as cooperation partners.

In recent years, the Psychotrauma Centre has also published research findings on psychotherapeutic intervention methods and their effectiveness in the treatment of deployment-related disorders. Specific trauma treatment such as eye movement desensitisation and reprocessing (EMDR) therapy and imagery rescripting and reprocessing therapy (IRRT) as well as accompanying group sessions were evaluated. Therapy modules for treating moral injuries have been manualised and published based on recent findings. Research in 2020 to 2025 will focus on developing and testing complementary methods such as relaxation techniques and physiotherapeutic and animal-assisted measures, as empirical findings are lacking, especially in German-speaking countries.

The topic of digitalisation in psychosocial care will again be included in the research programme as a priority issue. The development of therapeutic apps and the use of modern media can lead to improvements, particularly when it comes to stigmatisation. Such tools may make it easier for people to

seek help earlier. The development of "smart" digital medical devices for patients, physicians and psychosocial caregivers will be the subject of usability and effectiveness studies. Potential cooperation partners will come from the Bundeswehr and the civilian scientific community. Plans also include cooperation with other government institutions (such as the German Foreign Office) to test and use new modern methods such as machine learning and artificial intelligence both in applied and development research (for example smartphone apps) and in statistical evaluation methods. This will allow us, for example, to develop procedures for forecasting the number of psychiatric cases and the various degrees of severity in certain military scenarios. This information can be provided to the Ministry and the Medical Service as required and without delay.

**The current research and development plan calls for even more national and international cooperation in order to enhance the research resources of the Psychotrauma Centre from 2020 to 2025.**

Successful cooperation with numerous national partners from many universities must be further intensified and expanded. In the research period 2020 to 2025, the Psychotrauma Centre will intensify its close cooperation with Bundeswehr institutions such as the Bundeswehr universities, the Bundeswehr Centre of Military History and Social Sciences, the Leadership Development and Civic Education Centre, the Bundeswehr Institute of Preventive Medicine, the technical branches of military psychology and the social services, and the chaplain service (i.e. the Office of the Protestant Church for the Bundeswehr and the Catholic Military Episcopal Office).

The Psychotrauma Centre also aims to expand NATO cooperation and establish an international research group that encompasses armed forces and the scientific community. An important objective of the research section of the Psychotrauma Centre is to make projects more international and to work towards multinational multicentre studies. Participation in international NATO research task groups (such as HFM RTG) allows us to broaden our horizon, to benefit from the knowledge of other nations, and to develop joint projects. The research plan for 2015 to 2020, for example, included participation in RTG HFM-277 on "Leadership Tools for Suicide Prevention" and RTG HFM-258 on "The Impact of Military Life on Children of Military Families". The research plan for 2020 to 2025 focuses on the creation of new research task groups and the participation of the Psychotrauma Centre in existing task groups.

Cooperation with civilian institutes from other countries will also be intensified from 2020 to 2025. Projects with internationally renowned research institutes such as King's College in London have been arranged for this period. Joint research and publication make it possible to shine a binational light on research issues. According to the 2020 – 2025 research plan, these efforts are to be intensified – particularly within Europe – in order to meet political requirements as much as

possible. Ongoing register studies focusing on the epidemiology of mental illness, on the way psychiatric, psychotherapeutic and psychosocial services are used, and on suicidal risk constellations will particularly benefit from the joint use of data sets and will become more useful. In this context, work in NATO research task groups will be implemented in several areas of the Psychotrauma Centre and will be further intensified. Successful programmes and methods from other countries can be adapted and implemented, saving us time and costs developing our own.

One example is the MAGEN programme, originally developed by the Israel Defence Forces, which serves as a health care instrument for self and buddy aid in highly stressful situations. The British, Dutch and American armed forces have adopted a similar programme as troop training. In 2016, the Psychotrauma Centre began a pilot project on developing and evaluating a MAGEN-based curriculum. The results of this study will be published in the research period 2020 to 2025.

## Conclusions

In the coming years, research must focus not only on post-traumatic stress disorder but also on other psychiatric problems such as anxiety disorders, drug abuse, and depressive disorders. These disorders are often known as comorbid disorders because they occur at the same time. In addition, they can be a direct result of a traumatic event.

With a view to ensuring the long-term mental health of soldiers, low-threshold interventions will be developed and evaluated over the next years so as to facilitate an early, uncomplicated and competent start of treatment at the pre-clinical stage of general medical care. Complementary methods must also be evaluated to provide empirical evidence of their effectiveness. Several projects will examine and optimise medical rehabilitation, occupational and service rehabilitation, as well as reintegration into working life.

Additionally, psychotherapeutic treatment provided by Bundeswehr facilities and civilian partners should place a greater focus on the epiphenomena of coping with deployment experiences and the development of psychiatric and psychosocial care methods. This includes changes in personal values but also feelings of guilt and shame that are closely associated with the development of psychiatric symptoms. Interdisciplinary cooperation and research are essential.

In the medium and long term, international cooperation is needed in the area of interventions if we are to benefit from the experiences of others, learn from one another, and if necessary establish uniform NATO standards for treatment and research.

# APPENDIX

## Selected Publications

The following is a selection of thematically relevant publications and books by staff of the psychiatric facilities of the Bundeswehr Medical Service. Each publication has an identifier that comprises the field of research, the year of publication, and a serial number.

Fields of research	
<b>GES</b>	Mental health of Bundeswehr soldiers
<b>PHY</b>	Trauma-related structural and physiological changes
<b>PRV</b>	Prevention
<b>BEM</b>	Treatment methods
<b>TGV</b>	Technology-based procedures
<b>PSU</b>	Psychosocial support
<b>UBS</b>	Other
<b>BOOK</b>	Books and book chapters

## GES | „Moral injuries and research on values“

### GES-2019-3

Hohl-Radke F, Leutheußer G, Groh M, Reimann I, Koch M, Zimmermann P (2019): **Persönlichkeitsstörungen und Wertorientierungen als Prädiktoren männlicher Depression bei militärischen und zivilen Patienten.** (Publikationstitel)

**Personality Disorders and Value Orientation as Predictors for Male Depression in Military and Civilian Patients** (Title)

Psychiatrische Praxis.  
DOI: 10.1055/a-0890-8253.

Abstract | The aim of this clinical study was to detect differences between a civil and a military inpatient population with depressive disorders with respect to traits of male depression, personality disorders and value orientations. Fifty civil and fifty military participants answered various psychometric testings at the beginning of treatment. No differences were found concerning male depression. Personality traits and value orientations were found to be predictive for severity and frequency of depressive disorders in different depression inventories.

### GES-2018-6

Zimmermann P, Alliger-Horn C, Köhler K, Varn A, Zollo M, Reichelt A, Lovinusz A, Willmund G, Rau H, Heim E, Maercker A, Wesemann U (2018): **Depressivität und Wertorientierungen im Verlauf von militärischen Auslandseinsätzen.** (Publikationstitel)

**Depression and Value -Orientation in the Course of Military -Operations Abroad** (Title)

Trauma & Gewalt 12(02):134-150  
DOI.org/10.21706/tg-12-2-134.

Abstract | Depression and other psychic disorders are a common side effect of military missions abroad. A relatively new field of research investigates personal value orientations and moral injuries and inquires into the role they play in the onset of psychological problems following involvement in military operations. In the present study, German Bundeswehr soldiers were tested psychometrically before and immediately after a mission in Afghanistan for value orientations, moral injuries, posttraumatic symptoms and depression.

They were compared with a control group that had not undergone a military assignment abroad. Value awareness (value index) changed significantly less in the task force than in the control group. Both this value index and the values «conformity» and «tradition» were significantly associated with the onset of depression in the task force. In future, value orientations should be given closer attention both in the preparation of soldiers for deployment and in therapy for psychic disorders associated with deployment.

### GES-2018-9

Alliger-Horn C, Hessenbruch I, Fischer C, Thiel T, Varn A, Willmund G, Zimmermann P (2018): **„Moral injury“ bei kriegstraumatisierten deutschen Bundeswehrsoldaten.** (Publikationstitel)

**Moral injury in German Armed Forces soldiers with war-related trauma** (Title)

Psychotherapeut 63(4):322-328  
DOI.org/10.1007/s00278-018-0287-z

Abstract | Background: The violation of inner value orientations, moral convictions and expectations can lead to a profound moral shock, so-called moral injury (MI). The war-related MI in chronically traumatized soldiers induces high levels of psychological stress including strong feelings of shame. Up to now the treatment of morally injured German soldiers with posttraumatic shock syndrome (PTSD) has not been evaluated. Objective: This pilot study investigated the effect of a value-based cognitive behavioral group therapy on coping styles related to feelings of shame and war related MI. Material and methods: A total of 21 soldiers suffering from war-related MI as well as chronic PTSD participated in a 3-week inpatient, semi-standardized group therapy, focusing on values and compassionate imagery. Coping strategies for the experience of maladaptive shame were assessed via the Compass of Shame Scale (COSS) before starting the intervention (t1), at the end of treatment (t2) and 3 months after treatment (t3). Results: A significant reduction of the maladaptive coping strategies “attack others”, “attack self” and “withdrawal” in the COSS was observed, leading towards an implementation of more functional coping styles when it comes to feelings of shame in morally injured soldiers. The overall mental stress decreased immediately after therapy. The depressive coexisting symptoms showed positive

changes of tendencies under therapy. Conclusion: This form of value-based cognitive behavioral therapy may be an important extension for the provision of health care in chronically traumatized German soldiers with war-related MI.

#### **GES-2017-2**

Hellenthal A, Zimmermann P, Willmund G, Lovinusz A, Fiebig R, Maercker A, Alliger-Horn C: **Moralische Verletzungen, Werte und psychische Erkrankungen bei Einsatzsoldaten der Bundeswehr** (Publikationstitel)

**Combat Experiences, Moral Injuries, Personal Values and Mental Health Problems among German Soldiers serving in Afghanistan** (Title)

Verhaltenstherapie 2017 (in press)

Abstract | Background: Soldiers in foreign deployments are exposed to diverse stressful experiences, resulting in an increase in mental health problems. Moral injuries and personal values play an important role in pathogenesis of these mental health problems. Method: Combat experiences Scale (MHAT), the Posttraumatic Stress Diagnostic Scale (PDS), the Patient Health Questionnaire (PHQ), the Moral Injuries Events Scale and Schwartz' s Portrait Values Questionnaire (PVQ) were completed by 191 soldiers of the German Armed Forces at the end of their mission in Afghanistan. Associations between traumatic combat experiences, personal values and moral injuries with mental health outcome were examined by regression analysis. Results: The stressor "Confrontation with hardship, suffering and violence among population" has a significant, direct impact on mental health problems PTSD and major depression. Moral injuries are associated as well with the stressor "Confrontation with hardship, suffering and violence among population" as with the mental health problems PTSD and major depression. Conclusion: Combat experiences with moral dimension seem to be associated with psychiatric symptoms in soldiers. This effect could be mediated by the construct of moral injury. These results could contribute to further development of preventive or therapeutic approaches.

#### **GES-2016-4**

Zimmermann P, Fischer C, Lorenz S, Alliger-Horn C (2016): **Werteveränderungen und moralische Verletzungen bei im Einsatz psychisch erkrankten Soldaten** (Publikationstitel)

**Changes of Personal Values in Deployed German Armed Forces Soldiers with Psychiatric Disorders** (Title)

Wehrmedizinische Monatsschrift 60(1):7-14  
MCIF I/2016:e-publication only

Abstract | Deployed German Armed Forces soldiers are exposed to numerous traumatic events but also to situations with an impact on value orientations or equal to moral injuries. Ten focus groups were performed in 78 German Armed Forces soldiers after deployment to Afghanistan who were treated in the Military Hospital in Berlin due to psychiatric disorders. Numerous reasons and types of changes and also

psychologic sequelae were reported, which pointed to rather individual and less stereotype reactions. This topic should gain importance for preventive and therapeutic approaches in Armed Forces.

#### **GES-2015-13**

Zimmermann P, Firnkes S, Kowalski J, Backus J, Alliger-Horn C, Willmund G, Hellenthal A, Bauer A, Petermann F, Maercker A (2015): **Zusammenhänge zwischen Psychischer Symptomatik und Persönlichen Werten bei Bundeswehrsoldaten nach einem Auslandseinsatz** (Publikationstitel)

**Mental Disorders in German Soldiers after Deployment – Impact of Personal Values and Resilience** (Title)

Psychiatrische Praxis 42(8):436-42 DOI: 10.1055/s-0034-1370242

Abstract | Soldiers are at increased risk of developing mental health disorders after military deployment. The impact of personal values on psychological symptomatology based on an empirical working model has not yet been studied in a military environment. Methods: 117 German Armed Forces soldiers completed the Portrait-Values-Questionnaire (PVQ), the Patient-Health-Questionnaire (PHQ) and the Resilience-Scale (RS-11) after their deployment to Afghanistan. Results: In the regression analyses the values hedonism, benevolence, tradition, self-direction and universalism had a differential significant impact on depression, anxiety and somatoform symptoms of the PHQ. The RS-11 sum scale values were negatively correlated with symptomatology. Conclusion: Personal values and resilience seem to be associated with psychological symptomatology in soldiers after military deployment. The results can contribute to the further development of both preventive and therapeutic approaches.

#### **GES-2014-4**

Zimmermann P, Firnkes S, Kowalski J, Backus J, Siegel S, Willmund G, Maercker A (2014): **Persönliche Werte bei Soldaten nach einem Auslandseinsatz: Zusammenhang zwischen psychischer Gesundheit und Resilienz/Widerstandsfähigkeit/Belastbarkeit** (Publikationstitel)

**Personal values in soldiers after military deployment: associations with mental health and resilience** (Title)

European Journal of Psychotraumatologie 5:1-9  
DOI: 10.3402/ejpt.v5.22939.

Abstract | After military deployment, soldiers are at an increased risk of developing posttraumatic psychiatric disorders. The correlation of personal values with symptoms, however, has not yet been examined within a military context. Method Schwartz' s Portrait Values Questionnaire (PVQ), the Posttraumatic Stress Diagnostic Scale (PDS), and the 11-item version of the Resilience Scale (RS-11) were completed by 117 soldiers of the German Armed Forces who had recently been deployed to Afghanistan (n=40 undergoing initial psychiatric treatment, n=77 untreated). Results Logistic regression showed that the value types of hedonism

(-), power (-), tradition (+), and universalism (+) were significantly correlated with the probability and severity of PTSD and whether the participant was in treatment or not. The effects were partially mediated by the RS-11 scale values. Conclusions Value types seem to be associated with psychiatric symptoms in soldiers after deployment. These results could contribute to the further development of therapeutic approaches.

#### **GES-2013-4**

Lorenz S, Zimmermann P (2013): **Values and Values-Based Concepts in dependence Mental Health** (Title)

**Werte und wertegestützte Konzepte in Abhängigkeit von psychischer Gesundheit** (Publikationstitel)

MCIF The Medical Corps International Forum (4):8–11

Abstract | This article reviews the current knowledge about the philosophical and psychological underpinnings of post-traumatic stress disorder (PTSD) and other trauma-related psychological disorders (TRPD) that occur as non-physical injury in war. One common humanistic construct shared by all modern explanatory approaches to psychological trauma and resilience is the notion of human values. Values as structural elements of the human psyche have constitutional rank among our diverse qualities. As such values are neither indestructible nor all-powerful. Scientific appreciation of the power and significance of values is only just beginning. In military mental health, values and values-based concepts are increasingly of interest as a focus for personnel selection, pre-trauma intervention, prognostication, and treatment of TRPD. The emerging study of values holds the promise to avail us of a much stronger, more resilient “psychological armor” to equip our deployed comrades with, in the future

#### **GES-2010-3**

Siegel S, Zimmermann P (2010): **Moralische Verletzungen von Soldaten im Auslandseinsatz** (Publikationstitel)

**Moral injury of soldiers in out-of-area-deployments** (Title)

Wehrmedizinische Monatsschrift 54(6-7):185-188

Abstract | Increasing psychological distress due to out-of-area-deployments is associated with a growing number of psychiatric diseases in the German Armed Forces. The previous concepts of pathogenesis were focused on events with extraordinary threat or the experience of despair, fear and helplessness. Daily clinical work also revealed special varieties of traumatization, though: here fear of death and despair do not dominate the clinical impression.

By Contrast feelings of guilt and shame and resulting conflicts with conscience and self-esteem play a leading role. These moral confusions go along with substantial changes in the judgment of the own self and the sense of coherence and thus lead to marked decreases in quality of life. Based on a case report, this study describes and discusses moral aspects of deployment-related psychiatric diseases.



#### GES-2017-7

Wesemann U, Schura R, Kowalski J, Kropp S, Danker-Hopfe H, Rau H, Ströhle A, Thiele J, Zimmermann P (2017): **Zusammenhang von Auslandseinsätzen und Tabakabhängigkeit bei Soldaten.** (Publikationstitel)

Das Gesundheitswesen 79(12):1067-1072  
DOI: 10.1055/s-0035-1559707

Abstract | Objective: Smoking is a highly preventable risk factor. The present study investigates whether military operations abroad, as compared to deployment preparation, increase the risk of starting to smoke, enhance tobacco dependence and moderator variables can be identified on smoking behavior. Method: The study was conducted at 2 mechanized infantry battalions with N=264 soldiers. The task force completed a deployment in Afghanistan, the control group performed a deployment training. Assessments of tobacco dependence, posttraumatic symptoms, depression and stress were done before (t1) and after (t3) deployment. In addition, one assessment was done at mid-point (t2) during deployment and during the pre-deployment training, respectively. Results: The prevalence rate of smoking soldiers was 56,4%. 51,1% (n=135) of all examined soldiers smoked more than 20 cigarettes per day. The results show a significant increase of tobacco dependence in the task force from t1 to t3 ( $p=0,040$ ) as compared to the control group. For both groups, there was no increase in starting to smoke during the period of investigation ( $\chi^2 < 1$ ; n. s.). Moderator variables on smoking were not found, but there was a significant increase in posttraumatic stress symptoms in the deployed group ( $p=0,006$ ). Conclusions: Perhaps the increase in tobacco dependence in the experimental group can be attributed to the specific burdens of deployment. If high smoking rates were to be found also in other branches of the armed services, effective smoking cessation programs should be offered more widely.

#### GES-2015-12

Zimmermann P, Kahn C, Alliger-Horn C, Willmund G, Hellenthal A, Jaeckel R, Schomerus G, Wesemann U (2015): **Assoziation von Werteorientierungen mit der Schwere einer Alkoholabhängigkeit bei Soldaten in qualifizierter Entzugsbehandlung** (Publikationstitel)

**Association of value orientations with the severity of alcohol dependence in soldiers undergoing inpatient short-term motivational treatment** (Title)

Nervenheilkunde 10:803-808

Abstract | Alcohol-related disorders are of substantial relevance in the civil as well as military population. Little is known about the impact of personal values of soldiers on severity and outcome of addictive disorders. Material and

methods: 48 German soldiers with alcohol dependence were evaluated before and after a three-weeks' inpatient psychotherapy for addiction with the Severity Scale of Alcohol Dependence (SESA), the Short Scale for Confidence in Abstinence (KAZ) and the Portrait Values Questionnaire (PVQ). Results: Associations of value orientations with symptom severity at the beginning of the intervention were found for hedonism (+) and stimulation (-). Confidence in abstinence increased significantly during therapy with a positive influence of tradition. Conclusion: Value orientations should gain more importance for diagnosis and therapy of alcohol disorders.

#### GES-2016-3

Wesemann U, Kahn C, Zimmermann P, Willmund G, Schomerus G (2016): **Self-stigma in Military Personnel with Alcohol Dependence: Comparison with a Civilian Sample before Qualified Withdrawal Treatment** (Title)

**Selbst-Stigmatisierung von alkoholabhängigen Bundeswehrangehörigen: Bundeswehrangehörige im Vergleich zu Zivilisten vor einem Qualifizierten Alkoholentzug** (Publikationstitel)

Drugs and Alcohol Today: (in press)

Abstract | The present study aims to highlight the differences in self-stigma between a military and a civilian sample in order to infer military-specific aspects of the stigmatization process. Design/methodology/approach: Before undergoing a 3-week course of qualified withdrawal treatment, 55 German military personnel were examined in terms of self-stigma, abstinence self-efficacy, duration of alcohol abuse, severity of alcohol dependence, and current mental disorders. Afterwards, the participants were compared with a non-military sample of 173 subjects with a mild dependence in a civilian psychiatric clinic that had not yet undergone qualified withdrawal treatment. Findings: While awareness of stigmatization is significantly greater among military personnel than in the civilian comparison group [ $t(171) = 3.83$ ,  $p < .01$ ], there is far less agreement with such stigmatization [ $t(170) = -3.20$ ,  $p < .01$ ]. More severe mental disorders and low abstinence self-efficacy have a significant influence on self-esteem decrement for the entire group. Research limitations/implications: Both samples only consisted of male participants who wanted to receive treatment. Originality/value: Since most studies refer to civilian patients, a comparative study of the influence of stigmatization of alcohol use disorders in the armed forces is of particular interest. The study indicates that military personnel are more aware of stigmatization by colleagues and superiors than is the case among civilian patients. This could be a significant obstacle when it comes to seeking professional help. Prevention programs need to give greater priority to this subject.

### GES-2015-8

Schura R, Wesemann U, Zimmermann P, Kropp S (2015): **Zigarettenabhängigkeit bei Soldaten der Bundeswehr.** (Publikationstitel)

**Cigarette dependence among German Soldiers.** (Title)

Wehrmedizinische Monatsschrift (59):38-42

Abstract | Cigarette smoking has negative impact on military readiness and can cause long-term harmful health effects. However, current high prevalence of tobacco dependence among soldiers is a significant risk factor but still largely neglected by military medical care. Therefore an establishment of effective preventive measures and treatments is necessary.

### GES-2015-7

Trautmann S, Schönfeld S, Behrendt S, Heinrich A, Höfler M, Siegel S, Zimmermann P, Wittchen H (2015): **Stress exposure and the risk for the onset of alcohol use disorders and nicotine dependence in deployed military personnel: the role of prior internalizing disorders** (Title)

**Stress und das Auftreten von Alkoholkrankungen und Nikotinabhängigkeit bei Soldaten: Die Rolle früherer psychischer Erkrankungen** (Publikationstitel)

Addictive Behaviors 43:89–96

DOI: 10.1016/j.addbeh.2014.12.013.

Abstract | This prospective study aimed to investigate whether prior internalizing disorders (PIDs) moderate the relationship between stress exposure (SE) and the onset of alcohol use disorders (AUDs) and nicotine dependence (ND) in deployed military personnel. Methods: 358 male soldiers were examined directly before and 12 months after return from deployment using standardized interviews. Combat experiences, concerns about family disruptions, and difficult living and working environment were assessed as different aspects of SE. PID diagnoses (mood disorders (PMDs), anxiety disorders (PADs)) and substance use disorders were defined according to the DSM-IV-TR. Results: PMDs were related to a stronger association between concerns about family disruptions and the risk of AUD onset (OR=7.7, 95% CI 1.8-32.8, p=0.006). The number of PID diagnoses (OR per diagnosis: 1.7, 95% CI 1.0-2.8, p=0.036) and PADs (OR: 2.6, 95% CI 1.1-6.3, p=0.038) were further related to a stronger association between difficult living and working environment and the risk of AUD onset. With regard to ND, PMDs were related to a weaker association between difficult living and working environment and the risk of ND onset (OR=0.4, 95% CI 0.2-0.8, p=0.013). Conclusions: PIDs might be related to an increased risk for the onset of AUDs but not ND following SE. This effect is probably restricted to specific constellations of PADs, PMDs, comorbid PIDs and specific aspects of SE. These critical constellations of PIDs and SE might be a promising target for future research and could contribute to the development of preventive measures to reduce the risk of AUDs following SE.

### GES-2015-6

Trautmann S, Schönfeld S, Behrendt S, Schäfer J, Höfler M, Zimmermann P, Wittchen H (2015): **Associations between lifetime PTSD symptoms and current substance use disorders using a five-factor model of PTSD.** (Title)

**Über den Zusammenhang von PTBS-Symptomen über die Lebensspanne und bestehender Substanzkonsum-Störungen.** (Publikationstitel)

Journal of Anxiety Disorders 29:93-100

Epub 2014 Dec 5. DOI: 10.1016/j.janxdis.2014.11.009.

Abstract | This paper aimed to extend the existing knowledge on the association between PTSD symptoms, alcohol use disorders (AUD) and nicotine dependence (ND) by distinguishing between anxious and dysphoric arousal PTSD symptoms and by considering the putative contribution of additional comorbidity. Data stem from a cross-sectional study in a stratified, representative sample of 1483 recently deployed soldiers using standardized diagnostic interviews. All lifetime PTSD symptom clusters (occurrence of any symptom and number of symptoms) were associated with current AUD and ND in crude models except that anxious arousal was not related to AUD. Associations were reduced in magnitude when controlling for comorbidity. Current ND was related to the occurrence of any emotional numbing and to the number of re-experiencing symptoms above the contribution of other symptom clusters and comorbidity. In conclusion, associations between PTSD symptoms, AUD and ND may be partially attributable to additional comorbidity. Findings also yield further evidence for a role of emotional numbing and re-experiencing symptoms in the comorbidity between PTSD and ND and for a distinction between dysphoric and anxious arousal PTSD symptoms.

### GES-2015-4

Trautmann S, Schönfeld S, Behrendt S, Heinrich A, Höfler M, Siegel S, Zimmermann P, Wittchen H (2015): **Predictors of changes in daily alcohol consumption in the aftermath of military deployment** (Title)

**Prädiktoren für veränderten täglichen Alkoholkonsum als Folge von militärischen Auslandseinsätzen** (Publikationstitel)

Drug and Alcohol Dependence 147:175-182

DOI:10.1016/j.drugalcdp.2014.11.019

Abstract | Several studies have documented factors related to increase in alcohol consumption in the context of stressful experiences. However, little is known about predictors of different courses of alcohol use in this context. This study aims to investigate diverse predictors and correlates of increase and decrease of average daily alcohol consumption (aDAC) in the aftermath of military deployment taking into account a variety of potentially relevant factors. Methods: N=358 soldiers were examined before (T1) and 12 months after return from deployment (T2) using standardized interviews. Change in aDAC was categorized into decreased (n=72), stable (n=215) and increased (n=71) aDAC. Results: Overall,

aDAC did not change significantly between T1 and T2 (median change=0.0 g, inter quartile range=11.3g). Compared to stable aDAC, increase was characterized by a lower proportion of high-educated individuals (OR: 0.3 (0.1-0.7), p=0.008), lower rank (marginally significant: OR: 2.0 (1.0-4.1), p=0.050), and less acceptance (trend: MR: 0.97 (0.93-1.00), p=0.053). Correlates of increased aDAC were less social support (MR: 0.84 (0.71-0.99), p=0.043), more sleeping problems (MR: 1.15 (1.00-1.31), p=0.045) and more negative post-event cognitions following deployment (MR: 2.32 (1.28-4.21), p=0.006). Decrease in aDAC was predicted by lower PTSD symptom severity before deployment (MR: 0.34 (0.16-0.72), p=0.005) and less childhood emotional neglect (marginally significant: MR: 0.78 (0.60-1.00), p=0.050). Conclusions: Increase and decrease in alcohol use after stressful experiences might have differential risk factors and correlates. Findings might stimulate future research that could result in improved measures to prevent increases as well as in interventions that could foster decreases in alcohol consumption in the context of stressful experiences.

### GES-2014-3

Trautmann S, Schönfeld S, Behrendt S, Höfler M, Zimmermann P, Wittchen H (2014): **Substance use and substance use disorders in recently deployed and never deployed soldiers** (Title)

**Substanzkonsum und Erkrankungen durch Substanzkonsum bei Soldaten mit und ohne Auslandseinsatz** (Publikationstitel)

Drug and Alcohol Dependence 134(1):128–135

DOI: 10.1016/j.drugalcdep.2013.09.024.

Abstract | Background Military studies investigating the prevalence of substance use (SU) and substance use disorders (SUD) and the relation between SU and mental disorders often lack a comprehensive assessment of SU, SUD and mental disorders and comparable groups of deployed and non-deployed personnel. There is also limited data regarding SU and SUD in the German military to date. Methods Cross-sectional examination of n = 1483 soldiers recently deployed in Afghanistan and 889 never deployed soldiers using a fully-standardized diagnostic interview (MI-CIDI) including a comprehensive substance section. Results Across both groups, 12-months prevalence of DSM-IV alcohol use disorders was 3.1%, 36.9% reported binge drinking, 13.9% heavy drinking, 1.3% illegal drug use. 55.1% were regular smokers, 10.9% nicotine dependent. Although recently deployed soldiers revealed slightly higher rates in some measures, there were no significant differences to the never deployed regarding SU and SUD except that recently deployed soldiers smoked more cigarettes per day. The association of SU with mental disorders was substantially different though, revealing significant associations between SU and mental disorders only among recently deployed soldiers. Conclusions We do not find remarkable differences in the prevalence of SU and SUD between recently deployed and never deployed soldiers. Especially binge drinking and regular smoking were prevalent

across both samples indicating needs for improved interventions. The finding that SU and mental disorders are only associated in recently deployed soldiers might have implications for improved screening and prevention and suggests that deployment might promote different pathways and mechanisms involved in the evolution of SU and mental disorders.

**GES-2017-4**

Wesemann U, Zimmermann P, Bühler A, Willmund G (2017): **Gender differences in hostility and aggression among military healthcare personnel after deployment.** (Title)

Journal of Women's Health 26(10):1138-1138  
DOI.org/10.1089/jwh.2017.6550.

**Abstract** | Introduction: A previous study analyzed data from Navy Healthcare personnel and found that women have significantly higher odds of post-deployment posttraumatic stress disorder compared to men. This was the first study to look specifically within healthcare personnel, and the result is in line with a previous review of the literature for service members and veterans. Methods: We performed a prospective study of medical personnel in the German Armed Forces, before and after military deployment in Afghanistan. To assess psychological symptoms, participants completed German versions of the Posttraumatic Diagnosis Scale (PDS) and the Brief Symptom Inventory (BSI) at both time points. We conducted repeated measures ANOVAs to assess a main effect of deployment and a gender by deployment interaction on psychological symptoms. Results: There was no significant main effect or interaction for PTSD symptoms. However, we observed a significant group by time interaction in hostility and aggression, with female soldiers showing a significant post-deployment increase compared to male soldiers. Discussion: Despite the use of a similar occupational group, we do not replicate MacGregor and colleagues' finding of elevated PTSD-symptoms or rates in female soldiers. However, due to current study's smaller sample size, we may be underpowered to detect small effects. However, we do observe gender differences in the etiology of hostility and aggression, with elevated rates in female soldiers following deployment. A recent meta-analysis found increased rates of physical aggression among combat-exposed military personnel, and the authors propose a mediating role of PTSD between combat exposure and post-deployment aggression. As such, increases in hostility and aggression could represent an early behavioral indicator for the later onset of PTSD symptoms. Conclusions: Based on the work by Macgregor and colleagues, and the current results, we conclude that gender seems to be an important factor in psychological and psychiatric outcomes for military medical personnel following military deployment. Future studies may seek to explore gender differences in the onset and duration of psychological symptoms following deployment. This work could inform and improve pre-deployment training and post-deployment support for military healthcare personnel and, particularly, for female soldiers.

**GES-2016-2**

Trautmann S, Goodwin L, Höfler M, Jacobi F, Strehle J, Zimmermann P, Wittchen H (2016): **Prevalence and severity of mental disorders in military personnel: a standardized comparison with civilians** (Title)

**Prävalenz und Schweregrad von psychischen Erkrankungen bei Bundeswehrangehörigen: ein standardisierter Vergleich von Bundeswehrangehörigen mit Zivilisten** (Publikationstitel)

Epidemiology and Psychiatric Sciences (18):1-10  
DOI:10.1017/S204579601600024X

**Abstract** | Provision and need for mental health services among military personnel are a major concern across nations. Two recent comparisons suggest higher rates of mental disorders in US and UK military personnel compared with civilians. However, these findings may not apply to other nations. Previous studies have focused on the overall effects of military service rather than the separate effects of military service and deployment. This study compared German military personnel with and without a history of deployment to sociodemographically matched civilians regarding prevalence and severity of 12-month DSM-IV mental disorders. Method: 1439 deployed soldiers (DS), 779 never deployed soldiers (NS) and 1023 civilians were assessed with an adapted version of the Munich Composite International Diagnostic Interview across the same timeframe. Data were weighted using propensity score methodology to assure comparability of the three samples. Results: Compared with adjusted civilians, the prevalence of any 12-month disorder was lower in NS (OR: 0.7, 95% CI: 0.5-0.99) and did not differ in DS. Significant differences between military personnel and civilians regarding prevalence and severity of individual diagnoses were only apparent for alcohol (DS: OR: 0.3, 95% CI: 0.1-0.6; NS: OR: 0.2, 95% CI: 0.1-0.6) and nicotine dependence (DS: OR: 0.5, 95% CI: 0.3-0.6; NS: OR: 0.5, 95% CI: 0.3-0.7) with lower values in both military samples. Elevated rates of panic/agoraphobia (OR: 2.7, 95% CI: 1.4-5.3) and posttraumatic stress disorder (OR: 3.2, 95% CI: 1.3-8.0) were observed in DS with high combat exposure compared with civilians. Conclusions: Rates and severity of mental disorders in the German military are comparable with civilians for internalising and lower for substance use disorders. A higher risk of some disorders is reduced to DS with high combat exposure. This finding has implications for mental health service provision and the need for targeted interventions. Differences to previous US and UK studies that suggest an overall higher prevalence in military personnel might result from divergent study methods, deployment characteristics, military structures and occupational factors. Some of these factors might yield valuable targets to improve military mental health.

#### GES-2015-5

Trautmann S, Schonfeld S, Heinrich A, Schafer J, Zimmermann P, Wittchen H (2015): **Risk factors for common mental disorders in the context of military deployment: a longitudinal study** (Title)

**Risikofaktoren häufiger psychischer Erkrankungen im Zusammenhang mit militärischen Auslandseinsätzen: Eine Längsschnitt-Studie** (Publikationstitel)

European Psychiatry (30): 303 DOI:10.1016/S0924-9338(15)30244-3

Abstract | Introduction: Studies have shown that mental health risks related to military deployment depend on specific risk factors. Especially stressful experiences (SE) and lack of social support (SS) have been associated with deployment-related increases in mental disorders. Less is known about difficulties in emotion regulation (DER) in this context despite their well-known importance for the development and maintenance of mental disorders. To date, the number of prospective studies investigating the role of these potential risk factors for deployment-related psychopathology is limited. Objective: To investigate risk factors for deployment-related increases in symptoms of common mental disorders. Aim: To investigate associations between SE, SS and DER, and deployment-related increases in PTSD, major depression (MD) and alcohol use disorder (AUD) symptoms. Methods: 358 male soldiers were assessed before and 12 months following deployment using standardized diagnostic interviews (CIDI) and embedded questionnaires. Outcome measures were the number of PTSD, MD and AUD symptoms reported for the preceding 12 months at follow-up. Analyses were adjusted for baseline symptoms. Results: SE (incidence risk ratio (IRR):1.06,  $p<0.001$ ), SS (IRR:0.98,  $p=0.034$ ) and DER (IRR:1.04,  $p=0.009$ ) independently predicted increases in PTSD symptoms. SE (IRR:1.04,  $p=0.004$ ) and SS (IRR:0.98,  $p=0.022$ ) also predicted increases in MD symptoms. Increase in AUD symptoms was not predicted by SE, SS or DER, but by increase in PTSD symptoms (IRR:1.02,  $p=0.029$ ). Conclusions: Findings support the role of SE, SS and DER as risk factors for deployment-related disorders, particularly for PTSD symptoms. This knowledge might help to identify high-risk individuals and to develop targeted interventions.

#### GES-2015-14

Schäfer J, Wittchen H, Höfler M, Heinrich A, Zimmermann P, Siegel S, Schönfeld S (2015): **Is trait resilience characterized by specific patterns of attentional bias to emotional stimuli and attentional control?** (Title)

**Ist Belastbarkeit durch spezifische Muster der Wahrnehmungsveränderung von emotionalen Reizen und Aufmerksamkeitssteuerung charakterisiert?** (Publikationstitel)

Journal of Behavioral Therapy and Experimental Psychiatry 48:133–139 DOI: 10.1016/j.jbtep.2015.03.010.

Abstract | Background and objectives Attentional processes have been suggested to play a crucial role in resilience de-

finied as positive adaptation facing adversity. However, research is lacking on associations between attentional biases to positive and threat-related stimuli, attentional control and trait resilience. Methods Data stem from the follow-up assessment of a longitudinal study investigating mental health and related factors among German soldiers. Trait resilience was assessed with the Connor-Davidson Resilience Scale and attentional control with the Attentional Control Scale. A subset of  $n = 198$  soldiers also completed a dot probe task with happy, neutral and threatening faces. Results Attentional control was positively related to trait resilience. Results revealed no associations between both attentional biases and trait resilience. However, there was a negative association between attentional bias to threat and trait resilience when attentional control was low and a positive association between attentional bias to threat and trait resilience when attentional control was high. No such associations were found for attentional bias to positive stimuli. Limitations Generalizability to other populations may be limited since we exclusively focused on male soldiers. Also, the cross-sectional design does not allow for causal conclusions. Conclusions Findings suggest that attentional processing may promote trait resilience. Future research on preventive interventions should consider these findings.

#### GES-2014-2

Zimmermann P, Schäfer J, Trautmann S. (2014): **Das Risiko erneuter Auslandseinsätze bei Soldaten mit einsatzbezogener Posttraumatischer Belastungsstörung** (Publikationstitel)

**The risk of further foreign assignments for soldiers with deployment-related posttraumatic stress disorder** (Title)

Verhaltenstherapie und Psychosoziale Praxis 46(3):748-758

Abstract | The treatment of soldiers with deployment-related posttraumatic stress disorder (PTSD) has become a task for both military and civilian psychiatrists and psychotherapists. In this process, there is an ongoing discussion whether the restoration of the ability for service implying the possibility of further deployments can be a justifiable treatment goal for soldiers with deployment-related PTSD. This article summarizes major empirical findings regarding the potential risk of further deployments. We consider the risk of aggravation of existing disorders, the occurrence of further symptoms as well as putative negative consequences far the current treatment. Beyond that, findings on potential risks of an exclusion from further deployments are also presented. These concern the field of forward psychiatry, the meaning of occupational rehabilitation as well as putative consequences for disclosure and help-seeking behavior. Finally, research gaps and potential steps towards an extension of existing prevention and intervention measures are discussed.

#### GES-2014-1

Zimmermann P, Höfler M, Schönfeld S, Trautmann S, Hauffa Robin, Kowalski J, Wittchen H (2014): **Einsatzerlebnisse und**

**einsatzbedingte psychische Erkrankungen deutscher Soldaten - empirische Struktur und prädiktive Wertigkeit traumatischer Stressoren** (Publikationstitel)

**Deployment stressors and psychiatric disorders in German soldiers - empirical structure and predictive value** (Title)

Zeitschrift für Klinische Psychologie und Psychotherapie 43(3):180–191 DOI: 10.1026/1616-3443/a000264

Abstract | Little is known about the empirical structure of traumatic stress and the associations between stressors and disorders, especially after military deployment. Methods: 1483 soldiers returning from the ISAF mission 2009/2010 received standardized diagnostic interviews (MI-CIDI). Two models of stressors from different deployment scenarios were checked for their fit to the items of the MHAT-VI-report list with confirmatory factor analyses (CFA). Results: Due to high polychoric correlations between items assigned to different factors and highly negative correlations between items of the same factor, CFA did not show satisfactory fit for both tested models. No predictive value of groups of stressors for the development of psychiatric disorders was found either. Conclusions: The results do not correspond with previous military studies, thus suggesting a specific effect of deployment environment on the structure of traumatic stress.

**GES-2013-3**

Trautmann S, Schönfeld S, Höfler M, Heinrich A, Hauffa R, Zimmermann P, Wittchen H (2013): **Posttraumatische Belastungsstörungen nach Auslandseinsätzen deutscher Soldaten Steigt das Risiko mit der Einsatzdauer?** (Publikationstitel)

**Posttraumatic stress disorder after deployment of German soldiers: does the risk increase with deployment duration?** (Title)

Bundesgesundheitsblatt Gesundheitsforschung Gesundheitsschutz 56(7):930-40 DOI: 10.1007/s00103-013-1761-y

Abstract | International studies suggest a growing risk of posttraumatic stress disorder (PTSD) with an increasing duration of deployment. There are no data available for the German armed forces that would allow an assessment of the average mission duration of about 4 months. Analyses are based on a stratified random sample of 1,483 ISAF soldiers. Standardized diagnostic interviews were conducted about 12 months after soldiers returned from mission. Deployment duration was categorized into 1-2 months, 3-5 months, and 5-8 months. Additionally, dimensional analyses of deployment duration were performed. Deployment duration was associated with the number of stressful and traumatic events. Notwithstanding, we found no linear relationship between mission duration and PTSD risk, neither in the total sample nor in the defined subgroups. However, we found a bimodal distribution suggesting an increased PTSD risk in the first 2 months and - less pronounced and limited to the Kunduz location - for deployment durations of at least 6

months. There was no general increase in PTSD risk with increasing deployment durations for German soldiers in this naturalistic study. The higher risk for soldiers with short deployments might be explained by selection of vulnerable subjects and different deployment characteristics. Further, there is some evidence of an increased PTSD risk for soldiers deployed for longer periods to high-risk locations (e.g., Kunduz).

**GES-2012-2**

Wittchen H, Schönfeld S, Kirschbaum C, Thureau C, Trautmann S, Steudte S, Klotsche J, Höfler M, Hauffa R, Zimmermann P (2012): **Traumatische Ereignisse und posttraumatische Belastungsstörungen bei im Ausland eingesetzten Soldaten Wie hoch ist die Dunkelziffer?** (Publikationstitel)

**Traumatic experiences and posttraumatic stress disorder in soldiers following deployment abroad: how big is the hidden problem?** (Title)

Deutsches Ärzteblatt International 109(35-36):559–568 DOI: 10.3238/arztebl.2012.0559.

Abstract | Little is known about the frequency of traumatic event exposure and the development of post-traumatic stress disorder (PTSD) among German soldiers serving in Afghanistan. Methods: We studied a random sample consisting of 1599 soldiers who had served in the 2009/2010 ISAF mission in Afghanistan, stratified by deployment location and unit. Twelve months after their return to Germany, the soldiers were assessed with a Composite International Diagnostic Interview (CIDI) to establish the diagnoses of mental disorders and PTSD according to the DSM-IV. 889 similar soldiers who had not been deployed abroad were assessed in the same way. Results: 49.2% (95% confidence interval [CI]: 46.4 to 52.1) of the deployed soldiers experienced at least one traumatic event during their deployment, and 13% experienced more than three. The 12-month prevalence of PTSD among returning soldiers was 2.9% (95% CI: 2.1 to 4.1), while the service-related incidence after deployment was 0.9% (95% CI: 0.5 to 1.6). These figures imply a two- to fourfold elevation of the risk of PTSD. The risk of PTSD was highest among soldiers who had served in Kunduz (Afghanistan) and in combat units. Only half of all soldiers with PTSD sought professional help. Conclusion: Deployment abroad is associated with a high frequency of traumatic experiences and a two- to fourfold elevation of the risk of PTSD. Each year, about 300 cases of PTSD develop for every 10 000 soldiers who return to Germany; thus, the cumulative number of returnees with PTSD from the beginning of German deployment abroad may currently run into the thousands. 45% of all PTSD cases, or about one in two, are neither diagnosed nor treated. Deployment abroad also substantially increases the risk of developing a number of other mental disorders.

**GES-2012-1**

Wittchen H, Schönfeld S, Thureau C, Trautmann S, Galle M, Mark K, Hauffa R, Zimmermann P, Schäfer J, (2012): **Prevalence, incidence and determinants of PTSD and other**

**mental disorders: design and methods of the PID-PTSD+3 study.** (Title)

**Prävalenz, Inzidenz und Determinanten von PTBS und anderen psychischen Erkrankungen: Design und Methode der PID-PTSD+3-Studie.** (Publikationstitel)

International Journal of Methods in Psychiatric Research 21(2):98–116 DOI: 10.1002/mpr.1356.

Abstract | Investigation of the prevalence, incidence, and determinants of post-traumatic stress disorders (PTSD) and other mental disorders associated with military deployment in international missions poses several methodological and procedural challenges. This paper describes the design and sampling strategies, instruments, and experimental procedures applied in a study programme aimed to examine military deployment-related mental health and disorders (prevalence and trajectories) and to identify vulnerability and risk factors (e.g. age, gender, type of mission, rank, and duration of deployment and a wide range of neurobiological, psychological, social, and behavioural factors). The study comprised two components. The first component, a cross-sectional study, included 1483 deployed and 889 non-deployed German soldiers (response rate, 93%) who served during the 2009 International Security Assistance Force (ISAF) mission. A standardized diagnostic instrument (Composite International Diagnostic Interview, CIDI) coupled with established questionnaires was administered to detect and diagnose PTSD and a broad spectrum of mental disorders and mental health problems. The second component, a prospective-longitudinal study, included 621 soldiers examined before (2011) and after return (2012) from the ISAF mission. In addition to the CIDI and questionnaires, several experimental behavioural tests and biological markers were implemented to probe for incident mental disorders, mental health problems and risk factors. Our methods are expected to provide greater precision than previous studies for estimating the risk for incident deployment-related and non-deployment-related disorders and their risk factors. We expect the findings to advance our understanding of a wide spectrum of adverse mental health outcomes beyond PTSD.

#### **GES-2013-1**

Wittchen H, Schönfeld S, Kirschbaum C, Trautmann S, Thureau C, Siegert J, Höfler M, Hauffa R, Zimmermann P (2013): **Rates of Mental Disorders Among German Soldiers Deployed to Afghanistan: Increased Risk of PTSD or of Mental Disorders In General?** (Title)

**Psychische Erkrankungen bei deutschen Soldaten in Afghanistan: Gibt es ein erhöhtes Risiko für PTBS oder für psychische Erkrankungen allgemein?** (Publikationstitel)

Journal of Depression and Anxiety 2(1):1-7  
DOI:10.4172/2167-1044.100013

Abstract | Controversy exists regarding the prevalence of military mission-related PTSD and other mental disorders among deployed soldiers. Methods: Based on a random

stratified sample of n=1599 German soldiers (response rate (RR) 93%, n=1483), we assessed subjects 12 months after deployment to Afghanistan and compared findings to controls of n=932 never deployed soldiers (RR: 95%, n=889). Interviews were conducted by trained non-military clinical interviewers using the DSM-IV-TR-Composite International Diagnostic Interview (CIDI-military). Outcome measures were 12-month prevalence and incidence of PTSD, anxiety, depressive, substance use disorders and other DSM-IV-TR mental disorders. Results: Deployed soldiers reported high rates of combat-related and other traumatic events. Compared to controls they had a higher 12-month incidence (OR: 4.3) and prevalence (OR: 2.4) of PTSD, anxiety (OR: 3.6, 1.4), and alcohol use disorders (OR: 3.5, 1.9). They also had higher rates of multiple diagnoses (MR: 1.72) and higher anxiety distress scores. Incidence of PTSD and other mental disorders were best predicted by prior lifetime mental disorders. Conclusions: German soldiers deployed to Afghanistan are at increased risk of traumatic events and of mental disorders including PTSD as compared to never-deployed soldiers. The risk for other mental disorders subsequent to traumatic events such as anxiety, somatoform, and alcohol use disorders was substantially larger than the risk for PTSD. Prior mental disorders were found to be the strongest predictor of 12-month mental disorders and suggest that pre-mission psychopathological screening might be crucial to reduce mission-related mental health risks.

**GES-2019-13** (ZfSGHH)  
 Gieselmann A, Ait Aoudia M, Carr M, Germain M, Gorzka RJ, Holzinger B, Kleim B, Krakow B, Kunze AE, Lancee J, Nadorff MR, Nielsen T, Riemann D, Sandahl H, Schlarb A, Schmid C, Schredl M, Spoomaker VI, Steil R, van Schagen AM, Wittmann L, Zschoche M, Pietrowsky R (2019): **Etiology and treatment of nightmare disorder: State of the art and future perspectives.** (Title)

Journal of Sleep Research, 28:e12820.  
 DOI: 10.1111/jsr.12820

Abstract | This consensus paper provides an overview of the state of the art in research on the etiology and treatment of nightmare disorder and outlines further perspectives on these issues. It presents a definition of nightmares and nightmare disorder followed by epidemiological findings, and then explains existing models of nightmare etiology in traumatized and non-traumatized individuals. Chronic nightmares develop through the interaction of elevated hyperarousal and impaired fear extinction. This interplay is assumed to be facilitated by trait affect distress elicited by traumatic experiences, early childhood adversity and trait susceptibility, as well as by elevated thought suppression and potentially sleep-disordered breathing. Accordingly, different treatment options for nightmares focus on their meaning, on the chronic repetition of the nightmare or on maladaptive beliefs. Clinically, knowledge of healthcare providers about nightmare disorder and the delivery of evidence-based interventions in the healthcare system is discussed. Based on these findings, we highlight some future perspectives and potential further developments of nightmare treatments and research into nightmare etiology.

**GES-2019-12** (ZfSGHH)  
 Gorzka RJ, Rebling K, Höllmer H, Schulz H, Knaust T, Schredl M, Wittmann L (2019): **Psychometric evaluation of the Hamburg Nightmare Questionnaire (HNQ)** (Title)

European Journal of Psychotraumatology 10(1)  
 DOI: 10.1080/20008198.2019.1592393.

Abstract | Background: Nightmares are a widespread phenomenon. In comparison to the general population, they occur in mentally ill and especially in traumatized individuals with an increased frequency. Despite the high prevalence, there is no short questionnaire in the German language that is able to characterize nightmares, to differentiate between different nightmare types and to assess their impact on daytime functioning. Objective: The Hamburg Nightmare Questionnaire (HNQ) has been developed as a short self-rating instrument to fill this gap. Method: Psychometric characteristics of the HNQ were evaluated in a sample of 707 German soldiers passing through the standard diagnostics of the Center for Mental Health at the German Armed Forces Hospital Hamburg. Results: The results of this study show satisfactory

psychometric characteristics as a sound factorial structure and adequate internal consistency for the HNQ as well as initial indications of the construct validity of its subscales. Conclusions: The HNQ is a reliable and economic tool for the assessment of posttraumatic nightmares in clinical as well as research settings.

**GES-2019-11** (ZfSGHH)  
 Haberland L, Höllmer H, Spiegelhalder K, Schulz H, Gorzka RJ (2019): **Changes in sleep architecture in German Armed Forces personnel with posttraumatic stress disorder compared with depressed and healthy control subjects.** (Title)

PLOS ONE 14(4): e0215355.  
<https://doi.org/10.1371/journal.pone.0215355>

Abstract | Background: This study compares the sleep architecture of patients with posttraumatic stress disorder (PTSD) with that of both patients with depression and subjects with no mental disorder. Method: 45 German armed forces personnel with PTSD, 72 German armed forces personnel with depression and 24 healthy control subjects underwent 24-hour polysomnography. The effects of group membership, medication and the statistical interaction of group and medication were analysed for the following variables: sleep onset latency, REM sleep latency, slow-wave sleep and REM sleep percentages. Results: Sleep onset latency was significantly prolonged in both the PTSD and the depression group. Moreover, psychotropic medication was associated with significantly prolonged REM sleep latency. Conclusion: The impact on sleep onset latency is of special clinical relevance in that according to preliminary studies, it is of major importance for subjective sleep quality. In contrast to the other parameters, an increase in sleep onset latency results in a subjective reduction in sleep quality which can lead to hyperarousal and increased preoccupation with sleep, which in turn may lead to dysfunctional sleep patterns.

**GES-2018-2**  
 Danker-Hopfe H, Sauter C, Kowalski J, Kropp S, Ströhle A, Wesemann U, Zimmermann P (2018): **Effect of deployment related experiences on sleep quality of German soldiers after return from an International Security Assistance Force (ISAF) mission to Afghanistan.** (Title)

Psychiatry research 270:560-567  
 DOI: 10.1016/j.psychres.2018.10.021.

Abstract | The aim of the present study was to investigate the effect of experiencing potentially traumatic events during deployment on post-deployment sleep quality as measured by the Pittsburgh Sleep Quality Index (PSQI) and the Addendum for Post-Traumatic Stress Disorder (PTSD) of the Pittsburgh Sleep Quality Index (PSQI-A). Deployment related experiences were quantified on a standardised list of the



Mental Health Advisory Team of the U.S. armed forces. The original sample consisted of 118 soldiers of the German armed forces who were deployed to Afghanistan for six months. The present analyses focused on data assessed after deployment (n = 70) and in a three-month follow-up (n = 51). Results indicate that immediately after return experiences during deployment had an independent significant effect on sleep quality but not three months later. Immediately after return depressive and stress symptoms significantly affected sleep quality while three months later somatic symptoms were significant. At both time points sleep prior to deployment was a significant predictor of sleep quality following deployment. Given the importance of sleep quality prior to deployment as a known independent risk factor for newly occurring mental disorders after deployment, these results underline the need to improve sleep quality already at an early stage.

**GES-2018-10** (ZfSGHH)

Freese F, Wiese M, Knaust T, Schredl M, Schulz H, De Dassel T, Gorzka RJ, Höllmer H, Wittmann L (2018): **Comparison of symptomatic and idiopathic nightmares in patients with different mental disorders.** (Title)

International Journal of Dream Research, Vol 11, No 1 (1-5). DOI: 10.11588/ijodr.2018.1.38712

Abstract | The present study aims to test whether the degree of replicativity to which nightmares resemble potentially traumatic events varies with regard to different disorders. A further purpose was to investigate whether the subjectively experienced distress differs from one form of nightmare to another. The sample consisted of 127 service members who were treated in the Centre for Mental Health at the German Armed Forces Hospital Hamburg from March 2014 to June 2015 after being diagnosed as suffering from posttraumatic stress disorder (PTSD), depressive disorder or adjustment disorder. Whether the dominant nightmare type of patients reflected content that was replicative of a potentially traumatic event, non-replicative, or a mixed form of both was determined. Findings indicated that patients with PTSD suffered significantly more frequently from replicative nightmares than patients with depressive or adjustment disorders. Moreover, the subjectively experienced distress was most distinctive in patients who suffer mainly from replicative as compared to non-replicative or mixed nightmares.

**GES-2018-11** (ZfSGHH)

Wenigmann M, Garling M, Spiegelhalter K, Schulz H, Höllmer H, Gorzka RJ (2018). **Sleep State Misperception in Psychiatric Patients at the Bundeswehr Hospital of Hamburg: Aetiological & Epidemiological Observations.** (Title)

Somnologie, Volume 23, Issue 1, 43-48. DOI: 10.1007/s11818-018-0181-5

Abstract | This study assessed the phenomenon of sleep state misperception with regard to its prevalence and potential causes. For this purpose, 255 Bundeswehr soldiers who

were admitted as psychiatric patients with sleep disorders were examined at the Bundeswehr Hospital of Hamburg. The symptoms of sleep state misperception are a consistently negative subjective appraisal of one's own sleep. Objective measurements using electroencephalography (EEG), however, suggest the opposite, namely that sleep is objectively undisturbed. This discrepancy was seen in 52% of the examined patients in an assessment of eight empirical criteria for objectively healthy sleep. The results of a logistic regression analysis to determine predictors of the symptoms did not allow conclusions to be drawn about possible links between post-traumatic stress disorder (PTSD) or depressive disorders and sleep state misperception. Only the existence of substance use disorders was a significant negative predictor for suffering from sleep state misperception.

**GES-2017-9**

Alliger-Horn C, Zimmermann P, Herr K, Danker-Hopfe H, Willmund G (2017): **Adaptierte, stationäre Alptraumtherapie mit Imagery Rehearsal Therapy bei chronisch kriegstraumatisierten deutschen Soldaten mit PTBS** (Publikationstitel)

**Adapted, inpatient nightmare therapy involving imagery rehearsal therapy (IRT) for chronically war-traumatized German soldiers with PTSD** (Title)

Z Psychiatr Psychol Psychother. 2017;65(4):251–60.

Abstract | Chronic nightmares caused by war-induced post-traumatic stress disorder (PTSD) place great mental strain on soldiers. The treatment of nightmares in traumatized German soldiers has not been examined so far. This pilot study examines the effectiveness of an adapted, standardized Imagery Rehearsal Therapy (IRT) under inpatient conditions in a complementary setting. Fourteen war-traumatized soldiers suffering from nightmares and chronic PTSD were treated in ten single sessions. The soldiers were examined prior to intervention (t1), as well as two weeks (t2) and three months (t3) after intervention with regard to different parameters of sleep and nightmare symptoms, trauma symptoms, depression and general mental strain. Imaginative modification focused on the specific development of "compassionate imagery". The frequency of nightmares was reduced significantly in the short and long term. Sleep quality and its impact on various spheres of life, depression symptoms, general mental disturbance and trauma symptoms also reflected significant effects observed. The adapted IRT including the specific imaginative modification of nightmares caused by trauma may be a valuable contribution to the complementary treatment for chronically war-traumatized soldiers with PTSD.

**GES-2017-8** (ZfSGHH)

de Dassel T, Wittmann L, Protic S, Höllmer H, Gorzka RJ (2017): **Association of Posttraumatic Nightmares and Psychopathology in a Military Sample.** (Title)

Psychological Trauma: Theory, Research, Practice, and Policy, 10(4):475-481. DOI: 10.1037/tra0000319

Abstract | OBJECTIVE: Nightmares are among the most frequent and disturbing symptoms of posttraumatic stress disorder (PTSD). However, basic research questions regarding key associations between certain nightmare characteristics, especially replicativeness, and posttraumatic psychopathology need further empirical elaboration. METHOD: Sixty-two German soldiers (mean age 33.8 years, 17.7% females) admitted to a hospital-based treatment program for veterans completed extensive assessments consisting of clinical interviews and self-rating measures with respect to sociodemographic characteristics and psychopathology as well as dream-related variables. RESULTS: Although nightmare distress, frequency, and replicativeness were all linked to PTSD symptomatology, only the latter proved to be a significant predictor of PTSD diagnosis. Moreover, none of these nightmare characteristics predicted a depression diagnosis. CONCLUSIONS: The replicativeness of nightmares appears to be a key variable for understanding the relationship between posttraumatic nightmares and PTSD, whereas nightmare frequency and distress appear to be more aptly defined as generic markers of mental health.

#### GES-2015-9

Heinrich A, Knappe S, Trautmann S, Schönfeld S, Hauffa R, Wittchen H (2015): **Schlafprobleme bei Soldaten und die Rolle traumatischer Ereignisse bei Auslandseinsätzen.** (Publikationstitel)

**Sleeping Problems of German Soldiers and the Role of Deployment-Related Traumatic Events.** (Title)

Zeitschrift für Klinische Psychologie und Psychotherapie 44(2):121-130 DOI: 10.1026/1616-3443/a000297

Abstract | Sleeping problems, their consequences and implications constitute a serious but rarely studied issue in the context of soldier deployment. Method: A representative sample of 1478 soldiers of the German armed forces was assessed 12 months after return from deployment. Sleeping problems (Pittsburgh Sleep Quality Index; PSQI), the presence of mental disorders (DSM-IV-TR), as well as traumatic combat experiences were assessed and compared to N=880 non-deployed soldiers. Result: 41 % of soldiers with and 38 % of soldiers without deployment met diagnostic criteria for sleeping problems based on the PSQI. Traumatic combat experiences were associated with higher rates of sleeping problems (b: 0.7, 95 % KI: 0.4–1.0, p < .001). Depending on the number of traumatic combat experiences, a higher PSQI total score was reported for soldiers with incident mental disorders (b: 1.2, 95 % KI: 0.3–2.1, p = .011) as well as for soldiers without mental disorders (b: 0.7, 95 % KI: 0.3–1.1, p = .001). Conclusion: Independently of the presence of mental disorders, traumatic combat experiences during deployments are likely to contribute to the extent of sleeping problems in soldiers. Keywords: sleeping problems, deployment, prevalence, traumatic combat experiences, soldiers

#### GES-2017-1

Danker-Hopfe H, Sauter C, Kowalski JT, Kropp S, Ströhle A, Wesemann U, Zimmermann P (2017): **Sleep quality of German soldiers before, during and after deployment in Afghanistan-a prospective study.** (Title)

J Sleep Res. 2017 Apr 4. DOI: 10.1111/jsr.12522. [Epub ahead of print]

Abstract | In this prospective study, subjective sleep quality and excessive daytime sleepiness prior to, during and after deployment of German soldiers in Afghanistan were examined. Sleep quality (Pittsburgh Sleep Quality Index; PSQI) and daytime sleepiness (Epworth Sleepiness Scale; ESS) were assessed in 118 soldiers of the German army, who were deployed in Afghanistan for 6 months (deployment group: DG) and in 146 soldiers of a non-deployed control group (CG) at baseline. Results of the longitudinal analysis are reported, based on assessments conducted prior to, during the deployment and afterwards in the DG, and in the CG in parallel. Sleep quality and daytime sleepiness in the DG were already impaired during the predeployment training phase and remained at that level during the deployment phase, which clearly indicates the need for more attention on sleep in young soldiers, already at this early stage. The percentage of impaired sleepers decreased significantly after deployment. Programmes to teach techniques to improve sleep and reduce stress should be implemented prior to deployment to reduce sleep difficulties and excessive daytime sleepiness and subsequent psychiatric disorders.

**GES-2019-8**

Buehler A, Oxburgh G, Zimmermann P, Willmund G, Wesemann U (2019): **Challenges for Research into Military Investigations.** (Title)

Psychiatry, Psychology and Law 26(1):50-64  
DOI.org/10.1080/13218719.2018.1482575.

Abstract | In cases of suspected violations of rules, regulations or the law by armed forces personnel, investigations are invariably mandatory. Military investigations differ from well-researched civilian criminal investigations. Differing from civilian police detectives, most military investigators – as disciplinary supervisors and military police personnel – have a number of tasks to accomplish, which include leading in combat and ensuring military readiness. Military investigations can lead to substantive negative or positive consequences for military readiness, including mental health, unit cohesion and subjective legal certainty. This impact on unit cohesion and mental health is influenced by any prior history of distress or trauma; military investigations are often preceded by contravention of internal disciplinary acts, complaints and traumatic events. This study explores factors in the differing military and legal systems of Germany and the United Kingdom (UK) that might help military personnel to successfully conduct investigations while ensuring deployment readiness and maintaining human rights.

**GES-2019-5**

Wesemann U, Zimmermann P, Mahnke M, Butler O, Polk S, Willmund G (2017): **Burdens on emergency responders after a terrorist attack in Berlin.** (Title)

Occupational medicine, 68(1):60-63  
DOI: 10.1093/occmed/kqx172.

Abstract | Background: Terrorist attacks induce various responses in emergency responders. Addressing this range of responses in individual workers is of central interest. Aims: To assess the gender- and occupation-specific effects of a terrorist attack, particularly in emergency responders. Methods: This was a pilot study. Emergency responders present during the 2016 terrorist attack at Breitscheidplatz in Berlin were asked to participate. Measures for crisis management had been previously implemented. Stress (Patient Health Questionnaire [PHQ]), quality of life (The World Health Organization Quality of Life [WHOQOL-BREF]), post-traumatic stress disorder (PTSD Checklist for DSM-5 [PCL-5]) and current psychological symptoms (Brief Symptom Inventory [BSI]) were assessed. Results: Thirty-seven subjects were included, 11 female and 26 male. The occupational groups included 16 firefighters, six police officers, five psychosocial

health care personnel and nine members of aid organizations. Three months after the attack, female workers showed higher scores in stress and paranoid ideation, police officers showed higher scores in hostility and firefighters scored lower quality of life in environment and physical health. Conclusions: The mental health burden identified in this study plays an important role for emergency responders after terrorist attacks. Differences between occupational groups may be attributable to differences in tasks that responders perform during acute incidents. The presence of these differences 3 months after the incident suggests that these are at least medium-term conditions. This study may inform the development of treatments and policies and it thus recommended to develop a multi-level assessment and treatment programme that is gender- and occupation-specific.

**GES-2018-3**

Wesemann U, Willmund G, Ungerer J, Kreim G, Zimmermann P, Bühler A, Stein M, Kaiser J, Kowalski J (2018): **Assessing Psychological Fitness in the Military - Development of an Effective and Economic Screening Instrument.** (Title)

Military Medicine  
DOI: 10.1093/milmed/usy021.

Abstract | Background: There are a high number of soldiers with deployment-related and non-deployment-related mental health problems in the German Armed Forces (Bundeswehr): This has led to an increase in mental disorders and a decrease in quality of life. To tackle these problems and to strengthen resources among the Bundeswehr personnel, this study aims at developing a screening instrument for assessing the psychological fitness of soldiers on the basis of questionnaire scales. In this approach, psychological fitness describes a soldier's ability to integrate and enhance his/her mental and emotional capabilities using resources and trainable skills. Methods: Bundeswehr combat soldiers (N = 361) answered questionnaires about resilience (RS-11), sense of coherence (SOC-L9), quality of life (WHOQOL-BREF), mental disorders (PHQ-D) and post-traumatic growth (PTG). Additionally, they were interviewed by trained troop psychologists both before and after their deployment in Afghanistan from January to June 2014. The screening model is based on self-report data; the psychological fitness in the standardized interview serves as a validation standard. Findings: A linear logistic regression model was performed that includes the social relationship and the psychological scale from WHOQOL-BREF and the somatoform and the stress scale from PHQ. This model allows specialists a first assessment between participants who are psychologically fit before and after deployment and those who are less so. The chosen cut-off for sensitivity is between 70% and 79% and for specificity between 70% and 85%. Discussion: This screening approach

is still not applicable to large populations like that of the Bundeswehr, which currently has about 170,000 soldiers but it is limited to deployed combat troops. Classifying psychological fitness allows specialists to differentiate between people in need of special training or additional diagnostic measures and those in need of sustaining their fitness regularly at the earliest possible stage. A follow-up study that is representative of deployed and non-deployed military personnel will examine whether these results can be transferred to the entire Bundeswehr and whether the validity of the interview can be established.

#### GES-2019-1

Wesemann U, Mahnke M, Polk S, Bühler A, Willmund G. (2019): **Impact of crisis intervention on the mental health status of emergency responders following the Berlin terrorist attack in 2016.** (Title)

Disaster medicine and public health preparedness 1-5  
DOI: 10.1017/dmp.2019.60.

Abstract | Objective: The most common crisis intervention used with German rescue workers is Critical Incident Stress Management (CISM). Results regarding its effectiveness are inconsistent. A negative reinforcement of avoidance, due to premature termination of strong emotions during the Critical Incident Stress Debriefing (CISD), may explain this. The effectiveness of the CISD after terror attacks in Germany has not yet been investigated. Methods: All emergency responders deployed at the terror attack on Breitscheidplatz in Berlin were invited to take part in the study; 37 of the N = 55 participants had voluntarily participated in CISD; 18 had not. Results: Participants with CISD showed lower quality of life in psychological health and higher depressive symptomatology. Of these, females had lower quality of life in social relationships, whereas males showed more posttraumatic stress symptoms. Emergency responders from non-governmental organizations had higher phobic anxiety. Emergency medical technicians showed more somatic and depressive symptoms. Conclusion: There is no conclusive explanation for why rescue workers with CISD score worse on certain measures. It is possible that CISD has a harmful influence due to negative reinforcement, or that there was a selection effect. Further research differentiating occupational group, sex, and type of event is necessary.

#### GES-2015-10

Alliger-Horn C, Kretschmer T, Hessenbruch I, Tagay S, Zimmermann P (2015): **Wie Ressourcen die Symptombildung von Einsatzsoldaten beeinflussen. Eine empirische Prüfung anhand des Essener-Ressourcen-Inventars(ERI)** (Publikationstitel)

**The impact of resources on the formation of symptoms in Bundeswehr soldiers. An empirical study based on the Essen Resource Inventory (ERI).** (Title)

Trauma, Zeitschrift für Psychotraumatologie und ihre Anwendung 13(3):74-81

Abstract | Deployment-related traumatic experiences decisively affect the mental resources of soldiers. The present study analyses the retrospective change of three-dimensional resource clusters in Bundeswehr soldiers who have been on deployment abroad using the Essen Resource Inventory (ERI). The study aims at clarifying whether this assessed/experienced resource change is related to the trauma symptoms and disorder-specific and disorder-unspecific symptom clusters. The decrease in personnel resources is significantly connected with the overall severity of the trauma symptoms, depression symptoms and the general severity of symptoms. There are indications that personnel resources make a considerable prognostic contribution towards distinctions being made in the severity of the traumatic complaints.

#### GES-2015-3

Ungerer J, Kowalski J, Kreim G, Hauffa R, Kropp S, Zimmermann P (2015): **Chronischer Stress bei Spezialkräften der Bundeswehr. Unterschiedliches Stresserleben bei Kommandosoldaten im alltäglichen Dienst und Auslandseinsatz.** (Publikationstitel)

**Chronic stress in the German special forces command - Differences between psychological distress of special operators in everyday service and deployment.** (Title)

Trauma und Gewalt 9(3):236-243

Abstract | Psychological distress among Special Forces operators of the German Armed Forces was examined on daily military routine at homebase (n = 26) and during military deployment (n = 24) in a cross-sectional study using the Trier Inventory of chronic stress. Especially the daily psychological distress affects the quality of life. Special operators during military deployment feel less distressed than special operators at military routine duty on home base. It seems like military deployment for special operators is a challenge and not a burden. Special operators are resilient to military deployment burdens and the corresponding psychological distress. Along some other mode of action resilience is apparently an important protection factor. This explains why special operator's extremely rare malfunction. It looks like the intensive Special Forces prior deployment training pays off.

#### GES-2015-2

Zimmermann P, Seiffert A, Herr K, Radunz N, Leonhard R, Gallinat J, Heß J (2015): **Risk Factors for Mental Health Aeromedical Evacuation Among German Armed Forces Soldiers Deployed to Afghanistan.** (Title)

**Risikofaktoren für die Repatriierung von deutschen Soldaten in Afghanistan.** (Publikationstitel)

Military Behavioral Health 3(1):23-28  
DOI:10.1080/21635781.2014.995247.

Abstract | Due to deployment-related stress, a considerable number of soldiers have to be evacuated from theater. Medical reports of all soldiers who were evacuated for mental health reasons during the 22nd German ISAF Contingent (N

= 35) were evaluated with regard to sociodemographic and operational factors. Data were compared with a questionnaire survey of the same contingent (N = 1,165). Logistic regression showed a significantly higher risk of evacuation for soldiers who had participated in combat (Exp. B: 7.9; p = .002), those who had been stationed in Kunduz (Exp. B: 4.1; p = .005), and soldiers under the age of 26 (Exp. B: 4.0; p = .013). These pilot study data can help identify target groups for more comprehensive measures of stress prevention.

#### **GES-2013-2**

Bauer A, Ungerer J, Kowalski J, Zimmermann P (2013): **Einfluss von Belastungen vor Auslandseinsätzen auf die Verarbeitung traumatisierter Ereignisse bei Bundeswehrsoldaten.** (Publikationstitel)

**Impact of pre-deployment stress towards Bundeswehr soldiers for reprocessing after a traumatic incident.** (Title)

Wehrmedizinische Monatsschrift 57(8-9):202–205

Abstract | At this stage, there is not much knowledge about the influence of pre-deployment distress on the progression of a posttraumatic symptomatology after critical incidents. The concern of this predictive study is the prospect to find out if there is an association between pre-deployment distress and traumatic symptomatology. Methods: In the context of a post-deployment psychological debriefing for Bundeswehr soldiers facts were gathered concerning if experience of traumatization as well as physical and mental symptoms are an outcome of deployment. Half of the survivors (N = 14) of the terroristic attack towards a Bundeswehr bus participated in this study. Standardized questionnaires have been used for this study. Results: Within six weeks after the bomb attack an intensified symptomatic for PTSD at soldiers with pre-deployment stress were detected. If it is difficult to report on the critical incident means that this leads to an increase in symptoms. Conclusions: An enhanced psychological screening, which specifically considers the pre-deployment distress, could eventually help to prepare or to protect handicapped soldiers.

#### **GES-2012-8**

Jenuwein M, Zimmermann P, Ungerer J, Fuchs S, Beudt S, Jacobsen T, Alliger-Horn C, Gerber WD, Niederberger U, Petermann F, Kowalski J (2012): **Zum Schweregrad der Posttraumatischen Belastungsstörung im militärischen Kontext.** (Publikationstitel)

**Severity of posttraumatic stress disorder in a military context** (Title)

Zeitschrift für Psychiatrie, Psychologie und Psychotherapie (2012), 60, pp. 309-314. DOI: 10.1024/1661-4747/a000131.

Abstract | The severity of disorders in civilian as well as in military population is influenced by multiple factors. 74 soldiers with PTSD - seen in outpatient clinic or as inpatients of the department of psychiatry and psychotherapy of the German Military Hospital, Berlin - were reviewed. We looked at

relations between overall severity of PTSD at the beginning of therapy as well as the symptomclusters hyperarousal, avoidance and intrusion and psychosocial criteria and criteria specific for military. Soldiers with deployment-related PTSD suffered significantly more from hyperarousal than soldiers with non-deployment-related PTSD. Soldiers in leadership positions had a significantly lower level of intrusion than soldiers from other ranks. In soldiers with delayed onset of PTSD, overall severity and intrusion were at a lower level. This study points out factors which influence a specific form of symptoms of PTSD in soldiers. These factors should be considered in planning therapeutic concepts.

#### **GES-2012-7**

Ungerer J, Weeke, A, Zimmermann P, Jenuwein M, Petermann F, Kowalski J (2013): **Akute psychische Störungen deutscher Soldatinnen und Soldaten in Afghanistan** (Publikationstitel)

**Combat-related stressors and their impact on mental health during deployment to Afghanistan** (Title)

Zeitschrift für Psychiatrie, Psychologie und Psychotherapie (2013), 61, pp. 273-277. DOI: 10.1024/1661-4747/a000170.

Abstract | Mental stress can lead to acute psychiatric disorder in soldiers during and after deployments abroad. This study compares the mental health diagnoses of German soldiers during their deployment to Afghanistan in 2009 (n = 40) and during 2011/2012 (n = 41). The deployment during 2009 was characterized by various critical incidents and the deaths of 4 German soldiers. 2011/2012 was a rather quiet time period with no critical incidents. This difference of events was epitomized by the results with a significantly higher occurrence of acute stress disorder diagnoses in 2009, compared to relatively more adjustment disorders diagnosed in 2011/2012. The discrepancy can be explained by the different kinds of stressors the soldiers were facing during their deployment. Whereas in 2009 the major stressors the soldiers had to deal with were acute stressors and traumatic events, so were in 2011/2012 the daily hassles of life in the camps as well as the isolation from home the major stressors the soldiers were facing. The results can help to better prepare providers of psychiatric-psychotherapeutic services to the conditions to optimize acute care in mission areas.

**GES-2019-2**

Willmund G, Waechter H, Helms C, Wesemann U, Heß J, Seiffert A, Bambridge D, Zimmermann P, Himmerich H (2019): **German research perspectives on suicidality and the rationale for future multinational suicide prevention projects among military service personnel** (Title)

International Review of Psychiatry (31)1:60-74  
DOI: 10.1080/09540261.2019.1581146.

Abstract | As a result of scientific publications indicating that the last two decades have seen an increase in the number of suicides in the US Armed Forces, the topic of suicide in the military of other countries, such as Germany, has also received a lot of attention in media and science alike. Risk factors for suicidal behavior and suicide were identified in several research projects in the US, Canada, the UK, and Germany. Until now, German suicide research among military service personnel has mainly focused on epidemiological aspects of suicides and suicidality, individual risk factors, subgroups at risk for suicide, suicides and deployment abroad, and associations of suicide and suicide attempts with acute mental disorders. The key findings are summarized in this review article. Efforts should be made to develop and evaluate risk group-focused and occupation-focused prevention and intervention programs. Future multinational studies should address potential differences between risk groups for fatal and non-fatal suicidal behavior.

**GES-2018-5**

Willmund G, Heß J, Helms C, Wertenaue F, Seiffert A, Nolte A, Wesemann U, Zimmermann P (2018): **Suicides between 2010 and 2014 in the German Armed Forces-Comparison of Suicide Registry Data and a German Armed Forces Survey** (Title)

Suicide & life-threatening behavior  
DOI: 10.1111/sltb.12534.

Abstract | **BACKGROUND:** The last 10 years have seen an increase in the number of suicides in the US Armed Forces. Accordingly, the topic of suicides in the German military has received a lot of attention in media and science alike. **METHODS:** This study retrospectively examined all suicides (N = 107) committed by active, nonretired German military personnel from 2010 to the end of 2014, analyzing archived medical records. In a second step, these data were compared to a representative German Armed Forces survey conducted in 2012 (N = 1,549). **RESULTS:** The following risk groups for suicide were identified: male (OR = 9.6), single (OR = 7.8), aged over 45 years (OR = 4.0), short period of service (<2 years; OR = 2.7), and low level of education (OR = 2.2). Surprisingly, military personnel with little experience in deployments abroad (<2 missions) showed double

the risk (OR = 2.0) compared to those who had been deployed more than once. **DISCUSSION:** Multiple robustness checks show that being single, aged over 45 years, and having obtained a low level of education exhibit the most robust effects on suicide risk. **CONCLUSION:** Efforts should be made to develop and evaluate risk group-focused prevention programs. We conclude, that further studies should be initiated to show differences of risk groups between lethal and non-lethal suicidal behavior.

Willmund G, Helms C, Spaniol K, Hess J, Seiffert A, Zimmermann P, Wesemann U (2016): **Suizidalität in den Streitkräften – Risikofaktoren für vollendete Selbsttötungen von Soldaten.** (Publikationstitel)

**Suicide in the Armed Forces – Risk Factors for the suicide in Soldiers.**(Title)

Wehrmedizinische Monatsschrift 60(1):19-24

Abstract | Within the framework of cooperation of the institute for military medicinal statistics & reporting and the Center for Psychotraumatology of the German Armed Forces a systematic literature review has been necessary to determine the parameters required to establish a suicide-register. **Methods:** Resulting from database research (N = 1895) and corresponding to PRISMA[1]-criteria cohort- and register-studies have been included and evaluated stepwise as for suicides and risk factors for suicide. **Results:** 18 studies included showed that male gender, mental-health problems (i.e. depression) - lead to attempted suicides, treatment of mental-health problems und family-problems (i.e. separation and divorce) - typically risk-factors for suicidal tendency. Neither participation deployment nor PTSD have been shown to be significant risk-factors. **Discussion:** Correlations of depression, alcohol-dependence, PTSD, and personal stress have to be discussed. **Conclusion:** Physicians, psychiatrists and psychotherapists are asked to ensure an earlier begin of treatment of psychiatric affection and to assure an interlocked continuous process of treatment.

**GES-2012-6**

Zimmermann P, Höllmer H, Guhn A, Ströhle A (2012): **Prädiktoren suizidalen Verhaltens bei Bundeswehrsoldaten.** (Publikationstitel)

**Predictors of suicidality in German soldiers.** (Title)

Nervenarzt 83(3):359-65 DOI: 10.1007/s00115-010-3243-x

Abstract | Increasing psychological distress due to out-of-area deployments is associated with a growing risk of suicidal behaviour in soldiers. **Methods:** A total of 200 military psychiatric inpatients of German Armed Forces hospitals, including n=100 soldiers with and n=100 without (control

group) acute suicidality prior to admission were compared concerning sociodemographic and clinical characteristics. Results: Significant predictors of suicidal ideation were a family history of alcohol abuse and pathological scales of the Minnesota Multiphasic Personality Inventory (MMPI). Suicide attempts were predicted by pathological MMPI scales, insufficient occupational education, family history of suicide attempts and the situation of basic military training. Conclusion: Significant predictors of suicidal ideation were a family history of alcohol abuse and pathological scales of the Minnesota Multiphasic Personality Inventory (MMPI). Suicide attempts were predicted by pathological MMPI scales, insufficient occupational education, family history of suicide attempts and the situation of basic military training.

**GES-2019-10**

Dors S, Willmund G, Schuy K, Brants L, Horzetzky M, Zimmermann PL, Ströhle A, Rau H, Siegel S (2019): **Körperlich habe ich auch keine Probleme, außer ab und zu im Kopf“ - Subjektive Krankheitskonzepte ehemaliger Bundeswehrsoldaten: Eine -qualitative Datenanalyse** (Publikationstitel)

**Subjects' experience of illness plays an important role in the progression, successful treatment, and consumption of health care.** (Title)

Wehrmedizinische Monatsschrift 3-4

Abstract | Background: Subjects' experience of illness plays an important role in the progression, successful treatment, and consumption of health care. Methods: Qualitative interviews with 43 former German soldiers were conducted and their attitudes towards health, mental illness, and use of health care services were analyzed. Results: The subjective experience of illness and disease concepts of former soldiers of the Bundeswehr can be categorized into five aspects: 'Cause of disease', 'treatment initiative', 'attribution', 'locus of control' and 'treatment expectations'. The different interrelationships of these aspects ultimately lead to two prototypes of disease processing. These prototypical disease concepts are associated with different preferences of the desired type of therapy (somatic concept => somatic treatment preference, psychosocial treatment concept => psychological counselling or therapy) as well as different occupational aims. Discussion and conclusions: The results show that disease concepts are closely linked to therapy motivation and adherence and allow conclusions to be drawn about them. In addition, we found an association between the concept of illness and the aspired professional perspective. These associations stress that knowledge of subjective disease concepts can be important for therapy planning and implementation and should be taken into account. A rather optimistic disease concept and an active-internal attitude have a positive effect on the course of the disease.

**GES-2018-7**

Schuy K, Dors S, Brants L, Horzetzky M, Willmund G, Ströhle A, Zimmermann P, Rau H, Siegel, S (2018): **Stigma and its impact on the families of former soldiers of the German Armed Forces: an exploratory study.** (Title)

Military Medical Research 5(1):40  
DOI.org/10.1186/s40779-018-0188-z.

Abstract | Background: Military families who have a family member with a mental illness see themselves confronted with many demands. Stigmatization is one of these challenges. Stigmatization affects not only the individual who suffers from a mental illness but also other family members

ia stigma by association and vicarious stigma. Stigma by association occurs when mental illness stigma spills over to individuals associated with an individual with a mental illness. Vicarious stigma describes the suffering of family members when they note the impact of stigma on their relative with mental illness. As a societal phenomenon, stigma plays out in social interactions and might therefore influence the social networks of families. It is also associated with healthcare utilization. Method: Narrative interviews were conducted with 15 family members (partners, spouses, parents and children) of former soldiers of the German Armed Forces with a service-induced mental illness. The transcribed interview data were analyzed using a thematic analysis approach, in which codes were formed and emerging themes were systemized. Relationships between stigma, the families' reactions to it, its effects on their social relationships and its interference with their healthcare utilization were analyzed. Results: This study provides a detailed description of how relatives of former German soldiers with mental health problems experience stigma by association and vicarious stigma. Their perceptions are shown in a model that describes stigma-related attitudes, reactions to them and their effects on the social relationships of former soldiers' families. These families felt stigmatized because of the former soldiers' mental illness (mental illness stigma) and the military context in which it occurred (former soldier stigma). They reacted with nondisclosure, anger, acceptance and self-blame. Stigma was associated with smaller and weaker social networks that were characterized by social exclusion, self-segregation and conflicts with extended family, friends and colleagues. Stigma also affected the families' healthcare utilization. Conclusions: Urgently needed anti-stigma campaigns, particularly in the civilian context, should address the stigmatization of both mental illness and the military participation of the families affected. They should consider the needs of both former soldiers with a mental illness and their families.

**GES-2019-9**

Schuy K, Brants L, Dors S, Horzetzky M, Willmund G, Zimmermann P, Ströhle A, Rau H, Siegel, S (2019): **Psychological stigma costs as barriers to healthcare use in former soldiers of the German Armed Forces: A qualitative analysis.** (Title)

Military Psychology 1-13  
DOI.org/10.1080/08995605.2019.1598228.

Abstract | Individuals decide to use healthcare when the expected benefits outweigh the perceived costs. One of these cost factors in this decision can be stigma. So far, it has not been researched how former soldiers of the German Armed Forces with a service-induced mental illness perceive stigma and how it influences their healthcare use. As stigma is shaped by the socio-cultural context, the setting of the potential healthcare use must be considered. Narrative interviews were conducted with 33 former soldiers with mental health problems. The data were analyzed using a thematic



analysis approach, in which codes were formed and emerging themes were systemized. The relationship between stigma and healthcare use was analyzed. Occupational discrimination and social exclusion were experienced in both in the military and civilian context, but stigma functioned differently in each context. In the military context, former soldiers' self-stigma of mentally ill individuals being weak was in stark contrast to their internalized military standards. This contrast let them avoid disclosure and subsequent healthcare use. In civilian context, the participants perceived 2 different stigma costs: mental illness stigma and former soldier stigma (i.e., stigmatization because of their military past). Both were perceived as barriers to healthcare use. A model, illustrating these different stigma costs in the different contexts, was developed. Further research on the link between stigma and healthcare use of this group is urgently needed.

#### GES-2019-7

Schellong J, Hanschmidt F, Ehring T, Knaevelsrud C, Schäfer I, Rau H, Dyer A, Krüger-Gottschalk A (2019): **Diagnostik der PTBS im Spannungsfeld von DSM-5 und ICD-11** (Publikationstitel)

Der Nervenarzt 90(7):733-739

DOI: 10.1007/s00115-018-0668-0.

Abstract | The Diagnostic and Statistical Manual of Mental Disorders (DSM-5) and the International Statistical Classification of Diseases and Related Health Problems (ICD-11, Version 2018) differ with respect to the diagnostic criteria of posttraumatic stress disorder (PTSD). The present study investigated the implications of these differences for the classification of PTSD within a sample of German survivors of various traumatic events. **PATIENTS AND METHODS:** A total of 341 trauma survivors who participated in a multicenter study were classified according to DSM-5 and ICD-11 and the results were compared. The PTSD checklist for DSM-5 (PCL-5) was used to diagnose PTSD. The ICD-11 PTSD cases were identified using a "restrictive" and a "wide" operationalization of re-experiencing symptoms (i. e. with and without intrusive memories). Depression and the level of trauma-related impairment were also assessed. **RESULTS:** The diagnosis rate using ICD-11 was significantly lower than under DSM-5 (DSM-5 64.5%, ICD-11 54.0%,  $p < 0.001$ ) using a restrictive operationalization of re-experiencing symptoms but differences disappeared when using a wide operationalization. Rates of comorbidity with depression were reduced under ICD-11. Individuals with high and low levels of trauma-related impairment were equally likely to receive a PTSD diagnosis under ICD-11. **DISCUSSION:** Differences in the diagnosis rates between ICD-11 and DSM-5 depend on the operationalization of the specific ICD-11 re-experiencing requirements. Precise diagnostic guidelines are necessary to avoid inconsistent diagnoses.

#### GES-2018-4

Ehring T, Krüger-Gottschalk A, Rau H, Schäfer I, Schellong J,

Dyer A, Knaevelsrud C (2018): **Testing the ICD-11 proposal for complex PTSD in trauma-exposed adults.** (Title)

European Journal of Psychotraumatology (1):1-11

DOI: 10.1080/20008198.2018.1512264.

Abstract | Background: The proposed ICD-11 criteria for trauma-related disorders define posttraumatic stress disorder (PTSD) and complex posttraumatic stress disorder (cPTSD) as separate disorders. Results of previous studies support the validity of this concept. However, due to limitations of existing studies (e.g. homogeneity of the samples), the present study aimed to test the construct validity and factor structure of cPTSD and its distinction from PTSD using a heterogeneous trauma-exposed sample. **Method:** Confirmatory factor analyses (CFAs) were conducted to explore the factor structure of the proposed ICD-11 cPTSD diagnosis in a sample of 341 trauma-exposed adults ( $n = 191$  female,  $M = 37.42$  years,  $SD = 12.04$ ). In a next step, latent profile analyses (LPAs) were employed to evaluate predominant symptom profiles of cPTSD symptoms. **Results:** The results of the CFA showed that a six-factor structure (i.e. symptoms of intrusion, avoidance, hyperarousal and symptoms of affective dysregulation, negative self-concept, and interpersonal problems) fits the data best. According to LPA, a four-class solution optimally characterizes the data. Class 1 represents moderate PTSD and low symptoms in the specific cPTSD clusters (PTSD group, 30.4%). Class 2 showed low symptom severity in all six clusters (low symptoms group, 24.1%). Classes 3 and 4 both exhibited cPTSD symptoms but differed with respect to the symptom severity (Class 3: cPTSD, 34.9% and Class 4: severe cPTSD, 10.6%). **Conclusions:** The findings replicate previous studies supporting the proposed factor structure of cPTSD in ICD-11. Additionally, the results support the validity and usefulness of conceptualizing PTSD and cPTSD as discrete mental disorders.

#### GES-2018-5

Siegel S, Dors S, Brants L, Schuy K, Rau H (2018): **Understanding health care avoidance and initial help-seeking behavior in German veterans: a theory of planned behavior.** (Title)

Psychology Research and Behavior Management 11:243

DOI: 10.2147/PRBM.S158876.

Abstract | Objective: To gain initial insights into salient beliefs of former German soldiers (veterans) about the use of mental health services. Data source: Narrative interviews with former German soldiers (veterans) were conducted in 2016. Data collection/extraction method: Forty-three interviews were transcribed and analyzed thematically based on the theoretical framework of the theory of planned behavior. From within the behavioral, normative, and control beliefs, the salient beliefs were identified. **Principal findings:** Four groups of salient beliefs were identified, described, and named: "Autarky", "Ineffectiveness", "Heteronomy", and "Incapacity". **Conclusion:** Interventions and campaigns addressing these four specific groups of beliefs may lead to

higher health service use rates. However, as a result of methodological limitations of the study design, the conclusion remains tentative.

#### GES-2019-6

Muschalla B, Rau H, Willmund G, Knaevelsrud C (2018): **Work disability in soldiers with posttraumatic stress disorder, posttraumatic embitterment disorder, and not-event-related common mental disorders.** (Title)

Psychological trauma: theory, research, practice, and policy 10(1):30

DOI: 10.1037/tra0000293.

Abstract | Objective: Posttraumatic mental disorders may occur with different affect qualities. Best known is posttraumatic stress disorder (PTSD), a conditioned anxiety reaction with intrusions. Another event-related mental disorder is posttraumatic embitterment (PTED), characterized by affect of embitterment and thoughts of revenge, occurring after an event deeply hurting basic beliefs. Knowing about associated disability is important for treatment and sociomedical decisions. This is the first study to explore work-disability in patients with PTSD, PTED, and not-event-related common mental disorder (CMD). Method: In this observational study, 101 soldiers (85% men, 31 years, 50% experienced expedition abroad) with different mental disorders were investigated concerning common mental disorders (MINI) and accompanying work capacity impairment (Mini-ICF-APP). Interviews were conducted by a state-licensed psychotherapist with expertise in sociomedical description of (work) capacity impairment. Patients with PTSD, PTED, and other CMD were compared concerning their degrees and pattern of work capacity impairment. Results: PTSD patients (n = 23) were more strongly impaired in mobility as compared to patients with other CMD (n = 64) or PTED. Patients with PTED (n = 14) were more impaired in interactional capacities (contacts with others, group integration) as compared to patients with other CMD or PTSD. Conclusions: PTSD patients need support to improve mobility in (work-relevant) traffic situations. Apart from this, they are not specifically more or less impaired than patients with other CMD. PTED patients should get attention concerning their interactional problems as these may disturb esprit de corps, which is an essential requirement for service in the armed forces.

#### GES-2019-4

Schuy K, Brants L, Dors S, Ströhle A, Zimmermann P, Willmund G, Rau H, Siegel S (2019): „**Treffer im Kopf**“ – **Stigma psychischer Erkrankungen als Einflussfaktor auf die Inanspruchnahme von Hilfsangeboten durch VeteranInnen der Bundeswehr** (Publikationstitel)

**Mental Health Stigma: An Influencing Factor in Healthcare Utilization by Veterans of the German Armed Forces** (Title)

Das Gesundheitswesen, 81(08/09), e146-e153

DOI: 10.1055/a-0586-8669.

Abstract | Mental illness stigma is a barrier to healthcare utilization. This study is the first to research the connection between mental illness stigma and the use of healthcare by veterans of the German Armed Forces. An overview of perceived stigma components in this sample is provided that should help understand how these factors influence healthcare utilization. METHODS: 43 interviews with veterans of the German Armed Forces were conducted. The resulting data were analyzed in several coding steps. It was investigated whether the stigma experience of veterans of the German Armed Forces could be well illustrated by the theory-based stigmatization model of Link and Phelan. A set of hypotheses on stigma and healthcare utilization based on the data were developed. RESULTS: All stigma components according to the model of Link and Phelan were found in the sample. Internalized stigma perceived public stigmatization, vocational disadvantage and social exclusion as well as feared misunderstanding of the military past in the civilian sector were reported as main stigma-relevant barriers to the use of healthcare. CONCLUSIONS: Recommendations for interventions are given to decrease mental illness stigma in this specific group of former soldiers.

#### GES-2018-1

Schuy K, Dors S, Brants L, Horzetzky M, Willmund G, Ströhle A, Zimmermann P, Rau H, Siegel S (2018): **Stigma and its impact on the families of former soldiers of the German Armed Forces: an exploratory study** (Title)

Military Medical Research 5(1):40

DOI: 10.1186/s40779-018-0188-z.

Abstract | Background: Military families who have a family member with a mental illness see themselves confronted with many demands. Stigmatization is one of these challenges. Stigmatization affects not only the individual who suffers from a mental illness but also other family members via stigma by association and vicarious stigma. Stigma by association occurs when mental illness stigma spills over to individuals associated with an individual with a mental illness. Vicarious stigma describes the suffering of family members when they note the impact of stigma on their relative with mental illness. As a societal phenomenon, stigma plays out in social interactions and might therefore influence the social networks of families. It is also associated with healthcare utilization. Method: Narrative interviews were conducted with 15 family members (partners, spouses, parents and children) of former soldiers of the German Armed Forces with a service-induced mental illness. The transcribed interview data were analysed using a thematic analysis approach, in which codes were formed and emerging themes were systemized. Relationships between stigma, the families' reactions to it, its effects on their social relationships and its interference with their healthcare utilization were analysed. Results: This study provides a detailed description of how relatives of former German soldiers with mental health problems experience stigma by association and vicarious

stigma. Their perceptions are shown in a model that describes stigma-related attitudes, reactions to them and their effects on the social relationships of former soldiers' families. These families felt stigmatized because of the former soldiers' mental illness (mental illness stigma) and the military context in which it occurred (former soldier stigma). They reacted with nondisclosure, anger, acceptance and self-blame. Stigma was associated with smaller and weaker social networks that were characterized by social exclusion, self-segregation and conflicts with extended family, friends and colleagues. Stigma also affected the families' healthcare utilization. Conclusions: Urgently needed anti-stigma campaigns, particularly in the civilian context, should address the stigmatization of both mental illness and the military participation of the families affected. They should consider the needs of both former soldiers with a mental illness and their families.

#### GES-2017-5

Siegel S, Rau H, Dors S, Brants L, Börner M, Mahnke M, Zimmermann P, Willmund G, Ströhle A (2017): **Barrieren der Inanspruchnahme von Psychotherapie ehemaliger Soldatinnen und Soldaten der Bundeswehr (Veteranen). Eine Expertenbefragung** (Publikationstitel)

**Barriers to treatment-seeking among German veterans: expert interviews** (Title)

Zeitschrift für Evidenz, Fortbildung und Qualität im Gesundheitswesen 125:30-37

DOI: 10.1016/j.zefq.2017.06.006

Abstract | Background: The number of service members of the German armed forces suffering from deployment-related mental health problems is increasing. However, less than 50 % seek professional help, and there is little knowledge about barriers to treatment-seeking. METHODS: The article presents data gathered by the Delphi technique combined with focus groups from 55 health service experts regarding the evaluated barriers to treatment-seeking among German veterans. FINDINGS: According to the interviewed experts, major contextual barriers to treatment-seeking include: 1) intimidating processes and structures, 2) actual stigmatization and discrimination, and 3) deficits in supply. Major individual barriers to treatment were: 4) health beliefs, self-perception and fear of stigmatization, and 5) avoidance behavior related to psychopathology. In addition, there is another both contextual and individual barrier, i.e., 6) information deficits. INTERPRETATION: Individual internal factors like the soldiers' self-perception and their fear of being stigmatized were considered important barriers to treatment-seeking. The experts' opinion about avoidance behavior related to psychopathology and deficits in supply and information coincides with international findings. Compared to research in other countries, actual stigmatization and discrimination were regarded to be an important barrier in itself. According to our findings daunt-

ing/intimidating processes and structures like time-consuming and complex expert medical reports rather seem to be a German phenomenon.

#### GES-2017-6

Krüger-Gottschalk A, Knaevelsrud C, Rau H, Dyer A, Schäfer I, Schellong J, Ehring T (2017). **The German version of the Posttraumatic Stress Disorder Checklist for DSM-5 (PCL-5): Psychometric properties and diagnostic utility.** (Title)

BMC psychiatry 17(1):379

DOI: 10.1186/s12888-017-1541-6.

Abstract | Background: The Posttraumatic Stress Disorder (PTSD) Checklist (PCL, now PCL-5) has recently been revised to reflect the new diagnostic criteria of the disorder. Methods: A clinical sample of trauma-exposed individuals (N = 352) was assessed with the Clinician Administered PTSD Scale for DSM-5 (CAPS-5) and the PCL-5. Internal consistencies and test-retest reliability were computed. To investigate diagnostic accuracy, we calculated receiver operating curves. Confirmatory factor analyses (CFA) were performed to analyze the structural validity. Results: Results showed high internal consistency ( $\alpha = .95$ ), high test-retest reliability ( $r = .91$ ) and a high correlation with the total severity score of the CAPS-5,  $r = .77$ . In addition, the recommended cutoff of 33 on the PCL-5 showed high diagnostic accuracy when compared to the diagnosis established by the CAPS-5. CFAs comparing the DSM-5 model with alternative models (the three-factor solution, the dysphoria, anhedonia, externalizing behavior and hybrid model) to account for the structural validity of the PCL-5 remained inconclusive. Conclusions: Overall, the findings show that the German PCL-5 is a reliable instrument with good diagnostic accuracy. However, more research evaluating the underlying factor structure is needed.

#### GES-2017-10

Alliger-Horn C, Hahn I, Hecker T, Hessenbruch I, Schultheis J, Zimmermann P, Willmund G (2017): **The Posttraumatic Cognitions Inventory (PTCI) – Development and Validation of a Shortened Version Based on a Sample of German Soldiers with Deployment-Related Trauma** (2017)

Journal Traumatic Stress Disorders & Treatment, 2017, 6, 2, DOI: 10.4172/2324-8947.1000169

Abstract | Background: Differentiated and economical diagnostic methods are in ever greater demand in the treatment of soldiers traumatised by war. In the context of cognitive-behavioural approaches, the Posttraumatic Cognitions Inventory (PTCI) serves to identify dysfunctional cognitions that play a key role in the development and persistence of trauma-related disorders such as posttraumatic stress disorder (PTSD). Objectives: The aim of this study is to develop and validate an efficient shortened version of the PTCI for soldiers traumatised on deployment in order to provide an

improved and practical instrument for use in everyday clinical practice. Methodology: A total of 352 Bundeswehr soldiers diagnosed with deployment-related mental health problems were examined using the PTCI, with the number of items covered by the original instrument being reduced from 33 to 12. The resulting military version of the PTCI (PTCI – Short Version / PTCI-SV) was then validated using a sample of 109 personnel with deployment-related PTSD. Results: The overall scale of the PTCI-SV showed good internal consistency with  $\alpha=0.86$ . (Subscales: “negative cognitions about the self”  $\alpha=0.89$ ; “negative cognitions about the world”  $\alpha=0.86$ ; “self-blame”  $\alpha=0.61$ ).

Discussion: The possibility of improving trauma therapy for soldiers with deployment-related mental health issues by further developing existing screening instruments is discussed.

### GES-2017-3

Rüsch N, Rose C, Holzhausen F, Mulfinger N, Krumm S, Corrigan P, Willmund G, Zimmermann P (2017): **Attitudes towards disclosing a mental illness among German soldiers and their comrades.** (Title)

Psychiatry research, 258, 200-206  
DOI.org/10.1016/j.psychres.2017.08.028.

Abstract | Many soldiers with mental illness (SWMIs) struggle with the decision whether to disclose their condition in or outside the military. This study therefore explored views on (self-)labeling as ‘mentally ill’, experiences of discrimination and coping, risks and benefits of (non-)disclosure, service use, disclosure decisions and consequences of disclosing. Active-duty SWMIs as well as soldiers without mental illness (commanding officers; enlisted ranks) and military social workers participated in focus groups. Transcripts were analyzed using qualitative content analysis. SWMIs perceived negative stereotypes about their group (weakness, incompetence, blame, malingering) and saw stigma as a barrier to help-seeking. Being labeled ‘mentally ill’ was seen as harmful for one’s career. Self-labeling led to poor self-esteem, greater need for help and feelings of weakness. Many SWMIs had experienced discrimination, such as gossip or inappropriate comments. Social isolation was a disadvantage of secrecy. Most SWMIs preferred selective disclosure and many did not disclose to their family. Military staff without mental illness expressed partly different views and described organizational challenges posed by SWMIs. Our findings suggest that disclosure decisions are personal and difficult and that stigma remains a barrier to re-integration and recovery of SWMIs in the military. Implications for interventions to support SWMIs are discussed.

### GES-2017-2

Kuester A, Köhler K, Ehring T, Knaevelsrud C, Kober L, Krüger-Gottschalk A, Schäfer I, Schellong J, Wesemann U, Rau H (2017): **Comparison of DSM-5 and proposed ICD-11 criteria for PTSD with DSM-IV and ICD-10: changes in PTSD prevalence in military personnel** (Title)

European Journal of Psychotraumatology 8(1)  
DOI: 10.1080/20008198.2017.1386988

Abstract | Background: Recently, changes have been introduced to the diagnostic criteria for posttraumatic stress disorder (PTSD) according to the Diagnostic and Statistical Manual of Mental Disorders (DSM) and the International Classification of Diseases (ICD). Objectives: This study investigated the effect of the diagnostic changes made from DSM-IV to DSM-5 and from ICD-10 to the proposed ICD-11. The concordance of provisional PTSD prevalence between the diagnostic criteria was examined in a convenience sample of 100 members of the German Armed Forces. Method: Based on questionnaire measurements, provisional PTSD prevalence was assessed according to DSM-IV, DSM-5, ICD-10, and proposed ICD-11 criteria. Consistency of the diagnostic status across the diagnostic systems was statistically evaluated. Results: Provisional PTSD prevalence was the same for DSM-IV and DSM-5 (both 56%) and comparable under DSM-5 versus ICD-11 proposal (48%). Agreement between DSM-IV and DSM-5, and between DSM-5 and the proposed ICD-11, was high (both  $p < .001$ ). Provisional PTSD prevalence was significantly increased under ICD-11 proposal compared to ICD-10 (30%) which was mainly due to the deletion of the time criterion. Agreement between ICD-10 and the proposed ICD-11 was low ( $p = .014$ ). Conclusion: This study provides preliminary evidence for a satisfactory concordance between provisional PTSD prevalence based on the diagnostic criteria for PTSD that are defined using DSM-IV, DSM-5, and proposed ICD-11. This supports the assumption of a set of PTSD core symptoms as suggested in the ICD-11 proposal, when at the same time a satisfactory concordance between ICD-11 proposal and DSM was given. The finding of increased provisional PTSD prevalence under ICD-11 proposal in contrast to ICD-10 can be of guidance for future epidemiological research on PTSD prevalence, especially concerning further investigations on the impact, appropriateness, and usefulness of the time criterion included in ICD-10 versus the consequences of its deletion as proposed for ICD-11.

### GES-2012-5

Bandelow B, Koch M, Zimmermann P, Biesold K, Wedekind D, Falkai P (2012): **Posttraumatic stress disorder (PTSD) in the German Armed Forces: a retrospective study in inpatients of a German army hospital.** (Publikationstitel)

**Posttraumatische Belastungsstörung (PTBS) in der Bundeswehr: Eine retrospektive Untersuchung von Patienten eines Bundeswehr-Krankenhauses.** (Title)

European Archives of Psychiatry and Clinical Neuroscience 262(6):459–467 DOI: 10.1007/s00406-012-0289-8.

Abstract | In 2006 and 2007, around 0.4 and 0.7% of all German soldiers involved in missions abroad were registered as suffering from PTSD. The frequency of PTSD in the German Armed Forces was assessed from army records. All soldiers admitted to the German Military Hospital in Hamburg, Germany, with PTSD ( $n = 117$ ) in the years 2006 and 2007 were assessed by using questionnaires and structure interviews.

Risk factors associated with PTSD were identified. Of the 117 soldiers with PTSD, 39.3% were in missions abroad, and 18.0% had participated in combat situations. Five (4.3%) were wounded in combat, and 4 of them had a serious irreversible injury. In total, 53.8% of the PTSD cases were related to injuries or physical/sexual abuse, while 46.2% were due to psychological traumatization. Among soldiers with PTSD who were not abroad, sexual or physical abuse were the most common traumas. In 35.9% of the patients, there was evidence for psychiatric disorders existing before the traumatic event. The percentage of women among sufferers from PTSD was significantly higher than the proportion of women in the armed forces (30.8% vs. 5.17%). A careful psychiatric screening before recruitment might help to identify persons at risk of PTSD.

#### **GES-2012-4**

Jenuwein M, Zimmermann P, Ungerer J, Fuchs S, Beudt S, Jacobsen T, Alliger-Horn C, Gerber W, Niederberger U, Petermann F, Kowalski J (2012): **Zum Schweregrad der Posttraumatischen Belastungsstörung im militärischen Kontext.** (Publikationstitel)

**Severity of Posttraumatic Stress Disorder in a Military Context.** (Title)

Zeitschrift für Psychiatrie, Psychologie und Psychotherapie 60(4):309–314 DOI: 10.1024/1661-4747/a000131.

Abstract | The severity of disorders in civilian as well as in military population is influenced by multiple factors. 74 soldiers with PTSD – seen in outpatient clinic or as inpatients of the department of psychiatry and psychotherapy of the German Military Hospital, Berlin – were reviewed. We looked at relations between overall severity of PTSD at the beginning of therapy as well as the symptomclusters hyperarousal, avoidance and intrusion and psychosocial criteria and criteria specific for military. Soldiers with deployment-related PTSD suffered significantly more from hyperarousal than soldiers with non-deployment-related PTSD. Soldiers in leadership positions had a significantly lower level of intrusion than soldiers from other ranks. In soldiers with delayed onset of PTSD, overall severity and intrusion were at a lower level. This study points out factors which influence a specific form of symptoms of PTSD in soldiers. These factors should be considered in planning therapeutic concepts.

#### **GES-2012-3**

Kowalski J, Hauffa R, Jacobs H, Höllmer H, Gerber W, Zimmermann P (2012): **Einsatzbedingte Belastungen bei Soldaten der Bundeswehr Inanspruchnahme psychiatrisch-psychotherapeutischer Behandlung.** (Publikationstitel)

**Deployment-related stress disorder in German soldiers: utilization of psychiatric and psychotherapeutic treatment.** (Title)

Deutsches Ärzteblatt International 109(35-36):569–575 DOI: 10.3238/arztebl.2012.0569.

Abstract | Military missions abroad carry a high risk of psychological traumatization. In this study, we examined the reasons for increased utilization of the treatments offered to soldiers by the German armed forces' psychiatric services. Method: We analyzed trends in initial contacts with psychiatrists and psychotherapists among German soldiers participating in missions to Afghanistan and the Balkans. To this end, we evaluated existing data from the psychiatric services of all German Armed Forces Military Hospitals with respect to sociodemographic factors (sex, area of mission) and the underlying psychiatric disorders over an 18-month period (January 2010 to June 2011). Results: 615 soldiers made an initial contact with the psychiatric and psychotherapeutic services during the study period. The total number of first contacts did not change significantly ( $p = 0.195$ ), but there was a notable rise in the number of first contacts by female soldiers with deployment-related stress ( $p = 0.003$ ). Mission-specific statistics revealed a significant increase in the number of first contacts only for soldiers deployed to the Balkans ( $p = 0.017$ ). 91% of soldiers making a first contact were given the diagnosis of a stress reaction (ICD-10: F 43); the second most common diagnosis (8.9%) was an affective disorder (ICD-10: F 32.0, F 32.1). Conclusion: Despite psychological prevention efforts, military missions abroad often lead to mental disorders. Our findings indicate that the mild observed increase in incidence is both sex-specific and deployment-area-specific.

#### **GES-2011-1**

Zimmermann P, Jenuwein M, Biesold K, Heinz A, Ströhle A. (2011): **Wehrdienst mit Aufmerksamkeitsdefizit-/ Hyperaktivitätssyndrom? Anpassungsfähigkeit betroffener Soldaten an den Dienst in der Bundeswehr.** (Publikationstitel)

**Military service with adult attention deficit hyperactivity disorder: adaptability of affected soldiers on active service in the German Armed Forces.** (Title)

Nervenarzt 82(3):343-50 DOI: 10.1007/s00115-010-3012-x

Abstract | Due to various stressors, soldiers need a high level of social functioning. In those with ADHS, psychological problems and thus a disability for duty can result. Methods: Thirty-six German Armed Forces members with ADHS who presented themselves as outpatients or inpatients in the Army Hospitals of Hamburg and Berlin between 2005 and 2007 were evaluated retrospectively and compared with a control group. The adaptability during duty was defined based on five criteria and statistical correlations with psychological status and psychosocial risk factors of the soldiers were evaluated. Results: Of the soldiers with ADHS, 55.6% were able to continue their duty. Cumulative adaptability problems in the Army were significantly correlated with aggressive and dissocial symptoms and with partnership problems. The control group showed no correlations. Conclusions: The results show that adult ADHS does not automatically prevent a soldier from military duty and thus indicate that a differentiated judgement should be preferred.

### GES-2010-2

Zimmermann P, Langner F, Koch M, Kümmel G, Ströhle A (2010): **Risk factors for psychiatric disorders in female Bundeswehr personnel.** (Title)

**Risikofaktoren für psychische Erkrankungen bei weiblichen Bundeswehr-Angehörigen.** (Publikationstitel)

German Journal of Psychiatry 13(3):121–126

Abstract | Military service in the German Armed Forces is associated with increasing psychological distress due to structural changes since the end of the cold war but also due to out-of-area deployments. Female Bundeswehr soldiers have shown an increase in utilization of psychiatric services during the past years, which has not been explained yet. Objective: The aim of this study was to identify psychosocial characteristics of female military personnel with psychiatric disorders. Method: A group of female psychiatric inpatients at the Bundeswehr Hospital in Berlin (n=83) was evaluated with regard to sociodemographic characteristics and compared with a military control group. Results: Partnership conflicts, low education and low rank were significantly more frequent features in the soldiers receiving inpatient treatment than in the female control group. Inpatients tended less frequently to be in a steady relationship, tended to have been on fewer out-of-area deployments, and had undergone pre-enlistment examination more frequently in the new federal states. Conclusions: The study suggests that there are possible risk factors for psychiatric disorders in female Bundeswehr personnel that might be of significance to preventive and therapeutic concepts.

### GES-2010-1

Zimmermann P, Ströhle A, Langner F, Lanczik M (2010): **Utilization of psychiatric services by female military personnel changes since admission of women to all German Armed Forces military careers.** (Title)

**Entwicklung der Inanspruchnahme von psychiatrischen Behandlungen von weiblichen Militärangehörigen seit der Öffnung aller Laufbahnen für Frauen in den deutschen Streitkräften.** (Publikationstitel)

Military Medicine 175(7):494–498

Abstract | In 2001, women were admitted to all military careers in the German Armed Forces. This study examines whether the utilization of psychiatric services of female military personnel has changed since then. Methods: The central medical database of German military personnel for the years 2000 and 2006 was analyzed. Results: Between 2000 and 2006, the percentage (based on the average totals of male and female military personnel) of consultations of primary care unit surgeons for psychiatric problems increased significantly for both male and female military personnel, this increase being more apparent for women than for men. Stress-related disorders showed the greatest rise. In 2006, as opposed to 2000, the total proportion of both outpatient and inpatient mental health treatment provided to female military personnel was significantly higher than for males,

particularly regarding stress-related, affective and personality disorders. Conclusions: Gender-specific aspects should be considered more intensely in preventive and therapeutic psychiatric supply in the German Armed Forces.

### GES-2009-1

Zimmermann P, Hahne Hans, Ströhle A (2009): **Psychiatrische Erkrankungen bei Bundeswehrsoldaten. Veränderungen in der Inanspruchnahme medizinischer Versorgungssysteme im Vergleich der Jahre 2000 und 2006.** (Publikationstitel)

**Psychiatric Disorders in Soldiers of the Federal Armed Forces – Changes in the incidence of recourse to medical care systems in the context of assignments abroad.** (Title)

Trauma und Gewalt 3(4):316–327

Abstract | Since the military intervention in Kosovo (1999) the foreign assignments of the German Federal Armed Forces have reached a new dimension. The study investigates whether there have been associated changes in the incidence of recourse to military medical-care offerings on the basis of psychiatric syndromes in soldiers.

Method: Evaluation of the Federal Armed Forces' centrally archived statistics on psychiatric disorders treated both in an outpatient and inpatient context (care given by family doctors and by specialist psychiatric departments at hospitals of the Federal Armed Forces, respectively) in the years 2000 and 2006.

Findings: In 2006 a significantly higher percentage of the total number of soldiers of both sexes in the Federal Armed Forces sought inpatient or outpatient treatment for psychiatric disorders than in 2000. This was caused above all by increases in acute stress reactions (F43). At the hospitals of the Federal Armed Forces there was also a significant increase in the proportion of psychiatric (especially stress-reaction) disorders among the total number of inpatient cases. These disorders required a disproportionately higher number of treatment days than the other disorders.

Discussion: The author discusses various potential explanations for this situation and the implications it has for psychiatric care requirements in the Federal Armed Forces.

# PHY | Trauma-related structural and physiological changes

## PHY | „Medical imaging“

### PHY-2019-1

Butler O, Willmund G, Gleich T, Zimmermann P, Lindenberg U, Gallinat J, Kühn S (2019): **Cognitive reappraisal and expressive suppression of negative emotion in combat-related posttraumatic stress disorder: A functional MRI study.** (Title)

Cognitive Therapy and Research 43(1):236-246  
DOI.org/10.1007/s10608-018-9905-x.

Abstract|Difficulties in the regulation of emotion are hypothesized to play a key role in the development and maintenance of posttraumatic stress disorder (PTSD). The current study used functional magnetic resonance imaging (fMRI) to assess neural activity during task preparation and image presentation during different emotion regulation strategies, cognitive reappraisal and expressive suppression, in PTSD. Patients with combat-related PTSD (n = 18) and combat-exposed controls (n = 27) were instructed to feel, reappraise or suppress their emotional response prior to viewing combat-related images during fMRI, while also providing arousal ratings. In the reappraise condition, patients showed lower medial prefrontal neural activity during task preparation and higher prefrontal neural activity during image presentation, compared with controls. No difference in neural activity was observed between the groups during the feel or suppress conditions, although patients rated images as more arousing than controls across all three conditions. By distinguishing between preparation and active regulation, and between reappraisal and suppression, the current findings reveal greater complexity regarding the dynamics of emotion regulation in PTSD and have implications for our understanding of the etiology and treatment of PTSD.

### PHY-2018-1

Butler O, Herr K, Willmund G, Gallinat J, Zimmermann P, Kühn S (2018): **Neural correlates of response bias: Larger hippocampal volume correlates with symptom aggravation in combat-related posttraumatic stress disorder.** (Title)

Psychiatry Research: Neuroimaging 279:1-7  
DOI: 10.1016/j.psychresns.2018.06.010.

Abstract |The diagnosis of posttraumatic stress disorder (PTSD) is vulnerable to the simulation or exaggeration of symptoms as it depends on the individual's self-report of

symptoms. The use of symptom validity tests is recommended to detect malingering in PTSD. However, in neuroimaging research, PTSD diagnosis is often taken at face validity. To date, no neuroimaging study has compared credible PTSD patients with those identified as malingering, and the potential impacts of including malingerers along with credible patients on results is unclear. We classified male patients with combat-related PTSD as either credible (n = 37) or malingerers (n = 9) based on the Morel Emotional Numbing Test and compared structural neuroimaging and psychological questionnaire data. Patients identified as malingerers had larger gray matter volumes in the hippocampus, right inferior frontal gyrus and thalamus, and reported higher PTSD symptoms than credible PTSD patients. This is the first structural neuroimaging study to compare credible PTSD patients and malingerers. We find evidence of structural differences between these groups, in regions implicated in PTSD, inhibition and deception. These results emphasize the need for the inclusion of SVTs in neuroimaging studies of PTSD to ensure future findings are not confounded by an unknown mix of valid PTSD patients and malingerers.

### PHY-2018-2

Butler O, Willmund G, Gleich T, Gallinat J, Kühn S, Zimmermann P (2018): **Hippocampal gray matter increases following multimodal psychological treatment for combat-related post-traumatic stress disorder.** (Title)

Brain and behavior 8(5)  
DOI: 10.1002/brb3.956.

Abstract| Introduction: Smaller hippocampal volumes are one of the most consistent findings in neuroimaging studies of post-traumatic stress disorder (PTSD). However, very few prospective studies have assessed changes in hippocampal gray matter prior to and following therapy for PTSD, and no neuroimaging studies to date have longitudinally assessed military populations. Methods: A pilot study was conducted, assessing patients with combat-related PTSD with structural MRI. Participants were then assigned either to a treatment group or waiting-list control group. After the treatment group received multimodal psychological therapy for approximately 6 weeks, both groups completed a second neuroimaging assessment. Results: Region-of-interest analysis was used to measure gray matter volume in the hippocampus and amygdala. There was a group by time interaction; the therapy group (n = 6) showed a significant increase in

hippocampal volume and a nonsignificant trend toward an increase in amygdala volume following therapy, while no change was observed in the waiting-list group (n = 9). Conclusions: This study provides initial evidence for increases in gray matter volume in the hippocampus in response to therapy for combat-related PTSD.

#### **PHY-2016-5**

Butler O, Adolf J, Gleich T, Willmund G, Zimmermann P, Lindenberger U, Gallinat J, Kühn S.: **Military deployment correlates with smaller prefrontal gray matter volume and psychological symptoms in a subclinical population.** (Title)

Transl Psychiatry. 2017 Feb 14;7 (2):e1031. DOI: 10.1038/tp.2016.288.

Abstract | Research investigating the effects of trauma exposure on brain structure and function in adults has mainly focused on post-traumatic stress disorder (PTSD), whereas trauma-exposed individuals without a clinical diagnosis often serve as controls. However, this assumes a dichotomy between clinical and subclinical populations that may not be supported at the neural level. In the current study we investigate whether the effects of repeated or long-term stress exposure on brain structure in a subclinical sample are similar to previous PTSD neuroimaging findings. We assessed 27 combat trauma-exposed individuals by means of whole-brain voxel-based morphometry on 3 T magnetic resonance imaging scans and identified a negative association between duration of military deployment and gray matter volumes in ventromedial prefrontal cortex (vmPFC) and dorsal anterior cingulate cortex (ACC). We also found a negative relationship between deployment-related gray matter volumes and psychological symptoms, but not between military deployment and psychological symptoms. To our knowledge, this is the first whole-brain analysis showing that longer military deployment is associated with smaller regional brain volumes in combat-exposed individuals without PTSD. Notably, the observed gray matter associations resemble those previously identified in PTSD populations, and concern regions involved in emotional regulation and fear extinction. These findings question the current dichotomy between clinical and subclinical populations in PTSD neuroimaging research. Instead, neural correlates of both stress exposure and PTSD symptomatology may be more meaningfully investigated at a continuous level.

#### **PHY-2014-1**

Kühn S, Charlet K, Schubert F, Kiefer F, Zimmermann P, Heinz A, Gallinat J (2014): **Plasticity of hippocampal subfield volume cornu ammonis 2+3 over the course of withdrawal in patients with alcohol dependence.** (Title)

**Plastizität des im Hippocampus gelegenen Bereichs des Ammonshorns 2+3 bei alkoholabhängigen Patienten während eines Entzugs.** (Publikationstitel)

JAMA Psychiatry 71(7):806–811

Abstract | Research focusing on plasticity has shown adult neurogenesis in hippocampal subfields. Chronic alcoholism is associated with decreased plasticity and reduced whole hippocampal volume that could contribute to neuropsychiatric characteristics and outcome of the disease. Objective: To investigate the effect of alcohol abstinence on neuronal plasticity measured as longitudinal volume change in distinct hippocampal subfields. Methods: We acquired high-resolution structural images of 42 patients addicted to alcohol and 32 healthy control participants. Patients and control participants were both scanned twice, once after withdrawal and 2 weeks later. Main outcomes and measures: Volumes of hippocampal subfields cornu ammonis (CA) 2+3, CA4+dentate gyrus, and subiculum were determined with a user-independent segmentation method. Results: We found plasticity effects in bilateral CA2+3 in patients addicted to alcohol. Compared with healthy control participants, patients had lower CA2+3 volume at pretest ( $t_{31} = -0.73$ ,  $P = .47$ ) and showed a significant normalization of gray matter volume 2 weeks later. Pretest CA2+3 ( $t_{31} = -3.93$ ,  $P < .001$ ) volume was negatively associated with years of regular alcohol consumption ( $r_{42} = -0.32$ ,  $P < .05$ ) and more severe alcohol-withdrawal symptoms ( $r_{38} = -0.35$ ,  $P < .05$ ). Patients with stronger withdrawal symptoms displayed the largest volume increase of CA2+3 ( $r_{38} = 0.55$ ,  $P < .001$ ). Conclusion: The observed normalization of the bilateral hippocampal CA2+3 volume deficit matches animal data, showing a strong increase of hippocampal neurogenesis after cessation of alcohol consumption, and fits the reported increase of patients' cognitive function within a few months of alcohol abstinence. The role of CA3 in pattern separation and completion is also critical for formation of hallucinations, which constitute a severe symptom of the withdrawal syndrome. The study adds further biological arguments from structural brain research to abstain from alcohol.



**PHY-2018-1**

Waheed A, Dalton B, Wesemann U, Ibrahim M, Himmerich H (2018): **A systematic review of interleukin-1 $\beta$  in post-traumatic stress disorder: evidence from human and animal studies.** (Title)

Journal of Interferon & Cytokine Research, 38(1), 1-11  
DOI: 10.1089/jir.2017.0088

Abstract | Pro-inflammatory cytokines, such as interleukin (IL)-1 $\beta$ , have been implicated as underlying pathophysiological mechanisms and potential biomarkers of post-traumatic stress disorder (PTSD). This systematic review examines data regarding IL-1 $\beta$  production/concentration in human and animal studies of PTSD. In accordance with PRISMA guidelines, relevant articles from PubMed were reviewed from inception until July 10, 2017. Nineteen studies were eligible for inclusion. Animal studies demonstrated increased hippocampal IL-1 $\beta$  in rodent models of PTSD. Several immunomodulatory drugs were shown to reduce elevated IL-1 $\beta$  levels and anxiety-like behaviors in animals. Human cross-sectional studies showed contradictory results; serum and plasma IL-1 $\beta$  concentrations in PTSD patients were either elevated or did not differ from control groups. In vitro IL-1 $\beta$  production by stimulated cells demonstrated no difference between PTSD and control participants, although spontaneous in vitro production of IL-1 $\beta$  was increased in the PTSD group. The findings from 2 longitudinal studies were inconsistent. Given the conflicting findings, it is premature to consider IL-1 $\beta$  as a biomarker of PTSD. Anti-inflammatory agents may reduce IL-1 $\beta$ , and be a potential basis for future therapeutic agents in PTSD treatment. More longitudinal research is needed to better understand the role of IL-1 $\beta$  in the development and/or maintenance of PTSD.

**PHY-2017-2**

Hussein S, Dalton B, Willmund G, Ibrahim M (2017). **A systematic review of tumor necrosis factor- $\alpha$  in post-traumatic stress disorder: Evidence from human and animal studies.** (Title)

Psychiatria Danubina 29(4):407-420  
DOI: 10.24869/psyd.2017.407.

Abstract | Background: Growing evidence suggests a pathophysiological role of cytokines in post-traumatic stress disorder (PTSD). Tumor necrosis factor (TNF)- $\alpha$  is a key cytokine. Therefore, we performed a systematic review to examine the findings regarding TNF $\alpha$  derived from both animal and human studies of PTSD. Methods: Using PRISMA guidelines, we reviewed relevant articles in PubMed from inception until 11th April 2017. Human studies that reported group comparisons and/or longitudinal investigations of TNF- $\alpha$  production/concentration were included. Research reporting on

Data from human cross-sectional studies suggests that plasma/serum levels of TNF- $\alpha$  are elevated in those with PTSD, as compared to healthy controls. Longitudinal assessments of TNF- $\alpha$  are limited and data are mixed. Limited data from animal studies suggest an increased TNF- $\alpha$  production in the hippocampus of rats following stress, which can be reversed by immunomodulatory drugs. Conclusions: Our findings suggest TNF- $\alpha$  may be a potential biomarker and treatment target for PTSD. Findings need to be considered in light of heterogeneous methods for measurement and analysis of TNF- $\alpha$  concentration. Longitudinal research is needed to understand the role of TNF- $\alpha$  in the development and/or maintenance of PTSD.

**PHY-2017-1**

Himmerich H, Willmund G, Zimmermann P, Wolf J, H Bühler A, Kirkby K, Dalton B, Holdt L, Teupser D, Wesemann U (2016): **Serum concentrations of TNF- $\alpha$  and its soluble receptors during psychotherapy in German soldiers suffering from combat-related PTSD.** (Title)

Psychiatria Danubina 28(3):293-298  
DOI: 10.4103/0366-6999.178039.

Abstract | Background: Changes in serum concentrations of tumor necrosis factor- $\alpha$  (TNF- $\alpha$ ) and its soluble receptors (sTNF-R) p55 and p75 have been shown to be associated with various psychiatric treatments. Subjects and methods: Before and after treatment, serum levels of TNF- $\alpha$ , sTNF-R p55 and sTNF-R p75 were measured in 38 German soldiers who had been deployed abroad and suffered from combat-related post-traumatic stress disorder (PTSD). Patients were randomized either to inpatient psychotherapy (N=21) including eye movement desensitization and reprocessing (EMDR) or to outpatient clinical management (N=17). Symptoms of PTSD were measured using the Post-traumatic Stress Diagnostic Scale (PDS). Results: The PDS score significantly decreased across time in both groups. Serum concentrations of TNF- $\alpha$  increased, while sTNF-R p55 and sTNF-R p75 levels decreased significantly. After the treatment period, we could not detect any significant difference regarding TNF- $\alpha$ , sTNF-R p55 or sTNF-R p75 levels between the inpatient psychotherapy group and the outpatient clinical management control group. Conclusions: This relatively small clinical study suggests that specific inpatient psychotherapy but also non-specific supportive outpatient treatment for PTSD are associated with changes in the TNF- $\alpha$  system. This may represent an immunological effects or side effects of psychotherapy.

**PHY-2016-4**

Himmerich H, Willmund G, Zimmermann P, Wolf J, Bühler A, Holdt L, Teupser D, Kirkby K, Wesemann U (2016): **Serum concentrations of TNF- $\alpha$ , sTNF-R p55 and p75 and post-traumatic stress in German soldiers.** (Title)

European Cytokine Network 26(3):57-60  
DOI: 10.1684/ecn.2015.0366

Abstract | Growing evidence suggests involvement of the tumor necrosis factor (TNF)- $\alpha$  system in the pathophysiology of psychiatric disorders. Research into post-traumatic stress disorder (PTSD) has investigated serum levels of TNF- $\alpha$ , but not to date its soluble receptors sTNF-R p55 and sTNF-R p75. We examined serum levels of TNF- $\alpha$ , sTNF-R p55 and sTNF-R p75 in 135 male German soldiers 70 of whom had been deployed abroad and 65 in Germany only. Post-traumatic stress symptoms were measured using the Post-traumatic Stress Diagnostic Scale (PDS) and the Trier Inventory for the Assessment of Chronic Stress (TICS). Correlational analysis controlling for multiple testing, showed no significant Spearman rank correlations between PDS or TICS scores and serum levels of TNF- $\alpha$ , sTNF-R p55 or sTNF-R p75, either in the full sample or in the group of soldiers who had been deployed abroad. ANCOVAs showed no significant differences between soldiers with or without a PDS-derived diagnosis of PTSD, or between soldiers with or without deployment abroad, after controlling for age, smoking and body mass index (BMI). These results suggest that the TNF- $\alpha$  system, as reflected by TNF- $\alpha$ , sTNF-R p55 and sTNF-R p75 serum levels, does not play a major role in the pathophysiology and development of PTSD symptoms as measured by the PDS and the TICS. However, several methodological and contextual issues have to be considered.

#### PHY-2016-3

Himmerich H, Willmund G, Zimmermann P, Wolf J, Bühler A, Kirkby K, Dalton B, Holdt L, Teupser D, Wesemann U (2016): **Serum concentrations of TNF- $\alpha$  and its soluble receptors during psychotherapy in German soldiers suffering from combat-related PTSD.** (Title)

Psychiatria Danubina 28(3):293-298

Abstract | Changes in serum concentrations of tumor necrosis factor- $\alpha$  (TNF- $\alpha$ ) and its soluble receptors (sTNF-R) p55 and p75 have been shown to be associated with various psychiatric treatments. Methods: Before and after treatment, serum levels of TNF- $\alpha$ , sTNF-R p55 and sTNF-R p75 were measured in 38 German soldiers who had been deployed abroad and suffered from combat-related post-traumatic stress disorder (PTSD). Patients were randomized either to inpatient psychotherapy (N=21) including eye movement desensitization and reprocessing (EMDR) or to outpatient clinical management (N=17). Symptoms of PTSD were measured using the Post-traumatic Stress Diagnostic Scale (PDS). Results: The PDS score significantly decreased across time in both groups. Serum concentrations of TNF- $\alpha$  increased, while sTNF-R p55 and sTNF-R p75 levels decreased significantly. After the treatment period, we could not detect any significant difference regarding TNF- $\alpha$ , sTNF-R p55 or sTNF-R p75 levels between the inpatient psychotherapy group and the outpatient clinical management control group. Conclusions: This relatively small clinical study suggests that specific

inpatient psychotherapy but also non-specific supportive outpatient treatment for PTSD are associated with changes in the TNF- $\alpha$  system. This may represent an immunological effects or side effects of psychotherapy.

#### PHY-2016-2

Himmerich H, Wesemann U, Dalton B, Holdt L, Teupser D, Willmund G (2016): **Exploring an association between hostility and serum concentrations of TNF- $\alpha$  and its soluble receptors.** (Title)

Journal of Psychosomatic research 91:87-88 DOI: 10.1016/j.jpsychores.2016.11.001

Abstract | In this study [4], the participating soldiers were assessed using the Brief Symptom Inventory (BSI) [5], which is an instrument that evaluates psychological distress and symptoms of psychiatric disorders. It is a 53-item self-report scale that takes approximately 10 minutes to complete. It contains subscales that address the following areas: somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobia, paranoia and psychoticism. Our results support the view of Boisclair Demarble et al. [1] that hostility and TNF- $\alpha$  serum levels are not related in men. In addition to the importance of sex and age highlighted by Boisclair Demarble et al. [1], we would like to emphasize the influence of BMI on the TNF- $\alpha$  system. Based on our data, with regards to TNF- $\alpha$  signaling, we recommend that TNF- $\alpha$  receptors should also be taken into account. To our knowledge, this is the first report on correlations between sTNF-R p55 levels and hostility.

As sTNF-R p55 levels are related to several BSI subscales, one may consider psychological associations between these subscales. For example, hostility could be a consequence of paranoid thoughts. The answers to these questions, however, are beyond the scope of our data. Elevated TNF-R p55 levels have also been identified in other conditions like depression [6, 7], therefore, suggesting they may be a general indicator of psychological problems, rather than a specific marker for hostility.

#### PHY-2016-1

Himmerich H, Wolf J, Zimmermann P, Bühler A, Holdt L, Teupser D, Kirkby K, Willmund G, Wesemann U (2016): **Serum Concentrations of Tumor Necrosis Factor- $\alpha$  and its Soluble Receptors in Soldiers with and without Combat-related Posttraumatic Stress Disorder: Influence of Age and Body Mass Index.** (Title)

Chinese Medical Journal (Engl) 129(6):751-752 DOI: 10.4103/0366-6999.178039

Abstract | In summary, considering the cited articles and our own study together, we conclude that ethnicity, age, and BMI appear to be important variables influencing the levels of TNF- $\alpha$  and its soluble receptors. Therefore, these parameters should be taken into account when investigating serum concentrations of TNF- $\alpha$  and its receptors in the studies of PTSD and other conditions.

#### PHY-2015-1

Schmidt U, Willmund G, Holsboer F, Wotjak C, Gallinat J, Kowalski J, Zimmermann P (2015): **Searching for non-genetic molecular and imaging PTSD risk and resilience markers: Systematic review of literature and design of the German Armed Forces PTSD biomarker study.** (Title)

Psychoneuroendocrinology 51:444–458  
DOI: 10.1016/j.psyneuen.2014.08.020.

Abstract | Biomarkers allowing the identification of individuals with an above average vulnerability or resilience for posttraumatic stress disorder (PTSD) would especially serve populations at high risk for trauma exposure like firefighters, police officers and combat soldiers. Aiming to identify the most promising putative PTSD vulnerability markers, we conducted the first systematic review on potential imaging and non-genetic molecular markers for PTSD risk and resilience. Following the PRISMA guidelines, we systematically screened the PubMed database for prospective longitudinal clinical studies and twin studies reporting on pre-trauma and post-trauma PTSD risk and resilience biomarkers. Using 25 different combinations of search terms, we retrieved 8151 articles of which we finally included and evaluated 9 imaging and 27 molecular studies. In addition, we briefly illustrate the design of the ongoing prospective German Armed Forces (Bundeswehr) PTSD biomarker study (Bw-BioPTSD) which not only aims to validate these previous findings but also to identify novel and clinically applicable molecular, psychological and imaging risk, resilience and disease markers for deployment-related psychopathology in a cohort of German soldiers who served in Afghanistan.

#### PHY-2014-2

Rau H, Kahn C, Kowalski J (2014): **Physiologische, testpsychologische und epigenetische Parameter von Soldaten.** (Publikationstitel)

**Physiological, testpsychological and epigenetic parameters of soldiers.** (Title)

Wehrmedizin und Wehrpharmazie 38(3):32–34

Abstract | A current study regarding incidence and prevalence of PTSD (Dunkelzifferstudie 2013) shows that within soldiers after deployment the 12-month-prevalence of PTSD is 1,8-2,9% (Wittchen, 2012). Soldiers with the experience of a traumatic incident show an even higher 12-month-prevalence: 5,9-6,1%. Overall the risk to develop a PTSD is 2-4 times higher in soldiers with deployment than in soldiers without deployment. Additionally due to deployment the incidence for other psychiatric affection is increased: Control-group vs. longitudinal cut after deployment: 1,5% vs. 6,7%, anxiety disorders: 3,6%, affective disorders: 1,8%, alcohol disorders: 1,5%. Against this background it is a central issue to identify possible predictors of deployment-related psychiatric disorders as well as biological markers for follow-ups of therapy-effects.

#### PHY-2015-4

Himmerich H, Willmund G, Zimmermann P, Wolf J, Bühler A, Holdt A, Teupser D, Kirkby K, Wesemann U (2015): **Serum concentrations of soluble TNF receptor p55 (sTNF-R p55) correlate with post-traumatic stress symptoms in German soldiers after deployment abroad.** (Title)

European Cytokine Network 26(3):57-60  
DOI:10.1684/ecn.2015.0366

Abstract | Growing evidence suggests involvement of the tumor necrosis factor (TNF)- $\alpha$  system in the pathophysiology of psychiatric disorders. Research into post-traumatic stress disorder (PTSD) has investigated serum levels of TNF- $\alpha$ , but not to date its soluble receptors sTNF-R p55 and sTNF-R p75. We examined serum levels of TNF- $\alpha$ , sTNF-R p55 and sTNF-R p75 in 135 male German soldiers 70 of whom had been deployed abroad and 65 in Germany only. Post-traumatic stress symptoms were measured using the Post-traumatic Stress Diagnostic Scale (PDS) and the Trier Inventory for the Assessment of Chronic Stress (TICS). Correlational analysis controlling for multiple testing, showed no significant Spearman rank correlations between PDS or TICS scores and serum levels of TNF- $\alpha$ , sTNF-R p55 or sTNF-R p75, either in the full sample or in the group of soldiers who had been deployed abroad. ANCOVAs showed no significant differences between soldiers with or without a PDS-derived diagnosis of PTSD, or between soldiers with or without deployment abroad, after controlling for age, smoking and body mass index (BMI). These results suggest that the TNF- $\alpha$  system, as reflected by TNF- $\alpha$ , sTNF-R p55 and sTNF-R p75 serum levels, does not play a major role in the pathophysiology and development of PTSD symptoms as measured by the PDS and the TICS. However, several methodological and contextual issues have to be considered.

**PHY-2015-5**

Sammito S, Thielmann B, Zimmermann P, Böckelmann I (2015): **Influence of Post-Traumatic-Stress-Disorder on Heart Rate Variability as Marker of the Autonomic Nervous System: A Systematic Review.** (Title)

**Der Einfluss der Posttraumatischen Belastungsstörung auf die Herzfrequenzvariabilität als Marker des autonomen Nervensystems: Eine systematische Überprüfung.** (Publikationstitel)

Fortschritte der Neurologie Psychiatrie 83(1):30-7  
DOI:10.1055/s-0034-1398779.

Abstract | PTSD is associated with comprehensive disruption of several neurobiological regulation mechanisms and with a disruption in the parasympathetic-sympathetic balance. This can be measured with the heart rate variability (HRV). Methods: A systematic review in PubMed using the keywords "hrv" or "heart rate variability" and "PTSD" or "post-traumatic stress disorder" was performed. Results: Overall 15 original studies were identified. In most cases a significant relationship of PTSD for reduction of HRV was demonstrated (9 studies) or, respectively, a reduction by trends was shown in 3 studies. Limitations were discussed. Discussion: In spite of the limitations, most of the studies have shown a relationship between PTSD and HRV. However, an assessment of this potential marker as a supplement for clinical diagnosis and therapy follow-up in patients with PTSD seems to be premature on the basis of the data obtained so far. Further research is required.

**PHY-2015-3**

Rau H, Brasse G, Ungerer J, Kowalski J, Zimmermann P, Sammito S (2015): **Correlation between heart rate variability and perceived work-related stress among Bundeswehr personnel.** (Title)

**Über den Zusammenhang von Herzfrequenzvariabilität und erlebtem berufsbezogenem Stress bei Bundeswehr-Angehörigen.** (Publikationstitel)

Arbeitsmedizin Sozialmedizin Umweltmedizin (50):432-438  
DOI: 10.17147/ASUI.2015-03-10-03.

Abstract | Alterations in cardiovascular regulation caused by work-related stress have not yet been measured scientifically in a military context. The question is whether the heart rate variability (HRV) analysis is an appropriate method in this regard. Method: Different HRV parameters (SDNN, RMSSD, LF/HF ratio) were measured in N = 73 members of the German Armed Forces (age: M [SD] = 37.08 [+/- 12.33]). In addition, the Brief Symptom Inventory (BSI-18: depression, anxiety, somatization, GSI summary score) and the Resilience Scale (RS-11) were applied. To determine the work-related stress, we developed a questionnaire that consisted

of a five-point Likert scale comprising ten items. Results: A connection between subjective work-related stress and reduced HRV (LF/HF ratio:  $r = 0.21$ ;  $p = 0.08$ ) was revealed, but was only marginally significant. However, the older the soldiers were ( $\beta = -0.28$ ) and the less restricted the LF/HF ratio parameter of the HRV analysis was ( $\beta = 0.25$ ), the less they perceived work-related stress ( $r^2 = 0.13$ ;  $df = 67$ ;  $p = 0.01$ ). A significant correlation between the BSI-18 and the HRV (LF/HF ratio) was detected only regarding the somatization subscale ( $r = 0.29$ ;  $p < 0.05$ ). There was no significant correlation between resilience and the HRV. Conclusions: On the basis of the data collected in this survey, we observed that the HRV analysis was limited in its suitability as a standardized method to measure work-related stress. The LF/HF ratio parameter of the HRV analysis in connection with age is probably the most sensitive predictor when it comes to objectively detecting psychophysical effects of work-related stress. The HRV method is not yet sufficiently developed to yield reliable standardized information about the work-related stress of members of the German Armed Forces. Additional studies are required to show if the trend in the results of this study can be further specified.

On the basis of the data obtained so far. Further research is required.

**PHY-2012-1**

Kowalski J, Kobs S, Zimmermann P, Thome J, Kropp P, Gerber W, Niederberger U (2012): **Influence of acute psychological trauma on time estimation behaviour: a prospective pilot study.** (Title)

**Einfluss eines akuten psychischen Traumas auf die Fähigkeit zur Zeiteinschätzung: Eine prospektive Pilot-Studie.** (Publikationstitel)

Journal of Neural Transmission 119(10):1205–1211  
DOI: 10.1007/s00702-012-0835-6.

Abstract | In addition to the symptom triad of intrusions, avoidance behavior and hyperarousal, typical and frequent characteristics of acute and chronic posttraumatic disorders are neuropsychological disturbances of working memory and executive functions. So far, however, only a very limited number of studies have dealt with their effects on the capability to assess time-related information. The purpose of this prospective study therefore was to compare persons after an acute traumatic experience with healthy controls in the course of 12 months, focusing on their ability to estimate time as a measure of their readiness of attention. 39 participants aged 17-59 years (mean age = 35.1 years, who had experienced a traumatic event and exhibited symptoms of acute stress disorder) were compared with 38 healthy controls (mean age = 36.1 years) at eight times of measurement within a period of 12 months. Performance was determined by means of a prospective time estimation task. The participants had to estimate a time interval of 5 s, once with and

once without feedback about the quality of the estimates. The time estimates by the traumatized persons were significantly less precise than those by the control group. Progress analyses have shown that trauma patients exhibit larger deviations from the defined time interval, both under feedback conditions and without feedback. Psychological traumatization leads to both an acute and long-term, demonstrable impairment of time estimation ability. The recognizable disturbance of information processing may both be a cause and a result of clinical trauma symptoms.

### PRV-2016-1

Wesemann U, Kowalski J, Zimmermann P, Rau H, Muschner P, Lorenz S, Köhler K, Willmund D (2016): **Vom Helden zum Profi – Veränderung der Einstellung zu psychischen Erkrankungen bei Einsatzsoldaten durch das präventive Computerprogramm CHARLY.** (Publikationstitel)

**From Hero to Pro - Change in attitude towards mental illness in deployed soldiers using the preventive computer program CHARLY.** (Title)

Wehrmedizinische Monatsschrift 60(1):2-7

Abstract | German Armed Forces personnel show a high rate of combat and deployment related psychiatric disorders, first among them posttraumatic stress disorders (PTSD). To address this, CHARLY was developed as an interactive preventive platform aiming at improving resilience. The goal of this study was to show CHARLY's supremacy in both retentive learning and attitude change as compared to traditional pre-deployment training. Methods: To evaluate this we examined N = 35 combat soldiers deployed to Afghanistan, before and six months after deployment. Soldiers were randomly assigned to either the "CHARLY" group or the "traditional" training group. Using a knowledge quiz on PTSD and an attitude assessment on mental illness we tested for group-differences, six months after deployment. From Hero to Pro - Change in attitude towards mental illness in deployed soldiers using the preventive computer program CHARLY Results: Attitude toward psychiatric disorders showed significantly better values for the CHARLY group ( $Z = -2.13$ ;  $p = .017$ ) while knowledge showed no significant group difference. However, the total group benefited significantly from psycho-education by improving knowledge outcomes ( $Z = -1.67$ ;  $p = .047$ ). Conclusions: The detected positive and stable attitude change was shown to be effected by CHARLY. As attitude change is the central prerequisite for behavior modification it could reduce the lag-period in the seeking of professional care. As the method is highly economical this finding supports the wide-spread use of CHARLY within the military deployment context.

**PRV-2018-1**

Kuhn E, van der Meer C, Owen J, Hoffman J, Cash R, Carrese P, Olf M, Bakker A, Schellong J, Lorenz P, Schopp M, Rau H, Weidner K, Arnberg F, Cernvall M, Iversen T (2018): **PTSD Coach around the world.** (Title)

Mhealth. May 25; 4:15

DOI: 10.21037/mhealth.2018.05.01. PMID: 29963560; PMCID: PMC5994444

Abstract | Posttraumatic stress disorder (PTSD) is a global public health problem. Unfortunately, many individuals with PTSD do not receive professional care due to a lack of available providers, stigma about mental illness, and other concerns. Technology-based interventions, including mobile phone applications (apps) may be a viable means of surmounting such barriers and reaching and helping those in need. Given this potential, in 2011 the U.S Veterans Affairs National Center for PTSD released PTSD Coach, a mobile app intended to provide psycho-education and self-management tools for trauma survivors with PTSD symptoms. Emerging research on PTSD Coach demonstrates high user satisfaction, feasibility, and improvement in PTSD symptoms and other psychosocial outcomes. A model of openly sharing the app's source code and content has resulted in versions being created by individuals in six other countries: Australia, Canada, The Netherlands, Germany, Sweden, and Denmark. These versions are described, highlighting their significant adaptations, enhancements, and expansions to the original PTSD Coach app as well as emerging research on them. It is clear that the sharing of app source code and content has benefited this emerging PTSD Coach community, as well as the populations they are targeting. Despite this success, challenges remain especially reaching trauma survivors in areas where few or no other mental health resources exist.

**PRV-2015-1**

Zimmermann P, Kowalski J, Niggemeier-Groben A, Sauer M, Leonhardt R, Ströhle A (2015): **Evaluation of an inpatient preventive treatment program for soldiers returning from deployment.** (Title)

**Bewertung eines stationären Präventionsprogramms für Soldaten, die aus dem Einsatz zurückkehren.** (Publikationstitel)

Work 50(1):103–110 DOI: 10.3233/WOR-131665.

Abstract | Since 1999, the German Armed Forces (Bundeswehr) have been conducting 3-weeks preventive treatment programs aimed at psychological resource-strengthening in soldiers returning from deployment. Methods: Five hundred participants of these programs received the Post-

German statutory pension insurance body. Sixty control group subjects received the PTSS-10 twice in an interval of 4-5 months without therapeutic interventions. Results: Comparison of pre- and post-treatment PTSS-10 results in the covariance analysis showed an effect of the initial PTSS-10-stress-levels and rank category, not of the intervention. On average, the treatment program received 'very good' to 'excellent' overall ratings in the rehabilitation questionnaire. The acceptance of sports and movement therapy was significantly above average, whereas that of individual and group counselling was below. Conclusions: The results of this pilot study suggest a high acceptance of the post-deployment preventive program. Effectiveness in terms of psychometric improvement cannot be proven at this point.

**PRV-2013-2**

Bauer A, Ungerer J, Kowalski J, Zimmermann P (2013): **Einfluss von Belastungen von Auslandseinsätzen auf die Verarbeitung traumatisierter Ereignisse bei Bundeswehrsoldaten.** (Publikationstitel)

**Impact of pre-deployment stress towards Bundeswehr soldiers for reprocessing after a traumatic incident** (Title)

Wehrmedizinische Monatsschrift 57(8-9):202–205

Abstract | At this stage, there is not much knowledge about the influence of pre-deployment distress on the progression of a posttraumatic symptomatology after critical incidents. The concern of this predictive study is the prospect to find out if there is an association between pre-deployment distress and traumatic symptomatology. In the context of a post-deployment psychological debriefing for Bundeswehr soldiers facts were gathered concerning if experience of traumatization as well as physical and mental symptoms are an outcome of deployment. Half of the survivors (N = 14) of the terroristic attack towards a Bundeswehr bus participated in this study. Standardized questionnaires have been used for this study.

Within six weeks after the bomb attack an intensified symptomatic for PTSD at soldiers with pre-deployment stress were detected. If it is difficult to report on the critical incident means that this leads to an increase in symptoms. An enhanced psychological screening, which specifically considers the pre-deployment distress, could eventually help to prepare or to protect handicapped soldiers.

**PRV-2013-1**

Hartmann D, Sauer M, Zimmermann P, Wloszczynski M (2013): **Truppenärztliche Seminare zur psychischen Einsatzvorbereitung bei Bundeswehrsoldaten.** (Publikationstitel)

**Deployment preparation seminars for stress reduction in Bundeswehr soldiers.** (Title)

Abstract | In order to prevent an increase in deployment-related psychological disorders, preventive measures to reduce stress are necessary. Methods: In cooperation with the Centre of Mental Disorders at the Bundeswehr Hospital in Berlin, the military medical centre Füssen developed and conducted a deployment preparation seminar (DPS), teaching basics about stress and stress reduction techniques (especially so-called skills-training). The DPS was evaluated with questionnaires. Results: The DPS was evaluated generally positively and in particular, the skills-training was appreciated by the participants. Moreover, younger participants evaluated the DPS especially positive. Conclusions: The positive results suggest that soldiers may benefit from an intense stress-prevention training.

#### **PRV-2012-1**

Zimmermann P, Kowalski J (2012): **Primär- und Sekundärprävention einsatzbezogener psychischer Erkrankungen in der Bundeswehr.** (Publikationstitel)

**Primary and secondary prevention -operational mental illness in the German Armed Forces.** (Title)

Wehrmedizin und Wehrpharmazie 25(3):38-40

Abstract | In addition to the symptom triad of intrusions, avoidance behavior and hyperarousal, typical and frequent characteristics of acute and chronic posttraumatic disorders are neuropsychological disturbances of working memory and executive functions. So far, however, only a very limited number of studies have dealt with their effects on the capability to assess time-related information. The purpose of this prospective study therefore was to compare persons after an acute traumatic experience with healthy controls in the course of 12 months, focusing on their ability to estimate time as a measure of their readiness of attention. 39 participants aged 17-59 years (mean age = 35.1 years, who had experienced a traumatic event and exhibited symptoms of acute stress disorder) were compared with 38 healthy controls (mean age = 36.1 years) at eight times of measurement within a period of 12 months. Performance was determined by means of a prospective time estimation task. The participants had to estimate a time interval of 5 s, once with and once without feedback about the quality of the estimates. The time estimates by the traumatized persons were significantly less precise than those by the control group. Progress analyses have shown that trauma patients exhibit larger deviations from the defined time interval, both under feedback conditions and without feedback. Psychological traumatization leads to both an acute and long-term, demonstrable impairment of time estimation ability. The recognizable disturbance of information processing may both be a cause and a result of clinical trauma symptoms.

#### **PRV-2011-2**

Böhme J, Ungerer J, Klein R, Jacobsen T, Zimmermann P, Ko-

walski J (2011): **Psychische Ressourcenstärkung bei VN-Beobachtern zur Prävention einsatzbedingter psychischer Störungen – eine Pilotstudie.** (Publikationstitel)

**Evaluation of a pre-deployment psychological prevention training for UN-military observers – a pilot study.** (Title)

Wehrmedizinische Monatsschrift 55(10):231–234

Abstract | Over the last years, with the growing psychological distress for German soldiers in out-of-area-deployments, the number of psychiatric diseases among them has grown constantly. Beside the nowadays well known PTSD, many deployment-related psychiatric diseases are also wide-spread. Due to their mission characteristics, the German UN-military observers are exposed to extraordinary psychological distress. Methods: A currently applied pre-deployment psychological prevention training course for a team of observers was therefore evaluated in this study using psychological symptoms (SCL- 90-R) und stress-resilienz (RS-25) as criterions in order to verify its effectiveness as a primary prevention. Results: The evaluation of the mission-specific deployment preparation course at the department for observer missions (DezBeobMiss) in the Bundeswehr Operations Command showed that both the personal competence in stress-resilienz ( $p = 0.014$ ) and the subjective wellbeing ( $p = 0.028$ ) of the participants ( $N = 7$ ) have improved significantly. Moreover, there was some evidence that the amendment to the course with some special group-training could be possible and quite promising. Conclusions: The presented results support the idea of a structured pre-deployment psychological training to prevent deployment related disorders.

#### **PRV-2011-1**

Zimmermann P, Jacobs H, Benker M, Kowalski J (2011): **Pilotseminar zur psychologischen Einsatzvorbereitung für Sanitätsoffiziere des BAT-Pools am Bundeswehrkrankenhaus Berlin.** (Publikationstitel)

**Pre-deployment psychological training for emergency care medical officers at the Bundeswehr Hospital Berlin – a pilot study.** (Title)

Wehrmedizinische Monatsschrift 55(10):221–223

Abstract | Due to the increased psychiatric treatment needs in the German Armed Forces the development of new preventive and therapeutic approaches is necessary. Methods: The Center of Mental Disorders at the Bundeswehr Hospital in Berlin has developed and evaluated a new conception of predeployment psychological training for emergency care deployable physician squads as pilot study. Results: The results point to a good acceptance of the training. Conclusions: Further longitudinal studies should include psychometric testing.



# BEM | Treatment methods

## BEM | „Therapeutic intervention methods for deployment-related psychological disorders“

### **BEM-2017-3**

Glienke K, Willmund GD, Zimmermann P, Piefke M (2017): **Complex Real Life-Related Prospective Memory in Soldiers with and Without Post-Traumatic Stress Disorder.**

J Trauma Stress Disor Treat 6:3. DOI: 10.4172/2324-8947.1000176

**Abstract | Objective:** Posttraumatic stress disorder (PTSD) is known to influence memory functions in a complex fashion. However, little is known about the impact of PTSD on future directed mnemonic functions like prospective memory (PM). **Methods:** The present study aimed at examining performance of 13 soldiers with PTSD, 12 without PTSD and 21 non-military controls without PTSD across different phases of a real life-related PM paradigm. In addition, neuropsychological tests of memory and the influence of salivary cortisol levels on memory performance were assessed. **Results:** Soldiers with PTSD performed significantly worse during the planning and retrieval phase of time- and event-dependent PM compared to the non-military controls, but not to soldiers without PTSD. Moreover, PTSD symptom severity correlated negatively with PM retrieval. In soldiers without PTSD time- and eventdependent PM was significantly declined during retrieval phase compared to the non-military controls. Significantly decreased salivary cortisol levels were detected only for soldiers with PTSD. Standard neuropsychological assessment showed significantly impaired working- and retrospective long-term memory in both soldiers with and without PTSD. **Conclusion:** Our results indicate for the first time that exposure to combat-related stress may have selective deteriorating effects on real-life-related PM and other memory functions in the absence of a PTSD diagnosis. We conclude that stress-related alterations of memory functions in soldiers may not only be related to PTSD-related changes in cortisol metabolism. Rather, additional neuropeptides and/or neurohormones may be involved in the emergence of memory dysfunctions resulting from combat-related stress.

### **BEM-2017-2**

Gebhardt C, Alliger-Horn C, Mitte K, Glaesmer H (2017): **All-or-nothing thinking: The processing of emotional expressions in traumatized post-deployment soldiers** (Title)

Journal of Anxiety Disorders 47:69-74  
DOI: 10.1016/j.janxdis.2016.12.004.

**Abstract |** The exposure to trauma is a dramatic life event with complex consequences among those like changes in information processing. Dysfunctional cognitions like a negative interpretation of information are a risk factor for the development of trauma-related disorders. The aim of the present study was to test whether post-deployment soldiers with trauma differ in their interpretation of emotional expressions from member of a control group. Interpretation of emotional expressions was assessed in a sample of 106 males (n=53 soldiers, n=53 controls) with the Similarity Rating Task (simtask) and analyzed with a multidimensional scaling (MDS) approach. The findings suggest that individuals with war-related trauma tend to show a negative interpretation bias. Furthermore, traumatized individuals did not discriminate between different intensities of emotional expressions the way controls did. The findings are discussed in terms of the role of dysfunctional cognitions in the development and treatment of mental disorders.

### **BEM-2017-1**

Köhler K, Eggert P, Lorenz S, Herr K, Willmund G, Zimmermann P, Alliger-Horn C (2017): **Effectiveness of Eye Movement Desensitization and Reprocessing in German Armed Forces Soldiers with Post-Traumatic Stress Disorder Under Routine Inpatient Care Conditions** (Title)

Military Medicine, 182(5-6):e1672-e1680  
DOI: 10.7205/MILMED-D-16-0030

**Abstract | Background:** Post-traumatic stress disorder (PTSD) is one of the more commonly occurring mental disorders following potentially traumatizing events soldiers may encounter when deployed abroad. One of the first-line recommended treatment options is eye movement desensitization and reprocessing (EMDR). The number of studies assessing the effectiveness of EMDR in German soldiers under routine conditions is currently almost nil. **Methods:** A retrospective, quasi-experimental effectiveness study on EMDR in an inpatient setting is presented using a prepost design. The study compares symptom reduction in soldiers ( $N = 78$ ) with a wait-list ( $N = 18$ ). Effect sizes of EMDR were measured for PTSD, symptoms of depression, and general mental health. **Results:** Effect size for EMDR treatment of PTSD was  $d = 0.77$ ; 95% confidence interval (CI): 0.51 to 1.36, for symptoms of depression  $d = 0.99$ ; 95% CI: 0.31 to 1.36, and for general psychiatric symptoms  $d = 0.53$ ; 95% CI: 0.17 to 1.21. The effects resulting from EMDR treatment were somewhat

weaker than those reported in comparable studies in civilians. Conclusion: EMDR therapy is an effective treatment to reduce symptoms of PTSD and depression. However, in the military context it needs to be complemented by treatment options that specifically address further conditions perpetuating the disorders.

#### **BEM-2016-2**

Alliger-Horn C, Zimmermann P, Schmucker M (2016): **Guilt, Shame and Compassionate Imagery in War: Traumatized German Soldiers with PTSD, a Pilot Study.** (Title)

**Schuld, Scham und Mitgefühl im Krieg: traumatisierte Soldaten mit PTBS, eine Pilot-Studie.** (Publikationstitel)

Journal of Clinical Medicine 5(10):pii E90 DOI: 10.3390/jcm5100090.

Abstract | The consideration of specific trauma-associated emotions poses a challenge for the differential treatment planning in trauma therapy. Soldiers experiencing deployment-related posttraumatic stress disorder often struggle with emotions of guilt and shame as a central component of their PTSD. Objective: The purpose of this study was to examine the extent to which soldiers' PTSD symptoms and their trauma-related guilt and shame may be affected as a function of their ability to develop compassionate imagery between their CURRENT SELF (today) and their TRAUMATIZED SELF (back then). Method: The sample comprised 24 male German soldiers diagnosed with PTSD who were examined on the Posttraumatic Diagnostic Scale (PDS) and two additional measures: the Emotional Distress Inventory (EIBE) and the Quality of Interaction between the CURRENT SELF and the TRAUMATIZED SELF (QUI-HD: Qualität der Interaktion zwischen HEUTIGEN ICH und DAMALIGEN ICH) at pre- and post-treatment and again at follow-up. The treatment used was imagery rescripting and reprocessing therapy (IRRT). Results: Eighteen of the 24 soldiers showed significant improvement in their PTSD symptoms at post-treatment and at follow-up (on their reliable change index). A significant change in trauma-associated guilt and shame emerged when compassionate imagery was developed towards one's TRAUMATIZED SELF. The degree and intensity of the guilt and shame felt at the beginning of treatment and the degree of compassionate imagery developed toward the TRAUMATIZED SELF were predictors for change on the PDS scores. Conclusions: For soldiers suffering from specific war-related trauma involving PTSD, the use of self-nurturing, compassionate imagery that fosters reconciling with the traumatized part of the self can effectively diminish trauma-related symptoms, especially when guilt and shame are central emotions.

#### **BEM-2016-1**

Köhler K, Eggert P, Lorenz S, Herr K, Willmund G, Zimmermann P, Alliger-Horn C (2016): **Effectiveness of Eye Movement Desensitization and Reprocessing (EMDR) in German Armed Forces Soldiers with Posttraumatic Stress Disorder (PTSD) under Routine In-Patient Care Conditions.** (Title)

**Über die Wirksamkeit des Eye Movement Desensitization and Reprocessing (EMDR) bei Bundeswehr-Soldaten mit PTBS unter Routine-Krankenhausbedingungen.** (Publikationstitel)

Military Medicine 182(5), e1672-e1680. DOI: 10.7205/MILMED-D-16-00307.

Abstract | Posttraumatic Stress Disorder (PTSD) is one of the more commonly occurring mental disorders following potentially traumatizing events soldiers may encounter when deployed abroad. One of the first-line recommended treatment options is Eye Movement Desensitization and Reprocessing (EMDR). The number of studies assessing the effectiveness of EMDR in German soldiers under routine conditions is currently almost nil. Methods: We are presenting a retrospective, quasi-experimental effectiveness study on EMDR in an in-patient setting using a pre-post design. In it we compare symptom reduction in soldiers (N = 78) with a waitlist (N = 18). Effect sizes of EMDR were measured for PTSD using the Posttraumatic Diagnostic Scale (PDS), for symptoms of depression using the Beck Depression Inventory (BDI), and for general mental health using the Symptom Checklist-90 Revised (SCL-90-R). Results: Effect size for EMDR treatment of PTSD was  $d = .77$ ; 95% CI: .51 to 1.36, for symptoms of depression  $d = .99$ ; 95% CI: .31 to 1.36, and for general psychiatric symptoms  $d = .53$ ; 95% CI: .17 to 1.21. The Reliable Change Index (RCI) showed that we could categorize 79.49% of patients as suffering from only mild PTSD, while 50% of study participants responded reliably with an improvement of their posttraumatic symptoms. In terms of general mental symptom load, 69.2% of participants showed reliable improvement. The effects resulting from the EMDR treatment of soldiers are somewhat weaker than those reported in comparable effectiveness or efficacy studies in civilians. Conclusion: EMDR therapy is an effective treatment for the reductions of the symptoms of PTSD and depression following exposure to potentially traumatizing events. However, in the military context it needs to be complemented by treatment options that specifically address further conditions perpetuating the disorders.

#### **BEM-2015-3**

Alliger-Horn C, Mitte K, Zimmermann P (2015): **Vergleichende Wirksamkeit von IRRT und EMDR bei kriegstraumatisierten deutschen Soldaten.** (Publikationstitel)

**Comparative effectiveness of IRRT and EMDR in war-traumatized German soldiers.** (Title)

Trauma und Gewalt 9(3):204-215

Abstract | Theoretical Background: Comparative effectiveness studies of different trauma-related exposure therapies in the in-patient treatment of war-traumatized persons have been researched insufficiently. Issue: In a study the comparative effectiveness of EMDR (Eye Movement Desensitization and Reprocessing Therapy) and IRRT (Imagery Rescripting and Reprocessing Therapy) in trauma therapy was examined

with 40 traumatized Bundeswehr soldiers with a PTBS diagnosis. Result: The effectiveness of the two methods on the change in trauma complaints and comorbid symptoms in the treatment of combat- and war-traumatized person is significant. The Reliable Change Index (RCI) for EMDR is 77 percent and for IRRT 67 percent. As regards the change in comorbid symptoms, the effect size for these two methods are large. Discussion: The column discusses the use of the two trauma therapies in the in-patient treatment of war-traumatized veterans.

#### **BEM-2015-2**

Alliger-Horn C, Zimmermann P (2015): **IRRT – Emotionsfokussierter integrativer Ansatz in der Traumatherapie mit Fallbeispiel.** (Publikationstitel)

**IRRT - Emotion-focused, integrated approach in trauma therapy with a case example.** (Title)

Trauma – Zeitschrift für Psychotraumatologie und ihre Anwendungen 13(3):52-60

Abstract | The question regarding which trauma-processing treatment approaches are most effective for which patients, and for which particular trauma symptoms or characteristics, has to date not been adequately addressed for the practicing clinician. Central to this question is the observation that trauma-associated affect within the framework of an emotion-focused trauma therapy is of special significance. In the case example of a war-related trauma, a basic conceptual framework is presented for the use of IRRT (Imagery Rescripting & Reprocessing Therapy) as an integrated trauma-processing treatment approach. Important emotion-regulation oriented mechanisms pertaining to trauma treatment are presented.

#### **BEM-2014-3**

Alliger-Horn C, Mitte K, Zimmermann P (2014): **Evaluation einer stationären Kognitiv-behavioralen Gruppentherapie für einsatzbedingte psychische Erkrankungen deutscher Soldaten.** (Publikationstitel)

**An evaluation of cognitive-behavioural in-patient group therapy for German soldiers suffering from deployment-related mental illness.** (Title)

Zeitschrift für Psychiatrie, Psychologie und Psychotherapie 62(3):183–190 DOI: 10.1024/1661-4747/a000194.

Abstract | The current therapies used for in-patient treatment of war-traumatized German soldiers have so far not been evaluated sufficiently. As part of an effectiveness study at the Berlin Trauma Centre the effectiveness of in-patient cognitive-behavioral group therapy on trauma and comorbid symptoms was examined at three measurement times with 78 patients suffering from deployment-related mental illness. Significant effects were found on trauma symptoms and the extent of dysfunctional trauma-related beliefs as well as on depression and complaint symptoms after completion of the therapy and in catamnesis. The effect

strengths and the Reliable Change Index (RCI) reflect the effectiveness of group therapy. Specific deployment-related group concepts are a valuable contribution to in-patient treatment available for war-traumatized soldiers. The column discusses the difficulties in the examination and the problems in the treatment of soldiers with comorbid disorders.

#### **BEM-2014-2**

Alliger-Horn C, Willmund G, Eichenberg C, Zimmermann P (2014): **Kognitiv-verhaltenstherapeutische Frühintervention nach Trauma bei BundespolizistInnen.** (Publikationstitel)

**Cognitive behavioral early intervention for acutely traumatized federal police officers.** (Title)

Verhaltenstherapie und psychosoziale Praxis 46(4):1019–1027

Abstract | Members of police forces, as a consequence of carrying out their professional duties, are at risk of psychological traumatization. Stress during operations may cause not only posttraumatic stress disorder, but also other trauma sequelae and duty-related mental health problems, such as depression and anxiety disorders. The development and testing of adequate early intervention programmes aims at secondary prevention of chronic trauma-related disorders. On the basis of a small sample of five affected individuals, i. e. acutely traumatized Federal Police officers at the Berlin Bundeswehr Hospital, a ten-hour integrative early intervention program will be presented. The application of behavioral intervention methods in working with the group is described. The sequence of events, experiences and impressions from group work with these acutely traumatized individuals will be delineated and the authors make initial recommendations based on their findings.

#### **BEM-2014-1**

Alliger-Horn C, Zimmermann P, Mitte K (2014): **Prädiktoren für den Behandlungsverlauf kognitiv-behavioraler Gruppentherapie einsatzbedingter Erkrankungen deutscher Bundeswehrsoldaten.** (Publikationstitel)

**Predictors for the Course of Cognitive Behavioral Group Treatment of German Bundeswehr Soldiers after Military Interventions.** (Title)

Verhaltenstherapie 24(4):244–251

Abstract | To date, there are no studies assessing the effect of different factors on the treatment of German service members traumatized by war. Methods: This study is the first to examine the effects of disorder-specific and trauma related predictors on in-patient treatment of deployment related posttraumatic stress disorder and comorbid psychological disorders among Bundeswehr personnel after completing cognitive-behavioral group therapy. An exploratory analysis will be conducted for additional demographic and military-related determinant variables. Results: The numbers of traumatic incidents and the sum of comorbidities have

turned out to be the key predictors for short- and long-term changes in trauma and complaint symptoms in the course of therapy. Conclusion: The study will discuss the implications for improving in-patient therapeutic care for traumatized service members.

### **BEM-2013-3**

Rawert J, Willmund G, Alliger-Horn C, Zimmermann P (2013): **Ursachen einer chronischen posttraumatischen Belastungsstörung eines beim Kabuler Busattentat 2003 psychisch Traumatisierten.** (Publikationstitel)

**Determinants of chronic Posttraumatic Stress Disorder of a soldier traumatized by bus assassination in Kabul 2003.** (Title)

(Title)

Wehrmedizinische Monatsschrift 57(8-9):210–213

DOI: 10.7205/MILMED-D-12-00261

Abstract | Soldiers with deployment related disorders use psychiatric and psychotherapeutic institutions of the Bundeswehr increasingly. Sometimes chronic course of treatments are seen. This case report shows the treatment course of a soldier who as first aider was psychic traumatized by a bus assassination in 2003. The determinants of the chronic treatment course are discussed.

### **BEM-2013-2**

Zimmermann P, Alliger-Horn C, Kowalski J, Plate S, Wallner F, Wolff E, Ströhle A (2013): **Treatment of avoidant personality traits in a German armed forces inpatient psychiatric setting.** (Title)

**Behandlung von Vermeidungsverhalten im stationären psychiatrischen Setting eines Bundeswehr-Krankenhauses.** (Publikationstitel)

Military Medicine 178(2):213–217

Abstract | Military duty places high demands on the soldiers' social adaptability and competences. Avoidant personality traits can lead to interpersonal conflicts and at least to mental disorders. 192 German Armed Forces soldiers were treated in a multimodal inpatient psychiatric treatment setting at a Bundeswehr hospital between 2007 and 2010. 129 of these patients received a social skills group training (group training of social competence [GSC]) as part of this setting. A comparison group (n=63) did not participate but got unspecific treatment elements instead. The Symptom Checklist 90-Revised (SCL-90-R) and the Inventory on Competence and Control Beliefs (Fragebogen zu Kompetenz- und Kontrollüberzeugungen [FKK]) were applied. Symptom severity in the SCL-Global Severity Index, sum scale of the SCL-90-R and the four primary scales of the FKK showed significant improvements both immediately after treatment and at follow-up. No significant influence of the form of treatment (with/without GSC), age, gender, diagnosis, and deployments on the treatment result was established in the analysis of covariance. The data suggest that an inpatient psychiatric treatment setting focused on avoidant personality traits has a favorable effect on psychiatric symptom severity

in military personnel. Social skills group training as a treatment component does not seem to be significantly superior to the standard setting.

### **BEM-2013-1**

Zimmermann P, Kowalski J, Alliger-Horn C, Danker-Hopfe H, Engers A, Meermann R, Hellweg R (2013): **Detection of Malingering in the Assessment of Occupational Disability in the Military.** (Title)

**Das Erkennen von Simulation bei der Beurteilung von Berufsunfähigkeit in der Bundeswehr.** (Publikationstitel)

German Journal of Psychiatry 16(2):54–60

Abstract | So far only few data are available on the assessment of malingering in the examination of occupational disability due to psychiatric disorders. Method: 103 German soldiers admitted to an Armed Forces hospital for treatment or medical certification without clinical suspect of malingered symptomatology were compared with an instructed simulation group of healthy participants (control group, N=40). The Morel Emotional Numbing Test (MENT) and the Structured Inventory for Malingered Symptomatology (SIMS) were used. Results: MENT and SIMS exhibited high sensitivity (.85 / 1.0) and specificity (.92 / .72) in this matter. Covariance analysis including age, rank, status, education, training, admission reason and diagnosis showed that the study group (clinical patients vs. instructed malingerers) alone explained 66.30% (60.73%) of the variance. Conclusions: MENT and SIMS seem to be useful tools for the detection of malingering in occupational disability examination, especially when applied in combination.

### **BEM-2012-2**

Kowalski J, Radtke Y, Falkenhagen F, Kropp P, Zimmermann P, Gerber W, Niederberger U (2012): **Verlaufsuntersuchung depressiver Symptomatik nach akuter Traumatisierung.** (Publikationstitel)

**Examination of the development of depressive symptoms after a traumatizing event.** (Title)

Zeitschrift für Klinische Psychologie und Psychotherapie 41(3):211–218 DOI: 10.1026/1616-3443/a000151.

Abstract | Background: Although several studies have already addressed the relationship between acute stress disorder (ASD) and posttraumatic stress disorder (PTSD), little is known about the course of depressive symptoms after acute traumatization. Objective: Do acutely traumatized patients differ from a non-traumatized control group in the development of depressive symptoms over time? Method: 39 traumatized patients with clinically relevant symptoms of ASD were compared to 38 healthy people in a control group. ASD and depressive symptoms were assessed using standardized diagnostic procedures (ASDS, SCID, DS) and were measured at different times. Results: Initially ASD patients showed significantly more symptoms of depression than the control group. After remitting during the first weeks follow-

ing traumatization, the depressive symptomatology increased only in the trauma group with subsequent PTSD. Conclusion: Depressive symptoms following acute traumatization are not limited to patients developing PTSD. The depressive symptoms can exacerbate after initial remission.

### **BEM-2010-3**

Alliger-Horn C, Mitte K, Zimmermann P (2010): **Komorbidität einsatzbedingter psychischer Traumastörungen und ihre Behandlung durch kognitiv-behaviorale Gruppentherapie im Bundeswehrkrankenhaus Berlin.** (Publikationstitel)

**Co-morbidity of mental trauma disorders and their treatment by cognitive-behavioral group therapy in the Bundeswehr hospital in Berlin.** (Title)

Wehrmedizinische Monatsschrift 54(6-7):182–185

Abstract | Deployment-related psychiatric disorders have an increasing importance in the Bundeswehr hospitals.

Methods: In this pilot-study from the Center of Mental Health Research and Treatment at Bundeswehr hospital Berlin a systematic analysis of co-morbid mission-related psychiatric diseases in 31 German soldiers was done using clinical impression, the PDS and SKID-II questionnaire for personality disorders.

Results: 89% showed clinical evidence of one or more co-morbid psychiatric disorders. 74 % had pathological findings in the SKID-II.

Conclusions: The high percentage of co-morbid psychiatric diseases in deployment-related mental health disorders underlines the necessity of additional therapeutic concepts. Based on these experiences a newly developed cognitive behavioral group therapy for this indication will be discussed.

### **BEM-2010-2**

Eisenlohr V, Römer H, Zimmermann P (2010): **Akupunktur – eine neue Option in der Behandlung traumatisierter Bundeswehrsoldaten?** (Publikationstitel)

**Acupuncture – a new option in the therapy of traumatized German soldiers?** (Title)

Deutsche Zeitschrift für Akupunktur 53(2):29–34 DOI: 10.1016/j.dza.2010.05.009.

Abstract | Acupuncture as part of Traditional Chinese Medicine offers an option in the treatment of psychiatric disorders in addition to pharmacological and physiotherapy. Aims: To gain first results on subjective effects of acupuncture therapy in Bundeswehr soldiers who have suffered psychological trauma. Methods: In this pilot study 27 psychiatric inpatients of a Bundeswehr hospital received an acupuncture therapy according to a main treatment scheme (with varying additional points) and were evaluated with respect to five psycho-vegetative parameters. Changes were measured with subjective rating scales. Results: Positive effects on sleep disturbances, restlessness, agitation, nervousness and aggression were reported. Sleep disturbances improved significantly more than the other symptoms (except restlessness), the effect was depending on treatment duration. Discussion:

Acupuncture appears to be a therapeutic option in the therapy of sleep disturbance and other psychovegetative symptoms in traumatized soldiers.

### **BEM-2010-1**

Zimmermann P, Willmund G, Kröger N, Sestak A, Ströhle A (2010): **Stationäre Kurzgruppenpsychotherapie bei Bundeswehrsoldaten – Langzeitverlauf und Prädiktoren des Therapieerfolgs.** (Publikationstitel)

**Stationary psychodynamic short-term group psychotherapy with German soldiers - long-term outcome and predictors of therapeutic success.** (Title)

Wehrmedizinische Monatsschrift 54(2):35–38

Abstract | Bundeswehr soldiers are exposed to an increasing number of psychological stressors in their daily duty and during deployments. Therefore, inpatient psychotherapeutic supply is requested more frequently, but systematic evaluation is still at its beginning. Methods: 103 German soldiers were treated with psychodynamic short-term group psychotherapy and prospectively evaluated. Before and after treatment the participants were tested with the psychological questionnaires Symptom checklist (SCL-90-R), Questionnaires of complaints and social behavior (BFB and VFB) and the Minnesota Multiphasic Personality Inventory (MMPI-K). In 42.5 % of the participants, a 36-months catamnesis was possible with the BFB and VFB. Results: In each scale of the SCL-90-R, in the MMPI-K and in the VFB significant improvements could be noted after treatment compared to initial values. The effects in BFB and VFB were stable in the long-term outcome. Predictors of change were the initial severity of symptoms and the age. No effects could be found for rank, duration of duty, psychiatric diagnosis, co-morbidity and partnership. Conclusion: The results suggest a positive impact of the evaluated therapeutic setting on Bundeswehr soldiers; adaptations to the needs of younger participants are discussed.

### **BEM-2008-1**

Zimmermann P, Kröger N, Willmund G, Ströhle A, Heinz A, Hahne H (2008): **In-patient, short-term group psychotherapy - a therapeutic option for Bundeswehr soldiers?** (Title)

**Stationäre Kurzgruppenpsychotherapie – eine therapeutische Option für Bundeswehrsoldaten?** (Publikationstitel)

Psycho-Social-Medicine (5):1-8

Abstract | This study is to assess the efficacy of short-term group psychotherapy rooted in depth psychology for Bundeswehr soldiers suffering from depressive, neurotic, stress, or personality disorders. Method: 103 participants in the inpatient, closed group setting were evaluated prospectively and compared with a non-randomized waitlisted control group. Results: In all relevant SCL-90-R (Symptom-Check-List-90) and MMPI-K (Minnesota-Multiphasic-Personality-Inventory short-form) scales therapy resulted in significant improvements as compared with the initial values. The control group did not show any significant changes, the therapy

group was significantly superior to the control group in the scales of MMPI-K and the GSI-Scale of the SCL-90-R. For soldiers with a stress-reactive disorder (F43), no differences in efficacy could be identified compared with the other diagnosis groups. Conclusion: The results were considered to indicate that in-patient, short-term group psychotherapy may, in combination with additional setting components, be helpful in improving psychological symptoms in German soldiers. The indication range of group therapy offered to Bundeswehr soldiers should be expanded to also include primary prophylaxis and the treatment of mental-health problems following deployments abroad, if applicable.

#### **BEM-2012-1**

Zimmermann P, Kowalski J, Heinrich M, Willmund G, Heinz A (2012): **Charakteristika der Alkoholerkrankung bei Bundeswehrsoldaten in der stationären Versorgung im Vergleich zu zivilen Patienten.** (Publikationstitel)

**Characteristics of Inpatient Bundeswehr Alcoholics Compared to Civil Patients.** (Title)

SUCHT - Zeitschrift für Wissenschaft und Praxis / Journal of Addiction Research and Practice 58(1):55–61 DOI: 10.1024/0939-5911.a000161.

Abstract | Inpatient treatment of addictive disorders should be adapted to the needs of target groups. This study investigates specific characteristics of acute inpatient Bundeswehr alcohol use disorder patients. Methods: 158 patients (115 soldiers, 43 civil) were inpatients in the Bundeswehr hospital Berlin for alcohol disorders (ICD-10: F10.1/F10.2). They were evaluated retrospectively for duration of abuse, diagnosis and average consumption and compared with an inpatient military control group with respect to psychosocial, military and medical characteristics. Results: Civil patients had (as an age-related effect) a significantly longer duration of alcohol abuse, higher average consumption and more often the diagnosis of an alcohol dependence than their military counterparts. Family conflicts correlated significantly with higher, and problems with military comrades or superiors with lower alcohol intake. Conclusions: The results suggest differences in the history of alcohol consumption between military and civil patients in an acute inpatient treatment setting and thus reflect the early onset of alcohol-related interventions in the German Armed Forces due to military regulations. An adaptation of therapeutic programs for soldiers might be useful.

#### **BEM-2015-1**

Zimmermann P, Kowalski J, Niggemeier-Groben A, Sauer M, Leonhardt R, Ströhle A (2015): **Präventivkuren für einsatzbelastete Soldaten in der Bundeswehr – Zielgruppen und Akzeptanz.** (Publikationstitel)

**Inpatient Resilience Training for German Soldiers after Deployment – Objectives and acceptance.** (Title)

Trauma und Gewalt 9(3):192-203

Abstract | Out-of-area deployments for soldiers are associated with considerable psychological and physical stress factors. To preclude psychiatric disorders, the German Armed Forces (Bundeswehr) offer three-week post-deployment inpatient resilience training courses at civil rehabilitation institutions. 500 participants in these courses were asked to fill out a questionnaire designed by the German Pension Insurance organization for the evaluation of inpatient psychosomatic therapy. The questionnaire was adapted to the needs of the present study. 200 questionnaires were returned and evaluated. Overall appraisal for the training courses was »very good« to »outstanding«. Sport and exercise-related therapy was rated significantly higher than the average, individual and group-therapeutic sessions significantly lower. The results were independent of the institution involved and socio-demographic factors. This pilot study suggests that acceptance of inpatient resilience training by the Bundeswehr is good and indicates a number of potentially useful adaptations of the programme. Further studies should include psychometric tests and a longitudinal control-group design.

# TGV | Technology-based procedures

## TGV-2016-1

Wesemann U, Kowalski J, Jacobsen T, Jacobsen T, Beudt S, Jacobs H, Fehr J, Büchler J, Zimmermann P (2016):

**Evaluation of a technology-based adaptive learning and prevention program for stress response - a randomized controlled trial.** (Title)

**Evaluation eines technologiebasierten adaptiven Lern- und Präventionsprogramms für Stressreaktionen - eine randomisierte kontrollierte Studie.** (Publikationstitel)

Military Medicine 181(8):863-71. DOI: 10.7205/MILMED-D-15-00100

Abstract | To prevent deployment-related disorders, Chaos Driven Situations Management Retrieval System (CHARLY), a computer-aided training platform with a bio-feedback interface has been developed. It simulates critical situations photorealistic for certain target and occupational groups. CHARLY was evaluated as a 1.5 days predeployment training method comparing it with the routine training. The evaluation was carried out for a matched AU2 random sample of N = 67 soldiers deployed in Afghanistan (International Security Assistance Force). Data collection took place before and after the prevention program and 4 to 6 weeks after deployment, which included mental state, post-traumatic stress disorder (PTSD) symptoms, knowledge of and attitude toward PTSD, and deployment-specific stressors. CHARLY has been significantly superior to the control group in terms of psychoeducation and attitude change. As to the mental state, both groups showed a significant increase in stress after deployment with significant lower increase in CHARLY. For PTSD-specific symptoms, CHARLY achieved a significant superiority. The fact that PTSD-specific scales showed significant differences at the end of deployment substantiates the validity of a specifically preventive effect of CHARLY. The study results tentatively indicate that highly standardized, computer-based primary prevention of mental disorders in soldiers on deployment might be superior to other more personal and less standardized forms of prevention.

## TGV-2013-2

Zimmermann P, Alliger-Horn C, Kowalski J (2013): **The Role of Modern Media in the Psychosocial Care of Service Personnel.** (Title)

**Die Rolle der modernen Medien in der psychosozialen Versorgung von Bundeswehr-Angehörigen.** (Publikationstitel)

MCIF The Medical Corps International Forum (1):42–45

Abstract | Service personnel deployed in foreign theatres of operations are at increased risk of developing psychological disorders. Over recent years, effective methods of treating

such disorders have evolved, however, quite often there are various barriers preventing those affected from taking advantage of these methods.

Techniques involving the use of the new electronic media not only improve the chance of preventing these disorders but can also facilitate contact with the psychosocial support system. These techniques include telephone, online counseling and computer-based psychotherapeutic strategies

## TGV-2013-1

Zimmermann P, Alliger-Horn C, Willmund G, Dunker S, Kowalski J (2013): **Integration moderner Medien in das psychosoziale Versorgungsangebot deutscher Soldaten.** (Publikationstitel)

**Integration of modern media in the psychosocial support of German Armed Forces soldiers** (Title)

ZPPM Zeitschrift für Psychotraumatologie, Psychotherapiewissenschaft, Psychologische Medizin 11(2):35–49

Abstract | Out-of-area-deployments of the German Armed Forces are associated with an increased risk of psychiatric disorders. Therefore new media gain importance and offer an easy-to-reach psychosocial supply. Objective: Psychosocial support elements based on the new media are to be presented with pilot studies and compared with traditional offers. Methods: The utilization of the Bundeswehr telephone hotline and the online counseling between 2008 and 2011 was evaluated and user groups were statistically compared. Additionally the CHARLY computerised prevention program was performed with N=12 soldiers and stress-related attitudes were evaluated before and after training. Results: Relatives of soldiers with deployment used the telephone-hotline significantly more frequent, active soldiers preferred the online-counseling. After CHARLY training the acceptance of the participants with respect to stress-related symptoms increased significantly. Conclusions: New media represent an important element in military psychosocial support systems. The needs of different target groups should be considered.

## TGV-2011-1

Gabriel U, Jacobsen T, Hauffa R, Zimmermann P, Kowalski J (2011): **Evaluation des telefonischen Beratungsangebotes für Soldaten mit einsatzbedingten psychischen Belastungen und deren Angehörige.** (Publikationstitel)

**Evaluation of a phone based counseling service for soldiers with deployment related mental health problems and their families.** (Title)

Wehrmedizinische Monatsschrift 55(10):228–230

Abstract | In May 2009, the German Bundestag released a resolution initiating a phone-based approach to reach out to

soldiers suffering from mental health problems after returning from their deployment. Affected soldiers as well as their family members can anonymously seek help and support through this counseling hotline which is attended by personnel of the “Center of Psychotraumatology Treatment and Research” at the Bundeswehr hospital, Berlin. Methods: A total of 542 calls were received during the survey period from May 2009 to July 2011. Calls were analyzed for frequency of occurrence, characterization of user groups as well as the content of the calls. Results: There was no significant increase in the frequency of usage throughout the years. The distribution of data showed that family members are a large user group. The classification of callers to their area of deployment revealed that active duty soldiers and veterans portray most of the callers followed by family members and spouses. Conclusions: The results indicate that this low threshold service has an impact on soldiers and veterans dealing with post deployment stress reactions as well as on their family members.

#### **TGV-2010-1**

Meermann R, Barnett W, Wallner H, Alliger-Horn C, Zimmermann P (2010): **Psychosoziale Online-Beratung für Bundeswehrsoldaten mit einsatzbedingten psychischen Belastungen** (Publikationstitel)

**Psychosocial Online-counseling for Soldiers with deployment related mental health problems** (Title)

Trauma & Gewalt, Jahrgang 04, Heft 03, August 2010

Abstract | The online counseling portal [www.angriff-auf-die.seele.de](http://www.angriff-auf-die.seele.de) has been in operation since June 2008. It receives expert support from the Psychological Health division of the Federal Armed Forces' Institute of Occupational and Environmental Health. Alongside information services, it provides opportunities for anonymous online counseling on mission-related psychological disorders.

In the framework of a pilot study, 116 online inquiries received up to August 2009 were evaluated in terms of content, users, and missions referred to. Soldiers (and/or their relatives) deployed in Afghanistan availed themselves of this opportunity significantly more frequently than participants from the Kosovo and Bosnia contingents ( $\chi^2(2) = 24,52, p < 0,001$ ). Fourteen users (12.1 %) were passed on for outpatient consultations within the Federal Armed Forces, two (1.7 %) to the civilian sector, five (4.3 %) were given inpatient psychotherapy in a hospital of the Armed Forces. Evaluation of this low-threshold contact offering indicates the significance of online counseling for occupational groups subject to psychosocial stress. It also provides insights into the problems that prompt deployment soldiers suffering from psychological stress and their relatives to seek contact with the medical aid system.



# PSU | Psychosocial support

## PSU-2019-3

Cunitz K, Dölitzsch C, Kösters M, Willmund G, Zimmermann P, Bühler A, Fegert J, Ziegenhain U, Kölch M (2019): **Parental military deployment as risk factor for children's mental health: a meta-analytical review.** (Title)

Child and adolescent psychiatry and mental health 13(1):26  
DOI.org/10.1186/s13034-019-0287-y.

Abstract|There is evidence that military service increases the risk of psychosocial burden for not only service members but also their spouses and children. This meta-analysis aimed to systematically assess the association between military deployment of (at least one) parent and impact on children's mental health. For this meta-analytic review, publications were systematically searched and assessed for eligibility based on predefined inclusion criteria (studies between 2001 until 2017 involving children with at least one parent working in military services). Measurements were determined by total problem scores of the children as well as symptoms of anxiety/depression, hyperactivity/inattention, and aggressive behavior. Meta-analyses aggregated the effect sizes in random-effect models and were calculated separately for the relation between parental deployment and civilian/normative data and for the relation between parental deployment and non-deployment. Age of the children was used as moderator variable to explore any potential source of heterogeneity between studies. Parental military deployment was associated with problems in children and adolescents compared to civilian/normative samples. Significant effect sizes reached from small to moderate values; the largest effect sizes were found for overall problems and specifically for anxious/depressive symptoms and aggressive behavior. Within the military group, children of deployed parents showed more problem behavior than children of non-deployed parents, but effect sizes were small. Age of the children had no moderating effect. The results emphasize that children of military members, especially with a deployed parent, should be assessed for emotional and behavioral problems.

## PSU-2019-2

Cunitz K, Bühler A, Willmund G, Ziegenhain U, Fegert J, Zimmermann P, Kölch M (2019): **Interventionsprogramme bei psychischen Belastungen von Kindern von Militärangehörigen in den USA.** (Publikationstitel)

**Intervention programs for psychological stress in children of military personnel in the USA – Results of a systematic literature review with regard to transferability to Germany** (Title)

Zeitschrift für Kinder-und Jugendpsychiatrie und Psychotherapie

DOI.org/10.1024/1422-4917/a000675.

Abstract | Military personnel who have been deployed in war zones or other unstable regions are at an increased risk to develop mental health disorders, including posttraumatic stress disorder. Likewise, their children are at high risk to develop mental health problems as well as emotional and behavioral difficulties. Most research on prevalence of mental health problems as well as on interventions within this group was conducted in the USA. In Germany, no systematic intervention for children of military members focusing on their experiences of deployment exist. The systematic literature review aimed to analyze existing intervention programs in the USA, in particular for children of military members regarding evidence, type and addressed target group (parents, children, both). Compared to the social welfare and health care systems in the USA, the German systems are different. Hence, a second aim was to examine the transferability of these programs to the specific needs of children of German military members (Bundeswehr). 27 intervention programs could be included in the review. Programs, directly or indirectly, are addressing the needs of children of a deployed parent. They are usually focusing on the „emotional cycle of deployment“ (phase of preparation of deployment, separation phase of deployment and the return of the deployed parent). The programs mainly focused on parenting skills, family reactions to stress, coping strategies of families, and the feeling of coherence within the family. Only 20 % of the interventions could be assigned to the type of indicated prevention. Nine interventions have shown positive effects (either in RCT or non-experimental designs). Several elements of the programs are transferable to the German situation of children of military members. In particular, contents which address the specific situation of families with a military member are desperately needed in Germany. Transferability is limited by the non-comparability of health care and social welfare systems in the USA and in Germany.

## PSU-2019-1

Cunitz K, Bühler A, Willmund G, Ziegenhain U, Fegert J, Zimmermann P, Kölch M (2019): **Interventionsprogramme bei psychischen Belastungen von Kindern von Militärangehörigen in den USA** (Publikationstitel)

**Intervention programs for psychological stress in children of military personnel in the USA - Results of a systematic literature review with regard to transferability to Germany** (Title)

Zeitschrift für Kinder- und Jugendpsychiatrie und Psychotherapie 1–24  
DOI: 10.1024/1422-4917/a000675.

Abstract | Military personnel who have been deployed in war zones or other unstable regions are at an increased risk to develop mental health disorders, including posttraumatic stress disorder. Likewise, their children are at high risk to develop mental health problems as well as emotional and behavioral difficulties. Most research on prevalence of mental health problems as well as on interventions within this group was conducted in the USA. In Germany, no systematic intervention for children of military members focusing on their experiences of deployment exist. The systematic literature review aimed to analyze existing intervention programs in the USA, in particular for children of military members regarding evidence, type and addressed target group (parents, children, both). Compared to the social welfare and health care systems in the USA, the German systems are different. Hence, a second aim was to examine the transferability of these programs to the specific needs of children of German military members (Bundeswehr). 27 intervention programs could be included in the review. Programs, directly or indirectly, are addressing the needs of children of a deployed parent. They are usually focusing on the "emotional cycle of deployment" (phase of preparation of deployment, separation phase of deployment and the return of the deployed parent). The programs mainly focused on parenting skills, family reactions to stress, coping strategies of families, and the feeling of coherence within the family. Only 20 % of the interventions could be assigned to the type of indicated prevention. Nine interventions have shown positive effects (either in RCT or non-experimental designs). Several elements of the programs are transferable to the German situation of children of military members. In particular, contents which address the specific situation of families with a military member are desperately needed in Germany. Transferability is limited by the non-comparability of health care and social welfare systems in the USA and in Germany.

#### PSU-2018-1

Kröger C, Kliem S, Zimmermann P, Kowalski J (2018): **Short-Term-Effectiveness of a Relationship Education Program for Distressed Military Couples, in the Context of Foreign Assignments for the German Armed Forces. Preliminary Findings from a Randomized Controlled Study.** (Title)

Journal of marital and family therapy 44(2):248-264  
DOI.org/10.1111/jmft.12250.

Abstract | This study examines the short-term effectiveness of a relationship education program designed for military couples. Distressed couples were randomly placed in either a wait-list control group or an intervention group. We conducted training sessions before a 3-month foreign assignment, and refresher courses approximately 6-week post-assignment. We analyzed the dyadic data of 32 couples, using hierarchical linear modeling in a two-level model. Reduction in unresolved conflicts was found in the intervention group,

with large pre–post effects for both partners. Relationship satisfaction scores were improved, with moderate-to-large effects only for soldiers, rather than their partners. Post-follow-up effect sizes suggested further improvement in the intervention group. Future research should examine the long-term effectiveness of this treatment.

#### PSU-2017-1

Köhler K, Rose C, Parent I, Fischer C, Zimmermann P, Willmund G, Rau H (2017): **Die Wirksamkeit von pferdeunterstützter Intervention auf Partnerschaftsqualität, Symptomschwere einer PTBS, Stress und Depressivität von Soldaten und deren Partner.** (Publikationstitel)

**The effectiveness of horse-assisted interventions on the quality of partnership, the severity of PTSD symptoms, stress and depression of soldiers and their partners.** (Title)

Trauma, 15, 80-91.

Abstract | Treatment numbers of trauma disorders among soldiers after foreign deployments are steadily increasing. In addition to regular psychotherapy, a pilot project of equine assisted interventions for couples, where one is afflicted by PTSD to improve communication is offered and evaluated. Results based on N=16 pairs show that the intervention can significantly improve the quality of the partnership, reduce negative moods and thinking in the afflicted person, and reduce overall stress symptoms and problems in the partnership.

#### PSU-2016-3

Köhler K, Rose C, Willmund G (2016): **Der Einfluss von pferdeunterstütztem Lernen auf Partnerschaftsqualität, Symptomschwere einer PTBS und Depressivität von Soldaten - Beschreibung und Theorie einer Studie.** (Publikationstitel)

**The influence of horse-assisted learning on partnership quality, symptom severity of PTSD and depression in soldiers.** (Title)

Mensch und Pferd 3 (2016): 23-28  
DOI: <http://dx.doi.org/10.2378/mup2016.art16d>

Abstract | The numbers of soldiers who are being treated to psychological trauma after deployment is rising annually. In addition to therapy guidelines, a pilot study will provide a horse-assisted measure to improve the communication of trauma patients in their partnership using the EAGALA method. However, due to the still too low degree of studies, no evidence-based statements about their efficacy are possible so far as the symptoms of PTSD, depression and partnership quality are concerned. Therefore, this measure is to be evaluated on the basis of a military sample of patients and their life partners. The present article presents theoretical foundations and the design of the study.

### PSU-2016-1

Rose C, Zimmermann P, Fischer C (2016): **Angehörige von Bundeswehrsoldaten – Belastungen und Hilfsangebote aus interdisziplinärer Sicht.** (Publikationstitel)

**Relatives of Bundeswehr soldiers – burdens and support measures from an interdisciplinary perspective.** (Title)

Wehrmedizinische Monatsschrift 60(1):24-29

Abstract | Counseling and support of relatives of soldiers has been developed steadily during the last years. This counts for general family-support of all German Armed Forces-members while deployed as well as for relatives of soldiers with mental-health problems as well as for surviving dependants. This article provides an overview of burdens relatives of mentally ill persons have to carry and the different support-systems embedded within the German Armed Force welfare-system. Evaluation of selected offers already has started. A study of the German Armed Forces Hospital Berlin showed that quality of life of affected relatives significantly improved due to offers of group-therapy.

### PSU-2015-3

Kowalski J, Jacobi F, Trautmann S, Schönfeld S, Thurau C, Höfl M, Siegel S, Wittchen H, Zimmermann P (2015): **Bewertung und Inanspruchnahme der psychosozialen Versorgung von Soldaten nach Auslandseinsatz.** (Publikationstitel)

**Assessment and use of psychosocial support by soldiers of the German Armed Forces.** (Title)

Trauma und Gewalt 9(3):226-235

Abstract | Though prevalence rates of deployment related psychological disorders in German soldiers are high, contemporary use of the health care system is rather seldom. Research on utilization of the psychosocial support system is still marginal. Methods: Cross sectional analysis of a military sample (n = 1483) postdeployment. Using an adapted version of the Composite International Diagnostic Interview (CIDI), perception (assessment of information, organization and accessibility) of the psychosocial support system provided by the GAF was analyzed as well as the preference for professions (social, medical, psychological service, pastoral care) as first contact. Results: Information about and accessibility of psychosocial help was rated less useful by soldiers with a deployment related psychological disorder. Military psychologists were the first providers contacted by a significant majority of the affected soldiers, Traumaspecific therapy was mostly looked for only post deployment. Conclusion: Distribution of information about the psychosocial system was rated poor within the military community. Military psychologists are preferred as first contact by soldiers with a psychological disorder.

### PSU-2015-2

Rose C, Zimmermann P (2015): **Belastungen von Angehörigen im Kontext psychischer Traumatisierungen.** (Publikationstitel)

**Burdens of relatives in the context of mental trauma.** (Title)

Journal for Deradicalization 15(2):1–20

Abstract | Mental illnesses are very important in the German population and reach a 12-months prevalence of about 30%. This also includes post-traumatic disorders, which can be caused by the effects of extreme stress from professional (such as in the case of emergency services) or private contexts (robbery, rape, etc.). A recent epidemiological study in the German Army (Bundeswehr) revealed a 12-months prevalence of mental illness among soldiers in the armed forces who have been deployed of 21.4% and 22.5% for non-deployed personnel. Post-traumatic stress disorder was represented with 2.9%, anxiety disorder with 10.8%, as well as affective disorders, 3.4% were affected by alcohol disorder. The initially surprisingly higher prevalence rate in the group without deployment can be explained by health examinations of the Bundeswehr prior to deployment, which in some cases means that at least temporarily deployment was cancelled, for example during ongoing psychotherapy. Living with a mentally ill person can cause a strong emotional burden for the relatives. Every mental illness interferes not only with the usual processes but also with the unwritten laws of a partnership and often triggers a fluctuation between hope and disappointment, confidence and resignation. On the other hand, family support seems to be a protective factor against long-term stress and to have a positive influence on the course of post-traumatic mental illnesses. The supportive therapeutic work with relatives can therefore be expected to have positive effects both for them and for the original patients. The article was written in German.

### PSU-2015-1

Wesemann U, Jensen S, Kowalski J, Gewandt A, Kröger C, Fischer C, Rose C, Zimmermann P (2015): **Einsatzbedingte posttraumatische Belastungsstörung im sozialen Umfeld von SoldatInnen. Eine explorative Studie zur Entwicklung und Evaluierung eines Angehörigenseminars.** (Publikationstitel)

**Deployment-related Posttraumatic Stress Disorder in soldiers – an explorative study on development and evaluation of seminars for spouses.** (Title)

Trauma und Gewalt 9(3):216-225

Abstract | Soldiers diagnosed with deployment-related post-traumatic stress disorder often complain about interpersonal conflicts. Since 2011 psychoeducative seminars for spouses of German soldiers have been developed. Little is known about the effectivity of such offers. Ten 3-days-seminars with 35 participating couples from October 2011 to October 2014 were evaluated with the World Health Organization – Quality of Life – BREF (WHOQOL-BREF) and the questionnaire of social support (F-SozU). The results of the WHOQOL-BREF showed a significant improvement of physical [F(2, 34) = 4.17; p < .05], psychological [F(2, 34) = 3.77; p < .05] and global quality of life [F(2, 34) = 5.13; p < .05]. In the F-SozU reciprocity [F(2, 40) = 7.81; p = .001] increased

significantly. The results of this study suggest an impact of the seminar on quality of life in spouses of traumatized soldiers.

#### **PSU-2013-2**

Waltereit R, Kowalski J, Zimmermann P (2013):

**Kohäsion und soziale Unterstützung des Soldaten in relevanten gesellschaftlichen Gruppen. Einfluss auf einsatzbedingte psychische Traumastörungen.** (Publikationstitel)

**The Effect of Cohesion and Social Support on Military Post-traumatic Stress and Associated Disorders.** (Title)

Trauma und Gewalt 7(1):2–8

Abstract | Group cohesion and support from relevant social groups are protective factors against posttraumatic stress disorder (PTSD). Soldiers with warzone stress exposure run the risk of developing PTSD. The social entities important for soldiers are their respective units, the armed forces in general, and the nation. Here we analyze the literature to establish the effect of group cohesion and social support experienced in these social categories on the risk of deployment-related PTSD. We identify protective effects at all three levels and discuss the relevance of these effects for the specific situation of the German armed forces.

#### **PSU-2013-1**

Zimmermann P, Alliger-Horn C, Kowalski J (2013): **Die Zeugen der Gewalt kehren heim. Wie psychisch traumatisierte Afghanistan-Veteranen in der Bundeswehr begleitet und therapiert werden.** (Publikationstitel)

**The witnesses of violence return home. How psychologically traumatized Afghanistan veterans are accompanied and treated in the Bundeswehr.** (Title)

Psychotherapie und Seelsorge (2):32–35

Abstract | The experience of extreme violence is accompanied by consequences extending the frame of „classic“ mental-health disorders which have to be picked-up psychotherapeutic within the frame of an overall treatment plan. Especially the handling of values and their modification/ transition will reach a higher scientific and psychotherapeutic importance prospectively. Unpublished pilot-studies showed significant correlations of special value-types (i.e. hedonism) and the severity of deployment-related mental-health disorders.

#### **PSU-2012-1**

Hertwig J, Zimmermann P, Becker N (2012): **Posttraumatische Belastungsstörung bei Soldaten: Rechtliche Absicherung und psychotherapeutische Betreuung nach Auslandseinsätzen der Bundeswehr.** (Publikationstitel)

**Posttraumatic stress disorder in soldiers: legal protection and psychotherapeutic care in the Bundeswehr after deployment.** (Title)

Neue Zeitschrift für Sozialrecht (12):441–480

Abstract | Over the last years the priority of deployment-related mental-health disorders increased clearly in the medical health care system of the German Armed Forces as well as in public discussion. The legislator induced an obvious improvement of long-time care especially for traumatized soldiers returned from deployment.

#### **PSU-2011-1**

Zimmermann P, Kowalski J (2011): **Zwei Jahre psychosoziale Versorgung und Forschung – Ergebnisse und Perspektiven des Psychotraumazentrums der Bundeswehr.** (Publikationstitel)

**Two years of psycho-social activities – results and perspectives of the Bundeswehr Center of Mental Health.** (Title)

Wehrmedizinische Monatsschrift 55(10):218–220

Abstract | In May 2010 the Bundeswehr Center of Mental Health was founded associated with the Bundeswehr Hospital in Berlin. Since more than a year the activities are driven by a close clinical and scientific collaboration. The presented data and current projects illustrate the effectiveness of these structures. Future perspectives should be formed by innovative clinical practice, clinical and preventive research, good teaching and public representation.

## UBS-2017-1

Back D, Waldmann K, Hauer T, Huschitt N, Bowyer M, Wesemann U, Lieber A, Willy C (2017): **Concept and evaluation of the German War Surgery Course - Einsatzchirurgie-Kurs der Bundeswehr** (Title)

Journal of the Royal Army Medical Corps 163(3):206-210  
DOI: 10.1136/jramc-2016-000706.

Abstract | Introduction: Military surgeons must be prepared to care for severe and complex life-threatening injuries rarely seen in the civilian setting. Typical civilian training and practice do not provide adequate exposure to the broad set of surgical skills required. The German Bundeswehr Medical Service has developed and refined the War Surgery Course (WSC) to meet this training gap. This article describes the recent experience with this readiness curriculum. Methods: Run annually since 1998, WSC consists nowadays of 5 days with 20 theoretical modules. Four sessions with standardised practical skills training use a live tissue porcine model, and the recently added cadaver-based Advanced Surgical Skills for Exposure in Trauma course. Sixteen military surgeons who participated in the WSC in January 2016 completed a survey of their self-rated readiness for 114 predefined emergency skills before and after completion, and provided an overall evaluation of the course. Results: Self-assessed readiness improved significantly over baseline for all areas covered in both the practical skills and theoretical knowledge portions of the WSC curriculum. Additionally, all participants rated the course as important and universally recommended it to other military surgeons preparing for missions. Conclusions: The WSC course format was well received and perceived by learners as a valuable readiness platform. Ongoing evaluation of this course will enable data-driven evolution to ensure a maximum learning benefit for participants. With the increasing multinational nature of modern military missions, surgeons' training should follow international standards. Continuing evolution of military surgical training courses should further encourage the sharing and adoption of best educational practices.

## UBS-2016-4

Alliger-Horn C, Zimmermann P (2017): **Präventive und psychotherapeutische Praxis der Versorgung einsatzbedingter psychischer Erkrankungen im Rahmen der Bundeswehr** (Publikationstitel)

**Preventive and Psychotherapeutic Practice in the Treatment of Military Mission-Related Mental Illness in the Bundeswehr** (Title)

Verhaltenstherapie 2017;27:1–9

Abstract | Background: Over the past few decades, the importance of preventive and psychotherapeutic care has

significantly increased concomitant with the growing presence of the 'Bundeswehr' in international military missions. In the long term, the supportive care for soldiers impaired in the course of military missions will thus become a challenge for the military and the general society in practice and research. Method:

This article presents and discusses the prevailing status of practical preventive and psychotherapeutic care in the Bundeswehr. Conclusions: Recommendations for civilian care are presented.

## UBS-2016-4

Zimmermann P, Wesemann U, Willmund G, Alliger-Horn C (2016): **Traumafolgestörungen in der Bundeswehr Konzepte der Prävention und Behandlung.** (Publikationstitel)

**Trauma disorders in the German Armed Forces - concepts of the prevention and treatment.** (Title)

Nervenheilkunde 6/2016

Abstract | The German Armed Forces have been involved in deployments outside Germany since 1991. Since then psychiatric disorders have become an increasing challenge for prevention and therapy. The aim of this article is to give an overview concerning recent developments in prevention, treatment, evaluation and research in the field of psychiatric disease in the German Armed Forces.

## UBS-2016-3

Himmerich H, Willmund G, Wesemann U, Jones N, Fear N (2016): **European military mental health research: benefits of collaboration.** (Title)

**European military mental health research: Vorteile der Zusammenarbeit.** (Publikationstitel)

Journal of the royal Army Medical Corps 30  
DOI: 10.1136/jramc-2016-000676

Abstract | Despite joint participation in international military operations, few collaborative military mental health research projects have been undertaken by European countries. From a common perspective of military mental health researchers from Germany and the UK, the lack of shared research might be related not only to the use of different languages but also the different ways in which the two militaries provide mental health and medical support to operations and differences in military institutions. One area that is suitable for military health research collaboration within UK and German forces is mental health and well-being among military personnel. This could include the study of resilience factors, the prevention of mental disorder, mental health awareness, stigma reduction and the treatment of mental disorder. Military mental health research topics, interests and the studies that have been conducted to date in the UK

and Germany have considerable overlap and commonality of purpose. To undertake the investigation of the long-term consequences of operational deployment, the specific burdens placed on military families and to further the understanding of the role of factors such as biomarkers for use in military mental health research, it seems advisable to forge international research alliances across European nations, which would allow for researchers to draw transcultural and generalisable conclusions from their work. Such an enterprise is probably worthwhile given the shared research interests of Germany and the UK and the common perspectives on military mental health in particular.

#### **UBS-2016-2**

Zimmermann P, Wesemann U, Willmund G, Alliger-Horn C (2016): **Traumafolgestörungen in der Bundeswehr Konzepte der Prävention und Behandlung.** (Publikationstitel)

Trauma disorders in the German Armed Forces - concepts of the prevention and treatment. (Title)

Nervenheilkunde 35:(in press)

Abstract | The German Armed Forces have been involved in deployments outside Germany since 1991. Since then psychiatric disorders have become an increasing challenge for prevention and therapy. The aim of this article is to give an overview concerning recent developments in prevention, treatment, evaluation and research in the field of psychiatric disease in the German Armed Forces.

#### **UBS-2016-1**

Rau H, Kowalski J, Stein M, Höllmer H, Siegel S, Willmund G (2016): **Aktuelle militärpsychiatrische und –psychologische Forschungen in der Bundeswehr.** (Publikationstitel)

**Current military psychiatry and psychological research in the Bundeswehr.** (Title)

Wehrmedizinische Monatsschrift 60(1):15-18

Abstract | Due to structural reforms of the German Armed Forces the research environment of military psychiatry and -psychology underwent a considerable change. The task fields of psychological service and medical service show different directions and foci, however more and more the interdisciplinary teamwork proved to be expedient for prevention and treatment. Aim of this article is to illustrate the resulting synergetic effects exemplified by current research-projects.

#### **UBS-2015-3**

Zimmermann P, Alliger-Horn C, Wesemann U, Willmund G (2015): **Update: Psychische Erkrankungen in der Bundeswehr.** (Publikationstitel)

**Update: Psychiatric disorders in the German Armed Forces.** (Title)

Wehrmedizinische Monatsschrift 59(2):34-37

Abstract | Psychiatric disorders have, due to prevalence rates of 20 to 23 %, an outstanding position in Military Medicine of the German Armed Forces. Deployment-related diseases are of special importance. Within the last 20 years treatment approaches and treatment settings have substantially changed in the German Armed Forces and numerous preventive and therapeutic elements have been established. The aim of this article is to give an overview concerning recent developments in prevention, treatment, evaluation and research in the field of psychiatric disorders in the German Armed Forces.

#### **UBS-2014-5**

Alliger-Horn C (2014): **Grundlagen der Behandlung einsatz-assoziierter Störungen.** (Publikationstitel)

**Basics of treatment of deployment-related mental-health disorders.** (Title)

In: Kreim G, Bruns S, Völker B (Hg.): Psychologie für Einsatz und Notfall. Internationale truppenpsychologische Erfahrungen mit Auslandseinsätzen, Unglücksfällen, Katastrophen. 2., aktualisierte und erweiterte Auflage 2014. Bonn Bernard & Graefe:324–331

#### **UBS-2014-4**

Alliger-Horn C (2014): **Therapie der einsatzassoziierten Störung. Zwei Fallbeispiele aus der Praxis.** (Publikationstitel)

Therapy of deployment-related mental-health disorders. Two case studies from practice.

In: Kreim G, Bruns S, Völker B (Hg.): Psychologie für Einsatz und Notfall. Internationale truppenpsychologische Erfahrungen mit Auslandseinsätzen, Unglücksfällen, Katastrophen. 2., aktualisierte und erweiterte Auflage 2014. Bonn, Bernard & Graefe:332–338.

#### **UBS-2011-2**

Eisenlohr V, Zimmermann P, Kowalski J (2011): **Burnout – ein bedeutendes Symptombild in der truppenärztlichen Praxis.** (Publikationstitel)

Wehrmedizinische Monatsschrift 55(10):224–227

Abstract | The Burnout syndrome has been intensely discussed in Psychiatry and Psychotherapy but is not yet scientifically accepted. It is a work-related exhaustion syndrome, that can possibly affect even people without mental disorders and it plays a substantial role in a stressful work-environment like the Bundeswehr. The military general practitioner is the first point of contact for soldiers with burnout syndrome and thus should have basic knowledge about etiology, symptomatology and therapeutic approaches.

#### **UBS-2011-1**

Zimmermann P, Gewandt A, Willmund G, Kowalski J (2011): **PTBS mit temporo-mandibulärer Dysfunktion. Kasuistik ei-**

**nes Einsatz-traumatisierten Bundeswehrosoldaten mit ungewöhnlicher somatoformer Symptomatik.** (Publikationstitel)

**Temporo-Mandibular Dysfunctions and Multiple Tooth Extractions in a German Soldier with Deployment-Related Posttraumatic Stress Disorder.** (Title)

Trauma und Gewalt 5(4):382-388

Abstract | Recognition of posttraumatic psychic disorders is palpably gaining ground in the health care system of the German Armed Forces. Alongside PTSD as such, various psychophysical syndromes can occur, massively obstructing early identification of the underlying psychical disorder notably at the pre-clinical stage. The present report describes the case of a Bundeswehr soldier with deployment-related PTSD. He was subjected to multiple and fruitless dental interventions on account of a severe, painful, and chronic temporo-mandibular dysfunction. After two sessions of therapy with trauma-specific EMDR techniques, the pain symptoms disappeared almost without trace.

### **UBS-2010-3**

Zimmermann P, Biesold K, Hahne H, Lanczik M (2010): **Die Psychiatrie der Bundeswehr im Wandel - Standortbestimmung und Perspektiven** (Publikationstitel)

**Psychiatric care in the German armed forces: current status and future perspectives** (Title)

Trauma und Gewalt 4(3):198-207

Abstract | Since the onset of out-of-area deployments for the German armed forces, there have been notable qualitative and quantitative changes in connection with psychiatric/psychotherapeutic care for military patients. These changes have necessitated a conceptual and organisational restructuring process for German military psychiatry over the last few years. The article describes emergent designs for psychiatric care developed by the medical corps of the German armed forces and compares them with those evolving in the civilian sector and in other countries. Potential future needs for psychiatric care and research are also discussed.

### **UBS-2010-2**

Zimmermann P, Eisenlohr V, Jacobs H, Barnett W, Düsel W (2010): **Psychosoziale Forschung und Klinik im Verbund am Bundeswehrkrankenhaus Berlin - Das neue „Forschungs- und Behandlungszentrum für Psychotraumatologie und Posttraumatische Belastungsstörungen/Traumazentrum“** (Publikationstitel)

**Psychosocial research and clinical practice in the composite at Bundeswehr hospital Berlin – The new “Center of Psychotraumatology Treatment and Research”** (Title)

Wehrmedizinische Monatsschrift 54(6-7):178-182

Abstract | Out-of-area deployments of the German Armed Forces are increasingly associated with mental and general health problems. Due to a decision of the Federal Minister of

Defence in Mai 2010 the “Center of Psychotraumatology Treatment and Research” was established at the Bundeswehr hospital Berlin, containing a clinical and a scientific division. Main topics of the scientific work are military-related psychiatric diseases including preventive, therapeutic and legal aspects. The current structures and scientific projects of the center are presented and discussed.

# BOOK | Books and book chapters

## BOOK-2019-3

Biesold KH, Barre K, Zimmermann P (2019): **Militär** (Publikationstitel)

**Military** (Title)

In: Maercker A (Hg) (2019). Traumafolgestörungen  
6. Auflage, Springer, Heidelberg

## BOOK-2019-2

Tagay S, Zimmermann P (2019): Traumafolgestörungen.

**Psychotrauma-related Mental Disorders** (Title)

In: Senf W, Broda M (Hg) (2019). Praxis der Psychotherapie:  
Ein integratives Lehrbuch, Thieme; 6. Auflage).

## BOOK -2019-1

Zimmermann P (2019): **Traumatisierungen nach militärischen Einsätzen.** (Publikationstitel)

**Traumatization after deployment.** (Title)

In: Seidler GH, Freyberger H und Maercker A (Hg.): Handbuch der Psychotraumatologie. 12., 3., Auflage, erweiterte Ausgabe Stuttgart Klett-Cotta

## BOOK-2018-1

Zimmermann P, Alliger-Horn C (2018): **Trauma und Militäreinsatz.** (Publikationstitel)

**Trauma and Military Deployment** (Title)

In: Schellong, J., Epple, F. & Weidner, K. (Hrsg.), Praxisbuch Psychotraumatologie, 219-223. Georg Thieme Verlag KG Stuttgart

## BOOK-2017-1

Zimmermann P, Eichenberg C (2018): **Einführung Psychotraumatologie** (Publikationstitel).

**Course of Psychotraumatology** (Titel)

PsychoMed compact, Band 4762; 1. Auflage, 177 Seiten, UTB GmbH.

## BOOK-2016-2

Koch M (2016): **Psychische Erkrankungen in der Bundeswehr.** (Publikationstitel)

**Mental illness in the German Armed Forces.** (Title)

In: Bohnert M, Schreiber B (Hg.) Die unsichtbaren Veteranen: Kriegsheimkehrer in der deutschen Gesellschaft. Miles-Verlag, 1. Auflage:261 – 268

## BOOK-2011-4

Zimmermann P, Eisenlohr V (Hg.): **Psychosoziale Belastungen. Eine Orientierungshilfe für Mitglieder des Psychosozialen Netzwerks der Bundeswehr. 2. Auflage** Berlin: 23–36 (Publikationstitel)

**Psychosocial stress. A guide for members of the Psychosocial Network of the Bundeswehr.** (Title)

## BOOK-2016-5

Zimmermann P (2016): **One-Pager: PTBS-Zündschnur/ Stressreaktionen** (Publikationstitel)

**One-Pager: PTSD-ignition-cord/ Stress reactions** (Title)

In: Aus dem Einsatz lernen - Lehren für Grundbetrieb, Ausbildung, Übung und Einsatz 22. Ausgabe 2/2016 (VS – NFD):59

## BOOK -2016-4

Zimmermann P (2016): **Eine Frage der Ehre? – Moral und Psyche im Einsatz.** (Publikationstitel)

**A question of Honour? - Moral and psyche in deployment.** (Title)

In: Aus dem Einsatz lernen - Lehren für Grundbetrieb, Ausbildung, Übung und Einsatz 22. Ausgabe 2/2016 (VS – NFD):53-58

## BOOK -2015-3

Kathrin Schrocke, Lilli L'Arronge (2014): **Ein schattiges Plätzchen** (Publikationstitel)

**A shadowed place.** (Title)

Berlin: Hartmann, Evangelisches Kirchenamt der Bundeswehr, 2. Auflage, 2015

## BOOK -2015-1

Kowalski J, Siegel S, Zimmermann P (2015): **Medizin und Militäreinsatz.** (Publikationstitel)

**Medicine and military deployment.** (Title)

In: Bohrmann T, Lather K, Lohmann F (Hg.): Handbuch Militärische Berufsethik. Anwendungsfelder, Band 2: Springer VS (2):315–334

## BOOK -2014-1

Wesemann U (2014): **Einfluss von Kriegserfahrung auf die menschliche Psyche - vom Kriegszittern zur posttraumatischen Belastungsstörung.** (Publikationstitel)

**Influence of war experience on the human psyche - from "Kriegszittern" to posttraumatic stress disorder.** (Title)

In: Bender G, Siebenhaar K (Hg.): SLS 14. Social Learning Space. Europa: Digital, real und historisch. neue Ausgabe Berlin: B & S Siebenhaar Verlag OHG:50–52.

## BOOK -2013-1

Gewandt A, Zimmermann P (2013): **Healing of psychological trauma from military operations by transformation of memories.** (Title)

**Behandlung von psychischen Verwundungen nach Auslandseinsätzen durch Umstrukturierung der Erinnerung.** (Publikationstitel)

In: Linden M, Rutkowski K (Hg.): Hurting memories and beneficial forgetting. Posttraumatic stress disorders, biographical developments, and social conflicts. Amsterdam, Burlington: Elsevier Science:181–190



#### **BOOK -2012-4**

Zimmermann P (2012): **Posttraumatische Belastungsstörungen bei Bundeswehrsoldaten nach einem Auslandseinsatz.** (Publikationstitel)

**Posttraumatic stress disorders in Bundeswehr soldiers after deployment.** (Title)

In: Emmerling E, Frembgen J, Matern T, Omarzad R, Stelzig C (Hg.): Augenblick Afghanistan. 1. Auflage München: Staatliches Museum für Völkerkunde München:121-123

#### **BOOK -2012-3**

Zimmermann P, Jacobs H, Kowalski J (2012): **ISAF und die Seele – Zwischen Schädigung und Wachstum.** (Publikationstitel)

**ISAF and the Soul - between Damage and Growth.** (Title)

In: Seiffert A, Langer P (Hg.): Der Einsatz der Bundeswehr in Afghanistan. Sozial- und politikwissenschaftliche Perspektiven. 1. Auflage Wiesbaden: Springer VS (Schriftenreihe des Sozialwissenschaftlichen Instituts der Bundeswehr, 11): 143–152

#### **BOOK -2012-2**

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