Journal sur l'identité, les relations interpersonnelles et les relations intergroupes

Journal of Interpersonal Relations, Intergroup Relations and Identity

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Le *Journal sur l'identité, les relations interpersonnelles et les relations intergroupes* (JIRIRI) est une revue scientifique internationale concernant le monde de l'identité et des interactions sociales. La mission du JIRIRI est de permettre aux étudiants de premier cycle de vivre l'expérience complète de la démarche scientifique, de la mise sur pied d'idées originales jusqu'à leur diffusion, par le biais d'un processus de révision par un comité de pairs.

The *Journal of Interpersonal Relations, Intergroup Relations and Identity* (JIRIRI) is a scientific journal distributed internationally in the field of identity, interpersonal and intergroup relations. The mission of the JIRIRI is to offer undergraduate students a unique opportunity to fully experience the scientific method, from the development of original ideas to their diffusion, through the peer review process.

JIRIRI

Journal sur l'identité, les relations interpersonnelles et les relations intergroupes
Journal of Interpersonal Relations, Intergroup Relations and Identity

Volume 16
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JIRIRI

Journal sur l'identité, les relations interpersonnelles et les relations intergroupes

Mission

Le *Journal sur l'identité, les relations interpersonnelles et les relations intergroupes* (JIRIRI) est une revue scientifique internationale publiée annuellement en avril. Sa mission est de permettre aux étudiants de premier cycle de faire l'expérience complète de la démarche scientifique, de la mise sur pied d'idées originales jusqu'à leur diffusion, par le biais d'un processus de révision par les pairs.

Le JIRIRI vise également à promouvoir la création et l'expression de nouvelles idées théoriques sur les thèmes de l'identité et des interactions sociales — idées qui pourront éventuellement devenir les prémisses solides de futurs travaux de plus grande envergure.

Le JIRIRI publie des articles théoriques et empiriques. Ainsi, tout étudiant de premier cycle en psychologie ou dans un domaine connexe qui désire approfondir et diffuser des idées ou des résultats portant sur les thèmes de l'identité, des relations interpersonnelles ou intergroupes est invité à soumettre son article.

Processus de révision

Dès leur réception, le rédacteur en chef effectue une première sélection des manuscrits en ne conservant que ceux qui correspondent à la mission du JIRIRI. Ensuite, le processus d'évaluation par les pairs débute par l'envoi du manuscrit à trois étudiants de premier cycle et à un étudiant des cycles supérieurs. Ces étudiants rendront une évaluation anonyme, sous forme d'une grille d'évaluation, ainsi qu'une section de commentaires destinés à l'auteur, qu'ils enverront à un membre de l'équipe éditoriale responsable du suivi du manuscrit.

Ensuite, le responsable du manuscrit fait la synthèse de ces évaluations dans une lettre d'édition destinée à l'auteur. La rédaction de la lettre d'édition est supervisée par les éditeurs consultants, des étudiants aux cycles supérieurs. La lettre d'édition doit souligner les critiques les plus importantes et rendre la décision concernant la publication de l'article. L'article peut être accepté, l'auteur peut recevoir une demande de modifications (mineures ou majeures) avec demande de re-soumission ou l'article peut être rejeté.

L'auteur doit alors considérer les modifications suggérées par le comité de rédaction. Le processus de révision et de corrections se poursuit jusqu'à ce que le manuscrit soit jugé satisfaisant pour fin de publication.

Consignes pour la soumission d'un manuscrit

Les étudiants de premier cycle de toute université sont invités à soumettre leur manuscrit en français ou en anglais. Dans sa lettre au rédacteur en chef, l'auteur qui soumet un manuscrit doit confirmer qu'il est étudiant au premier cycle au moment de la soumission et que son article n'a pas déjà été publié ou soumis pour publication dans un autre journal scientifique. Un étudiant au baccalauréat peut soumettre un article qu'il a coécrit avec un professeur ou un étudiant aux cycles supérieurs, mais il doit impérativement en être le premier auteur. Il est impossible de soumettre un article au JIRIRI en tant que premier auteur si le baccalauréat a été complété plus de six mois avant la soumission du manuscrit.

La première page du manuscrit doit contenir le titre de l'article ainsi qu'un titre abrégé de 50 caractères maximum. La deuxième page doit contenir un résumé de l'article de 150 mots maximum. De plus, l'auteur doit fournir cinq mots-clés en lien avec les thèmes abordés dans l'article. Le texte doit contenir un maximum de 7 500 mots et il doit respecter les normes de l'APA.

Pour s'impliquer au sein du JIRIRI

Les étudiants de premier cycle qui souhaitent soumettre un manuscrit et les étudiants de premier cycle et des cycles supérieurs qui souhaitent s'impliquer dans le processus de révision en tant qu'évaluateurs sont invités à nous contacter au : jiriri@umontreal.ca

Pour de plus amples renseignements, veuillez consulter notre site Internet : www.jiriri.ca.

Adresse postale
Journal sur l'identité, les relations interpersonnelles et les relations intergroupes (JIRIRI)
a/s Diana Cárdenas, Ph. D.
Université de Montréal
Département de psychologie
C.P. 6128, Succursale Centre-Ville Montréal (Québec), Canada, H3C 3J7

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JIRIRI

Journal of Interpersonal Relations, Intergroup Relations and Identity

Mission

The Journal of Interpersonal Relations, Intergroup Relations and Identity (JIRIRI) is an international scientific journal published annually in April. Its mission is to offer undergraduate students a unique opportunity to fully experience the scientific method from the development of original ideas to their diffusion, through the peer-review process.

The JIRIRI also aims to promote the conception and expression of new theoretical ideas in the field of identity, interpersonal and intergroup relations—ideas that could eventually become solid bases for large-scale studies.

The JIRIRI publishes both theoretical and empirical articles. Thus, any undergraduate student in psychology or in a related field eager to share and refine his or her ideas or results pertaining to identity, interpersonal or intergroup relations is invited to submit a manuscript.

Reviewing Process

First, the Editor-in-Chief makes a preliminary selection of the manuscripts and retains those that comply with the JIRIRI's mission. Then, the manuscripts are sent to three undergraduate students and one graduate student. These students will write anonymous reviews to the author and send them to an associate editor responsible for the manuscript.

The associate editor will write an edition letter to the author, which will synthesize the reviewer's comments. This process will be supervised by the consulting editors, who are graduate students. The edition letter must contain the most important comments and the decision regarding publication. The manuscript may be accepted as it is, the authors may be invited to revise and resubmit the article (with minor or major revisions), or the manuscript may be rejected completely.

The author will then consider the modifications proposed by the editorial board. Several rounds of reviews may be undertaken until the manuscript is judged suitable for publication.

Guidelines for Submitting an Article

Undergraduate students of all universities are invited to submit their manuscript in French or in English. In his letter to the Editor-in-Chief, the author submitting a manuscript must confirm that he is an undergraduate student and that his manuscript has neither been published nor submitted for publication elsewhere. An undergraduate student may submit a manuscript that he has co-written with a professor or a graduate student only if he is the first author. It is not possible to be the first author of an article in the JIRIRI if one's undergraduate degree was completed more than six months prior to the submission of the manuscript.

The cover page must include the title of the manuscript and a running head with a maximum of 50 characters. The second page must include an abstract with a maximum of 150 words, and the author must also provide five keywords that describe the subject of the article. The text must contain a maximum of 7,500 words and must conform to APA standards.

To Participate in the JIRIRI

Any undergraduate student interested in submitting a manuscript, or any undergraduate or graduate student interested in taking part in the review process is invited to contact us at the following address: jiriri@umontreal.ca.

For more details, please consult our website at the following address: www.jiriri.ca.

Postal Address

Journal of Interpersonal Relations, Intergroup Relations and Identity (JIRIRI)
a/s Diana Cárdenas, Ph. D.
Université de Montréal
Psychology Department
C.P. 6128, Succursale, Centre-Ville, Montreal (Quebec), Canada, H3C 3J7

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Remerciements

L'équipe du JIRIRI tient tout d'abord à remercier le Département de psychologie de l'Université de Montréal et sa Directrice, Madame Michelle McKerral, Ph.D. Nous remercions également tous les étudiants qui ont collaboré au Journal sur l'identité, les relations interpersonnelles et les relations intergroupes (JIRIRI). Nous remercions aussi tous les éditeurs consultants ainsi que Julie Caouette, Ph. D., Diana Cárdenas, Ph. D., Roxane de la Sablonnière, Ph. D., Jonathan Doherty, M. Sc., Laura French Bourgeois, Ph. D., Sébastien Hétu, Ph. D. et Frank Kachanoff, Ph. D., qui ont su guider généreusement les rédacteurs adjoints dans leurs lettres d'édition. La publication du présent volume n'aurait pu être possible sans l'implication et l'expertise de toutes ces personnes. Par ailleurs, nous exprimons notre reconnaissance à Roxane de le Sablonnière, fondatrice du JIRIRI, et à nos collègues du Laboratoire de recherche sur les changements sociaux et l'identité (CSI).

Nous tenons aussi à remercier les organisateurs du 45e congres de la SQRP, dont la président du comité organisateurs, Audrey Brassard, Ph. D. Nous remercions aussi le comité organisateur de la 16e journée scientifique du Département de psychologie de l'Université de Montréal, Émilie Giguère, Gyslain Giguère, Ph. D., Amélie Lévesque, M. Sc., Florianne Louissaint, Michelle McKerral, Ph. D., Maxime Paquet, Ph. D. et Inès Sanchez.

Sur une note plus personnelle, nous tenons à remercier Diana Cárdenas pour son dévouement et son appui continuel. De plus, nous remercions les rédacteurs et rédactrices en chef des volumes précédents, qui continuent d'agir en tant que guides année après année. Nous remercions aussi Jacob Lalongé, rédacteur en chef du 15e volume, pour avoir occuper le poste d'auxiliaire cette année.

Un grand merci final aux auteurs et auteures qui ont fait confiance au JIRIRI pour la publication de leur manuscrit ainsi qu'aux lecteurs et lectrices qui font vivre ce journal depuis maintenant 16 ans !

Acknowledgments

The JIRIRI's team would first like to thank the Department of Psychology at the University of Montreal and its Director, Michelle McKerral, Ph.D. We thank all the students who contributed to the Journal on Identity, Interpersonal Relations and Intergroup Relations (JIRIRI). We also thank all of the consulting editors as well as Julie Caouette, Ph. D., Diana Cárdenas, Ph. D., Roxane de la Sablonnière, Ph. D., Jonathan Doherty, M. Sc., Laura French Bourgeois, Ph. D., Sébastien Hétu, Ph. D. et Frank Kachanoff, Ph. D., who generously guided the associate editors through their edition letters. The publication of this volume would not have been possible without the involvement and expertise of all these people. In addition, we are grateful to Roxane de la Sablonnière, founder of the JIRIRI, and our colleagues at the Social Change and Identity Research Laboratory.

We would also like to thank the organizers of the 45th SQRP convention, including the president of the organizing committee, Audrey Brassard, Ph. D. We also thank the organizing committee of the 16th scientific day of the Department of Psychology of the University of Montréal, Émilie Giguère, Gyslain Giguère, Ph. D., Amélie Lévesque, M. Sc., Florianne Louissaint, Michelle McKerral, Ph. D., Maxime Paquet, Ph. D. and Inès Sanchez.

On a more personal note, we would like to thank Diana Cárdenas for her dedication and ongoing support. Furthermore, we would like to thank the editors-in-chief of previous volumes, who continue to act as guides year after year. We also thank Jacob Lalongé, editor-in-chief of the 15th volume, for filling the position of assistant this year.

Finally, we thank to the authors who trusted the JIRIRI for the publication of their manuscript as well as to the readers who have kept this journal alive for the past 16 years!

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Éditorial

Myriam Martel et Darya Ryashy
Université de Montréal

Nous sommes toutes deux très fières de vous présenter le 16e volume du *Journal sur l'identité, les relations interpersonnelles et les relations intergroupes* (JIRIRI). D'années en années, le journal offre une opportunité aux étudiants et étudiantes de partout dans le monde d'être publiés. Cette année, encore une fois, ce mandat fut réussi.

Nous avons eu la chance de travailler avec Roxane de la Sablonnière, qui est revenue pour quelques temps après une longue période de pause en tant que responsable. Avoir la fondatrice du journal nous a permis de revenir à la mission première du JIRIRI : apprendre le processus d'évaluation par les pairs en tant qu'équipe éditorial. De plus, à partir de la session d'hiver, c'est Diana Cárdenas qui a pris la responsabilité du journal. Son approche de collaboration et de professionnalisme a aussi aidé à améliorer la qualité du JIRIRI. Malgré les nombreux changements et réajustement, nous avons réussi à publier un journal dont nous sommes fiers d'être des rédactrices en cheffes.

Nous tenons à remercier notre équipe éditoriale : notre éditrice en chef, Marie-Eve Lafrance, notre directrice de communication, Laurence Lessard et notre coordinatrice d'événement, Julie Muboyayi. Nous tenons aussi à remercier nos rédacteur.trice.s adjoint.e.s qui ont fait un travail exceptionnel cette année, ainsi que nos évaluateur.trices.s, nos éditeur.trice.s consultant.e.s et nos rédacteur.trice.s adjoints séniors qui ont su contribuer de par leur connaissance. Cette équipe de feu nous a permis de non seulement permettre la publication d'articles scientifiques touchant la psychologie sociale, mais aussi de faire connaître davantage le journal au sein de la communauté de psychologie. Le 16e volume n'aurait pas pu être possible sans leur support et dédication.

Cette année, le JIRIRI a reçu près de 20 articles venant de différents coins du globe. Parmi ceux ayant participé au processus d'édition, 6 sont publiés dans le 16e volume. Nous voulons féliciter l'excellent travail des auteur.trice.s ! En plus d'avoir sans arrêt à travailler et à retravailler sur leurs manuscrits, les recherches qu'il.elle.s nous ont présentées sont dignes d'être publiées et partagées au monde entier.

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Editorial

Myriam Martel & Darya Ryashy
Université de Montréal


We are both very proud to present the 16th volume of the *Journal of Interpersonal Relations, Intergroup Relations and Identity* (JIRIRI). Year after year, the journal provided an opportunity for students from around the world to publish their work. This year, once again, this mandate was successful.

We were fortunate to work with Roxane de la Sablonnière, who returned for a while after a long break as editor. Having the founder of the journal allowed us to get back to the primary mission of JIRIRI: learning the peer review process as an editorial team. In addition, starting in the winter semester, Diana Cárdenas took over the responsibility of the journal. Her collaborative and professional approach helped improve the quality of JIRIRI. Despite the many changes and readjustments, we have managed to publish a journal that we are proud to be editors of.

We would like to thank our editorial team: our Managing Editor, Marie-Eve Lafrance, our Communications Director, Laurence Lessard, and our Event Coordinator, Julie Muboyayi. We would also like to thank our Associate Editors who did an exceptional job this year, as well as our Reviewers, our Consulting Editors and our Senior Associate Editors who contributed their knowledge. This terrific team allowed us to not only publish scientific articles related to social psychology, but also to promote the journal within the psychology community. The 16th volume would not have been possible without their support and dedication.

This year, JIRIRIreceived around 20 articles from around the world. Among those who participated in the editing process, 6 are published in the 16th volume. We would like to congratulate the authors for their excellent work! In addition to having worked and reworked their manuscripts, the research they presented is worthy of being published and shared with the world.

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Lettre des rédacteurs adjoints seniors

Julie Caouette[1], Ph. D., Diana Cárdenas[1], Ph. D., Roxane de la Sablonnière[1], Ph. D., Jonathan Doherty[1], M. Sc., Laura French Bourgeois[2], Ph. D., Sébastien Hétu[1], Ph. D. & Frank Kachanoff[3], Ph. D.
[1]Université de Montréal
[2]Western University
[3]Université Wilfrid-Laurier







Nous avons le grand plaisir de vous présenter le 16e volume du *Journal sur l'identité, les relations interpersonnelles et les relations intergroupes* (JIRIRI),une revue de psychologie sociale dirigée par des étudiant.e.s de l'Université de Montréal. Cette initiative étudiante a été créée il y a plus de quinze ans sous la direction de la professeure Roxane de la Sablonnière. Au fil des ans, le JIRIRI a permis à des centaines d'étudiant.e.s du premier cycle d'universités à travers le monde d'acquérir de l'expérience dans la production de recherches psychologiques en participant à la révision, l'édition, la correction et l'écriture d'articles de psychologie sociale.

Les rédactrices en chef de cette année, Darya Ryashy et Myriam Martel, ont fait un travail fantastique. Elles ont formé l'équipe éditoriale, géré et dirigé les opérations quotidiennes de la revue. L'expérience antérieure de Darya avec JIRIRI a été essentielle pour le succès continu de la revue, tandis que l'énergie et les idées novatrices de Myriam ont permis des innovations importantes cette année. Ensemble, elles ont produit un travail exceptionnel afin de pouvoir publier des articles de haute qualité, qui sont d'ailleurs publiés au compte de médias sociaux actif du JIRIRI (rejoignez-nous sur Facebook et Instagram !). Malgré les défis de vivre dans un monde post-pandémique, où les réunions et les formations étaient à la fois en personne et en ligne, Darya et Myriam ont excellé dans leurs rôles, et nous leurs sommes reconnaissant.e.s pour leur travail acharné et leur leadership. Nous tenons également à saluer le travail fantastique de toute l'équipe JIRIRI, car la contribution de chaque individu a été essentielle pour le succès collectif de cette revue.

Les articles de cette année dans le volume couvrent une grande variété de sujets fascinants ; quel est le rôle de la motivation sexuelle lors de périodes de stress ? Est-ce qu'il y a un effet d'interaction entre le stress et la congruence des valeurs au travail ? Quels impacts a eu la COVID-19 sur la santé mentale ? Ces articles illustrent le brillant avenir de la psychologie sociale avec ces auteur.trice.s qui mènent le chemin vers l'avant.

Nous espérons que vous apprécierez la lecture du 16e volume de JIRIRI !

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Letter from the Senior Associate Editors

Julie Caouette[1], Ph. D., Diana Cárdenas[1], Ph. D., Roxane de la Sablonnière[1], Ph. D., Jonathan Doherty[1], M. Sc., Laura French Bourgeois[2], Ph. D., Sébastien Hétu[1], Ph. D. & Frank Kachanoff[3], Ph. D.

[1]Université de Montréal
[2]Western University
[3]Université Wilfrid-Laurier







It is our great pleasure to present the 16th volume of the *Journal of Interpersonal Relations, Intergroup Relations and Identity* (JIRIRI), an undergraduate-run social psychology journal based at the Université de Montréal. This student -led initiative was established over fifteen years ago under the direction of Professor Roxane de la Sablonnière. Over the years, the JIRIRI has enabled hundreds of undergraduate students from universities worldwide to gain experience in producing psychological research by participating in the reviewing, editing, copyediting, and authoring social psychology articles.

This year's editors in chief, Darya Ryashy and Myriam Martel, have done a fantastic job. They trained the editorial team, managed, and ran the day-to-day operations of the journal. Darya's previous experience with JIRIRI was essential to the continuous success of the journal, while Myriam's energy and fresh ideas brought about important innovations this year. Together, they produced outstanding work, ranging from the high-quality articles to the JIRIRI's active social media account (go check us out on Facebook and Instagram!). Despite the challenges of living in a post-pandemic world, where meetings and training were in person and online, Darya and Myriam excelled in their roles, and we are grateful for their hard work and leadership.

We would also like to acknowledge the fantastic work of the entire JIRIRI team, as every individual's contribution has been critical to the collective success of this journal.

This year's articles in the current volume cover a wide range of fascinating topics, such as: What is the role of sexual motivation during times of stress? Is there an interaction between stress and values at work? How did COVID-19 impact mental health? These articles illustrate the bright future social psychology has with these authors who are leading the way forward.

We hope you enjoy reading the 16th volume of JIRIRI!

Processus de révision par les pairs

Le JIRIRI a mis au point un processus de révision par un comité de pairs adapté aux étudiant.e.s universitaires de premier cycle. Chaque membre de l'équipe éditoriale reçoit des tâches précises qui visent l'apprentissage et le développement de compétences liées au domaine de la publication scientifique. L'équipe éditoriale est guidée par le *rédacteur.trice en chef.fe*, qui assure le bon déroulement du processus de révision et de publication tout en respectant l'échéancier. Les tâches du *chef.fe d'édition* consistent à organiser des ateliers de formation pour les évaluateurs et à superviser le processus de mise en page du JIRIRI. Le *directeur.trice des communications* est responsable de la promotion du journal, de la rédaction des demandes de bourses et le *coordonnateur.trice des événements* est responsable de l'organisation des collectes de fonds. Le *trésorier.ère* est responsable des transactions et de la gestion des fonds du JIRIRI. Finalement, le ou la *responsable des médias* coordonne les publications sur notre page *Facebook* et notre compte *Instagram*, ce qui vise l'augmentation de la visibilité du journal. *Les rédacteurs.trices adjoint.e.s* sont responsables du processus de révision et de publication des manuscrits soumis.

Le processus d'évaluation des manuscrits se déroule en trois étapes. Le ou la rédacteur.trice en chef amorce le processus en effectuant une sélection parmi les manuscrits soumis, puis iel envoie ces manuscrits aux rédacteurs.trices adjoints. Ceux-ci s'assurent que tous les manuscrits font d'abord l'objet d'une évaluation par quatre *évaluateurs.trices*, dont trois étudiant.e.s de premier cycle et un *évaluateur.trice invité.e* provenant des cycles supérieurs. Suite à ces évaluations, un des membres du comité éditorial prend en charge l'intégration de l'ensemble des évaluations formulées afin de fournir à l'auteur une synthèse des commentaires par le biais d'une *lettre d'édition*. Ensuite, les *éditeurs.trices consultants.es*, des étudiant.e.s aux cycles supérieurs ou des étudiant.e.s ayant complété leurs études de premier cycle, passent en revue les lettres d'édition dans le but de mieux guider les auteurs et de superviser le travail des rédacteurs. De plus, Julie Caouette, Ph. D., Diana Cárdenas, Ph. D., Roxane de la Sablonnière, Ph. D., Jonathan Doherty, M. Sc., Laura French Bourgeois, Ph. D., Sébastien Hétu, Ph. D. et Frank Kachanoff, Ph. D. agissent à titre de *rédacteurs.trices adjoints séniors* et supervisent tout le processus en collaboration avec le rédacteur.trice en chef. Suite à une nouvelle soumission du manuscrit par l'auteur, de nouveaux tours d'évaluation se déroulent selon le même principe jusqu'au moment où l'article est jugé convenable pour fin de publication. Plus le processus de révision avance, plus les modifications exigées deviennent spécifiques et détaillées. Ainsi, le premier tour vise principalement à s'assurer de la contribution scientifique du manuscrit. Puis, les étapes subséquentes visent l'amélioration d'aspects précis, telle que la correction des analyses statistiques. Durant la totalité du processus, l'équipe éditoriale s'engage à offrir de l'aide et du soutien aux auteurs. Grâce à la collaboration de tous les membres du journal, le JIRIRI peut atteindre ses objectifs et sa mission.

Peer-Review Process

The JIRIRI has developed a peer-review process that has been adapted for university undergraduate students. Each member of the JIRIRI team is responsible for specific tasks that aim to develop important skills in the field of scientific publication. The Editorial Board is guided by the *Editor-in-Chief*, who ensures the smooth progress of the review and correction process by encouraging other team members to respect deadlines. The tasks of the *Managing Editor* consist of organizing workshops for reviewers and supervising the page layout of the JIRIRI. The *Communications Director* promotes the journal, submits grant applications and the *Events Coordinator* organizes multiple fundraisers. The *Treasurer* is responsible for the transactions and fund management of the journal. The *Media Director* oversees publications on our *Facebook* page and *Instagram* account that ensure the journal's visibility. The *Associate Editors* are responsible for the review and publication process of some of the submitted articles.

The review process has three parts. First, the Editor-in-Chief makes a preliminary selection of the manuscripts, retaining those that comply with the JIRIRI'smission, and sends them to the Associate Editors. The Associate Editors ensure that all articles are reviewed by three undergraduate *Reviewers* and one *Guest Reviewer*, who must be a graduate student. Following the reception of the reviews, the Associate Editor provides a summary of the comments to the manuscript's author in an *Editor's Letter*. In addition, the *Consulting Editors*, graduate students or students who have finished their undergraduate degree, review the editor's letter to provide guidance to the authors and the editor in charge of the paper. The entire process is supervised by the *Senior Associate Editors*, Julie Caouette, Ph. D., Diana Cárdenas, Ph. D., Roxane de la Sablonnière, Ph. D., Jonathan Doherty, M. Sc., Laura French Bourgeois, Ph. D., Sébastien Hétu, Ph. D. and Frank Kachanoff, Ph. D. in collaboration with the Editor-in-Chief. Several rounds of reviews may be undertaken until the manuscript is judged suitable for publication. As the review process moves from the first to the last round of reviews, the comments and modifications required become more precise and detailed. At first, the reviewing process ensures the overall scientific contribution of the paper. Then, subsequent rounds are aimed at improving more precise and detailed aspects, such as statistical analyses. Throughout the entire process, the editorial team is readily available to offer help and support to the authors. Thanks to the collaboration of the entire team as well as the authors, the JIRIRI is able to reach its goals and mission.

JIRIRI

Équipe éditoriale du Volume 16

Editorial team of JIRIRI 16th Volume

En haut, de gauche à droite : Maria Paula Paez, Simon Giroux, Rosalie Gravel, Julie Muboyayi, Myriam Martel, Marie-Eve Lafrance, Laurence Lessard, Yasmine Bérinaba, Andy Charbonneau et Darya Ryashy.

En bas, de gauche à droite : Elaf Sabsabi, Victoria Xu, Mathile Renaud, Mélodie Charlesbois, Janick Carmel et Theyrrie Daphinis

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La satisfaction au travail et son effet modérateur sur la relation entre le climat et l'engagement au travail en contexte de pandémie

Samuel Paquin[1], B. Sc., Salomé Jean-Denis[2], B. Sc., Talina Chouinard-Larouche[1], B. Sc. & Felix A. Proulx[3], Psy. D., Ph. D.
[1]HEC Montréal
[2]Université de Montréal
[3]Université du Québec à Trois-Rivières

Cette étude à devis transversal explore l'impact de la satisfaction au travail sur le lien entre le climat et l'engagement au travail en contexte de pandémie. Pour ce faire, un questionnaire auto-rapporté a été administré auprès de 261 travailleurs québécois francophones. Les résultats suggèrent qu'une faible satisfaction modère la relation entre le climat et deux dimensions de l'engagement, soit la vigueur ($\beta = -.098$, $ES = .048$, $p = .044$) et le dévouement ($\beta = -.093$, $ES = .047$, $p = .049$). Cette étude met en lumière l'impact de la satisfaction au travail comme variable modératrice en contexte de pandémie et justifie l'importance de prioriser la satisfaction des employés avant de déployer des mesures visant à améliorer le climat de travail.

Mots-clés : satisfaction au travail, climat de travail, engagement au travail, modération, COVID-19

This cross-sectional study explores the impact of job satisfaction on the link between work climate and work engagement in the context of a pandemic. A self-reported questionnaire was administered to 261 French-speaking workers from Quebec. The results suggest that low satisfaction moderates the relationship between work climate and two dimensions of engagement: vigor ($\beta = -.098$, $SE = .048$, $p = .044$) and dedication ($\beta = -.093$, $SE = .047$, $p = .049$). This study highlights the impact of job satisfaction as a moderating variable in the context of a pandemic and justifies the importance of prioritizing employee satisfaction before deploying measures to improve the work climate.

Keywords: job satisfaction, work climate, work engagement, moderation, COVID-19

Officialisée le 11 mars 2020 par l'Organisation mondiale de la santé (OMS), la pandémie mondiale du coronavirus (COVID-19) a laissé peu de personnes indifférentes. Le virus causant une maladie respiratoire de gravité légère à modérée, la plupart des individus infectés se rétablissent sans aucun traitement spécialisé. Toutefois, les personnes âgées et les personnes souffrant de problèmes médicaux sous-jacents, comme les maladies cardiovasculaires, le diabète, les maladies respiratoires chroniques et le cancer, sont plus susceptibles de développer une maladie grave suite à l'infection (OMS, 2021). Or, afin d'assurer la sécurité publique en crise pandémique, de nombreux gouvernements du monde entier ont dû ordonner un verrouillage partiel ou complet (c.-à-d., la fermeture d'écoles et d'espaces de travail, en plus des entreprises considérées comme étant non-essentielles tels que les restaurants, les théâtres, etc.). Selon les rapports de la Banque de développement du Canada (BDC, 2020 ; 2021), presque toutes les entreprises ont été impactées par la crise pandémique de la COVID-19 au Canada. En ce sens, la pandémie du coronavirus (COVID-19) a provoqué de nombreux changements importants qui ont globalement affecté le monde du travail. Notamment, les résultats des sondages canadien et européen rapportent que plusieurs indicateurs associés au bien-être des travailleurs ont diminué depuis la pandémie, ce qui affecte de façon importante le climat de travail, l'engagement organisationnel, la satisfaction au travail, la performance au travail, l'intention de quitter et le sentiment d'irritation (Boulet & Parent-Lamarche, 2020 ; Prochazka et al., 2020). En réponse au contexte d'incertitude inhérent à

Nous tenons à exprimer notre gratitude à tous les participants qui ont collaboré à cette étude en répondant au questionnaire. Nous remercions vivement l'équipe du JIRIRI pour leur accompagnement et leur professionnalisme. Nous sommes également reconnaissants envers Jean Bouchard qui nous a fourni son assistance pour la collecte de données et la révision du manuscrit. Par ailleurs, nous voulons souligner l'apport essentiel de Felix A. Proulx qui nous a épaulés tout au long de ce projet de recherche. La correspondance concernant cet article doit être adressée à Felix A. Proulx (felix.alexandre.proulx@uqtr.ca).

la crise pandémique, l'Institut national de santé publique du Québec (INSPQ) suggéra donc aux employeurs de veiller à ce que leurs employés se sentent soutenus par leur supérieur immédiat et par leurs collègues (INSPQ, 2020). En situation normale, cette pratique managériale favorise un climat de travail soutenant et permet de favoriser l'engagement au travail des employés (Boudrias et al., 2010). Plus précisément, le déploiement de support organisationnel et la qualité de l'environnement de travail augmentent l'engagement des employés (Bjarnadottir, 2011 ; Hakanen et al., 2005 ; Yang et al., 2020).

Par conséquent, considérant l'impact important de la COVID-19 sur le milieu de travail, l'objectif de cette étude à devis transversal est d'étudier l'impact du climat de travail, défini par le niveau de soutien offert par l'organisation en contexte de pandémie, sur l'engagement des travailleurs. Dans ce contexte pandémique qui affecte de façon importante le climat de travail, l'engagement organisationnel, la satisfaction au travail, la performance au travail, l'intention de quitter et le sentiment d'irritation en temps de pandémie (Boulet & Parent-Lamarche, 2020 ; Prochazka et al., 2020), il est primordial de comprendre les interactions entre climat de travail et l'engagement au travail afin d'informer les employeurs sur les moyens optimaux pour maximiser le fonctionnement de leurs employés, et donc leur productivité. Plus encore, cette étude se distingue des précédentes grâce à son incorporation du bien-être individuel des employés sous forme de satisfaction au travail comme variable modérant cette relation. Selon Rothmann (2008), la satisfaction au travail est liée à l'engagement des employés ; il est donc important d'en prendre compte et d'évaluer son impact. Au niveau théorique, cette étude vise à pousser la compréhension en ce qui a trait aux antécédents et modérateurs de l'engagement en situation de travail difficile. Au niveau pratique, cette étude vise à valider l'importance de miser sur l'amélioration du climat au travail pour favoriser l'engagement en contexte de crise pandémique, mais sert aussi à évaluer l'importance du rôle qu'occupe la satisfaction au travail des employés en situation de crise.

Cadre conceptuel de l'étude

Engagement au travail

Le concept de l'engagement au travail, initialement introduit par Kahn (1990), ne fait toujours pas l'unanimité au sein de la communauté scientifique (Britt, 1999, 2003 ; Demerouti et al., 2010 ; Macey & Schneider, 2008 ; Maslach & Leiter, 1997 ; Schaufeli et al., 2002). Cependant, malgré un manque de consensus quant à sa conceptualisation, celle de Schaufeli et al. (2002) reste de loin la plus utilisée et la mieux documentée, et ce, dans plusieurs contextes organisationnels et culturels (Hakanen & Roodt, 2010 ; Knight et al., 2017 ; Lesener et al., 2020 ; Mazzetti et al., 2021). Pour cette raison, la présente étude se basera sur la conceptualisation de Schaufeli et al. (2002).

Selon Schaufeli et al. (2002), l'engagement au travail se définit comme un état d'esprit positif et épanouissant en lien avec le travail qui se caractérise par la vigueur, le dévouement et l'absorption. La vigueur se définit par de hauts niveaux d'énergie et de résilience, par la volonté d'investir des efforts dans son travail et par la persévérance, même face aux difficultés. Le dévouement, quant à lui, fait référence aux sentiments d'importance, d'enthousiasme, d'inspiration, de fierté et de défi ressentis par l'employé face à son travail. Pour terminer, l'absorption se caractérise par la présence d'une concentration totale dans laquelle l'individu se retrouve complètement absorbé par ses tâches au sein de son milieu de travail, donnant l'impression que le temps s'écoule rapidement et rendant le détachement envers le travail difficile (Schaufeli et al., 2002).

En contexte de pandémie, l'engagement des employés est particulièrement important, car cette variable d'intérêt en milieu organisationnel entraîne plusieurs retombées positives pour les employées et l'organisation, soit une baisse du taux de roulement du personnel, ainsi qu'une amélioration de la performance et une augmentation de la motivation (Knight et al., 2017).

Climat de travail

Le climat de travail est un concept qui peut être caractérisé par différentes définitions (Kuenzi & Schminke, 2009 ; Verbeke et al., 2002). Historiquement, le climat de travail est décrit comme étant les caractéristiques stables d'une organisation qui la distinguent des autres et qui influencent le comportement de ses salariés (Foucher & Soucy, 1991). Cependant, le concept de climat de travail peut aussi être caractérisé par les perceptions partagées des employés d'une même unité de travail par rapport aux caractéristiques stables de leur organisation (Schneider & Reichers, 1983). Plus récemment, certains auteurs ont tenté de réconcilier les différentes définitions du concept et définissent le climat de travail par les attributs organisationnels objectifs perçus de façon similaire par les membres d'une unité administrative donnée et qui influencent les comportements organisationnels des employés (Brunet & Savoie, 2016).

En termes de dimensionnalité, certains auteurs utilisaient dans le passé une conceptualisation multidimensionnelle du climat de travail (Ostroff, 1993), alors que plus récemment, c'est une approche par facette qui est plutôt préconisée (Carr et al., 2003). Il est dorénavant recommandé de s'intéresser aux différentes facettes spécifiques du climat de travail lorsque cette variable est utilisée comme antécédent. À titre d'exemple, Boudrias et al. (2010) mettent l'accent sur le soutien organisationnel perçu comme facette du climat de travail afin d'expliquer les niveaux d'autonomie comportementale des employés. Dans cette étude, une conceptualisation du climat de travail par facette est donc privilégiée, plus particulièrement la facette du climat de soutien. Effectivement, selon Boudrias et al. (2010), cette facette aurait des similarités avec le concept de soutien organisationnel perçu (SOP).

Le climat de soutien englobe de façon générale les pratiques, politiques et procédures offertes par une organisation afin de supporter ses employés (Borman et al., 2003). Cette relation importante entre le SOP et l'engagement en contexte de travail a aussi été observée auprès d'autres populations à risque. Dans une étude menée par Rich et al. (2010), un échantillon de 245 pompiers a été examiné et les auteurs soulignent qu'un haut niveau de SOP est associé à un haut niveau d'engagement chez les employés. Une autre étude menée par Yang et al. (2020) trouve, pour sa part, des liens significatifs entre le SOP et chaque dimension de l'engagement. Plus encore, d'autres travaux ont trouvé un lien positif et significatif entre l'engagement et la satisfaction au travail des employés (Granziera & Perera, 2019 ; Orgambidez & Extremera, 2020).

En contexte de pandémie, les organisations ont dû adapter leurs pratiques, enclenchant une modification du climat de travail (Kopelman et al., 1990). Pour certaines organisations, la pandémie engendra plusieurs transformations dans la façon d'exécuter le travail, tel l'instauration du télétravail, un changement du modèle d'affaires, la fermeture temporaire ou permanente, et la réduction des effectifs. Comme l'existence d'une relation entre le climat de travail et l'engagement au travail a été établie à plusieurs reprises dans la littérature (Bjarnadottir, 2011 ; Hakanen et al., 2005), certaines organisations ont entrepris des démarches visant à améliorer le soutien organisationnel perçu dans le contexte de pandémie (p. ex., déploiement de support organisationnel et augmentation de la qualité de l'environnement de travail). Autrement dit, en contexte d'instabilité et de transformation, le SOP devient énormément important pour favoriser l'engagement.

Satisfaction au travail

Afin de prendre en compte le bien-être des employés dans cette étude et considérant les conséquences négatives de la COVID-19 sur le niveau de satisfaction au travail de certains employés, la satisfaction au travail est prise en compte dans cette étude. La satisfaction au travail étant aussi empiriquement liée à l'engagement au travail comme antécédent, il est possible qu'elle modère la relation qui existe entre le climat de soutien et l'engagement au travail.

Dans la littérature, la conceptualisation de la satisfaction au travail ne semble pas faire consensus. Pour Locke (1976), la satisfaction au travail se définit comme étant un état émotionnel agréable résultant de l'évaluation faite par une personne de son travail ou de ses expériences de travail. Selon Cranny et al. (1992), la satisfaction au travail est une réaction affective (c.-à-d., émotionnelle) issue d'une comparaison de l'employé entre les résultats réels et ses attentes face à l'emploi. Ces différentes conceptions semblent être considérées comme des réactions émotionnelles, ce qui peut poser problème étant donné que la satisfaction au travail est principalement mesurée en termes d'évaluation cognitive (Rafferty & Griffin, 2009). En réponse à cette incohérence, Weiss (2002) apporte une autre définition : « un jugement évaluatif positif ou négatif qu'un individu porte sur son travail ou sa situation. » (Weiss, 2002).

Par ailleurs, il existe également différentes façons d'évaluer la satisfaction au travail : soit en mesurant plusieurs aspects du travail pour ensuite combiner les résultats, ou bien en mesurant la satisfaction au travail de façon globale. Toutefois, les recherches antérieures démontrent que ces deux approches ne sont pas équivalentes, suggérant qu'il y en aurait une à privilégier davantage (Rafferty & Griffin, 2009). En effet, il est erroné d'assumer qu'on peut simplement additionner les diverses caractéristiques en tenant pour acquis qu'elles ont toutes la même valeur aux yeux des employés (Dalal, 2012). Il est donc préférable de mesurer la satisfaction au travail dans son intégralité et de façon globale (Rafferty & Griffin, 2009).

Finalement, des études réalisés auprès d'infirmières ont révélé qu'il existe un lien fort et positif entre le climat de travail et la satisfaction au travail (Albashayreh et al., 2019 ; Polat & Terzi, 2020). Plus encore, dans la méta-analyse de Nielsen et al. (2017), 84 études soutiennent l'existence d'un lien entre le soutien organisationnel perçu et la satisfaction des employés. À titre de rappel, certains auteurs suggèrent que le SOP soit analogue au climat de soutien (Boudrias et al., 2010). Toutefois, l'importance de prendre en compte la satisfaction au travail comme potentiel modérateur réside surtout dans l'impact de cette variable sur les perceptions des employés (Allan et al., 2018). Autrement dit, considérant que la satisfaction au travail a un impact au niveau de l'évaluation subjective du climat de travail et qu'il existe un lien entre le climat de soutien au travail et l'engagement (Albashayreh et al., 2019 ; Brunet & Savoie, 2016 ; Hakanen et al., 2005 ; Johnson & McIntye, 1998 ; Polat & Terzi, 2020), il est jugé important de considérer l'impact de la satisfaction au travail comme variable modératrice sur la relation existant entre le climat de soutien et l'engagement au travail.

Objectif de l'étude

L'objectif de cette étude est d'examiner, à l'aide d'un devis transversal, l'influence du climat de travail, défini par le niveau de soutien perçu par l'organisation, sur l'engagement au travail, et ce, tout en prenant en considération la satisfaction au travail. Même si l'engagement au travail est un concept largement étudié, il n'existe peu ou pas d'études ayant évalué cette relation en contexte de pandémie, et peu d'études ont examiné l'impact modérateur de la satisfaction du travail sur la relation entre ces deux variables.

Hypothèses de recherche

Les hypothèses principales de cette étude investiguent les liens entre le climat de soutien et les dimensions de l'engagement au travail (1a, 1b et 1c). En second lieu, la satisfaction au travail est inclut comme modérateur et son impact est investigué (2a, 2b et 2c).

H1 (a) : le climat de soutien influencera positivement la vigueur.

H1 (b) : le climat de soutien influencera positivement le dévouement.

H1 (c) : le climat de soutien influencera positivement l'absorption.

H2 (a) : la relation positive entre le climat de soutien et la vigueur sera modérée par le niveau de satisfaction au travail.

H2 (b) : la relation positive entre le climat de soutien et le dévouement sera modérée par le niveau de satisfaction au travail.

H2 (c) : la relation positive entre le climat de soutien et l'absorption sera modérée par le niveau de satisfaction au travail.

Méthodologie

Participants et procédures

Les participants de la présente étude à devis transversal étaient des employé(e)s québécois(es) francophones âgé(e)s d'au moins 18 ans, occupant un emploi rémunéré (c.-à-d., 20 heures et plus par semaine), et ce, depuis une durée minimale de 6 mois. Les employés ont été contactés via courriel ou réseaux sociaux, et étaient invités à remplir un questionnaire anonyme auto-rapporté en ligne. Aucun incitatif n'a été donné en échange de la participation. Au total, 295 employés ont participé à l'étude. En raison du non-respect des critères d'inclusion (c.-à-d., 18 ans et plus, emploi rémunéré de 20 heures par semaine minimum durant une période d'au moins 6 mois), 34 participants ont été retirés de l'échantillon (n = 261). La majorité étant des femmes (62,1 %), 37,5 % de l'échantillon était composé d'hommes et 0,4 % s'identifiaient autrement. L'âge des répondants variait entre 18 et 70 ans (M = 36,87, *É-T.* = 13,18) et le nombre d'heures de travail effectuées par les participants pendant la semaine précédant la complétion du questionnaire variait entre 20 heures et 44 heures (M = 38,55, *É-T.* = 7,70).

Mesures

Climat de soutien organisationnel. Le climat de soutien organisationnel a été mesuré à l'aide de 16 items du *Questionnaire du climat de travail* (Q.C.T.) adapté par Boudrias et al. (2010), et élaboré par Roy (1989). Ce questionnaire comporte trois dimensions visant à mesurer le soutien organisationnel perçu : le support à l'autonomie, le potentiel d'actualisation et le degré de considération par l'organisation (α = .96). Les trois sous-échelles, soit le soutien à l'autonomie (p. ex., *vous êtes libres d'exécuter votre travail selon votre jugement*), le potentiel d'actualisation (p. ex., *vous pouvez développer votre potentiel au travail*) et le degré de considération par l'organisation (p. ex., *on reconnaît votre contribution dans l'organisation*) sont combinées afin de générer un score global. Les items ont été évalués sur une échelle de Likert comportant six choix (1 = *tout à fait en désaccord* ; 6 = *tout à fait en accord*), et les participants ont évalué à quel point les items énumérés s'appliquaient à eux.

Engagement professionnel. L'engagement au travail a été mesuré à partir de *l'Échelle d'engagement au travail d'Utrecht* (Zecca et al., 2015), soit la version française du *Utrecht Work Engagement Scale* à 9 items (UWES-9) traduite par Schaufeli et al. (2006). Ce questionnaire est conçu à partir d'une structure à trois facteurs qui représente les trois dimensions de l'engagement : l'absorption (p. ex., *je suis complètement absorbé(e) par mon travail* ; α = .79), la vigueur (p. ex., *je me sens fort(e) et vigoureux(se) pour faire ce travail* ; α = .84) et le dévouement (p. ex., *Je suis passionné(e) par mon travail* ; α = .89). Ainsi, à partir des 9 items, les participants devaient prendre position et indiquer à l'aide d'une échelle de Likert à 7 points (1 = *jamais* ; 7 = *tous les jours*) si les items énumérés s'appliquaient à eux.

Satisfaction au travail. La satisfaction au travail a été évaluée à l'aide de la version française du *Satisfaction With Work Scale* (SWWS) traduite par Bérubé et al. (2007). Ce questionnaire mesure la satisfaction globale au travail de l'individu à l'aide de cinq items (p. ex., *en général, le type de travail que je fais correspond de près à ce que je veux dans la vie* ; α = .87). Les participants devaient indiquer sur une échelle de Likert comportant sept choix (1 = *fortement en désaccord* ; 7 = *fortement en accord*) si les items énumérés s'appliquaient à eux.

Résultats

Statistiques descriptives

L'analyse préliminaire des données fut effectuée avec SPSS v28 afin d'obtenir les statistiques descriptives et la matrice de corrélation (voir Tableau 1 en annexe) représentant l'échantillon. D'abord, les tests permettant d'évaluer la dispersion résiduelle (c.-à-d., la distance de Cook et les valeurs de Mahalanobis) n'ont révélé aucune donnée aberrante (Pallant, 2016). Ensuite, les hypothèses de normalité, d'homoscédasticité et de l'indépendance des résultats ont été confirmées à l'aide de diagrammes de dispersion (Pallant, 2016). Les variables semblaient normalement distribuées. L'asymétrie des construits se situe entre -0.50 et -0.97, et la voussure se situe entre -0.39 et 0.74. La dimension qui révèle la plus grande variabilité correspond au dévouement (M = 5,35, *É-T.* = 1,56), tandis que celui qui en a le moins est le climat de travail (M = 4,46, *É-T.* = 1,02). Les coefficients de cohérence interne observés permettent de confirmer que les instruments utilisés disposent de propriétés psychométriques satisfaisantes, puisque tous les alphas de Cronbach obtenus se situent entre .83 et .96 (voir Tableau 1).

Les résultats démontrent des relations multiples et significatives entre les variables. C'est à dire, le climat de travail corrèle positivement et fortement avec la satisfaction au travail (r = .76, p < .001) ainsi qu'avec l'engagement au travail (r = .61, p < .001). Quant à la variable « satisfaction au travail », elle corrèle positivement et fortement avec l'engagement (r = .661, p < .001).

Analyse principale

Pour effectuer l'analyse de modération, l'approche *bootstrap* avec 10 000 itérations a été employée pour chaque analyse, avec un intervalle de confiance de 95%. Typiquement utilisée pour les analyses de médiation, cette technique statistique permet d'obtenir des informations précieuses sur la valeur probable des paramètres à l'étude, alors qu'une valeur p donne simplement un nombre unique qui estime la probabilité du résultat en supposant que l'hypothèse nulle n'est pas confirmé. Les trois modérations (voir Tableau 2, ainsi que les Figures 1, 2 et 3 en annexe) ont été testées en utilisant la procédure de Preacher et Hayes (2004).

La modération implique que la variable modératrice affecte l'intensité de la relation entre la variable indépendante et la variable dépendante (Rascle & Irachabal, 2001). La première analyse de modération suggère un effet direct et significatif entre le climat de travail et la vigueur (β = .70, ES = .23, p = .003), une relation modérée par la satisfaction au travail (β = -.10, ES = .05, p = .044). En utilisant la méthode Johnson-Neyman, il est possible d'établir un seuil de signification pour les hypothèses de modération qui ont été confirmées (Johnson & Fay, 1950). Les résultats suggèrent que si le climat de travail augmente, la vigueur augmente mais seulement si la valeur de satisfaction est inférieure au seuil de 4,88 (voir Figure 4 en annexe).

La seconde analyse suggère un effet direct et significatif entre le climat de travail et le dévouement (β = .74, ES = .22, p = .001) qui est modéré par la satisfaction au travail (β = -.09, ES = .05, p = .049) . La méthode Johnson-Neyman suggère que si le climat de travail augmente, le dévouement augmente mais seulement si la valeur de satisfaction au travail est inférieure à 5,42 (voir Figure 5 en annexe).

La dernière analyse de modération ne montre pas d'effet direct et significatif entre le climat de travail et l'absorption (β = .33, ES = .25, p = .183), ni de modération par la satisfaction au travail (β = .01, ES = .05, p = .835).

Tableau 1

Moyennes, écart types, cohérence interne et inter-corrélations

	M (É-T.)	1	2	3	4	5
1. Satisfaction au travail	4,78 (1.30)	*.85*				
2. Climat de soutien	4,46 (1.02)	.76**	*.96*			
3. Engagement - Vigueur	5,14 (1.49)	.63**	.56**	*.89*		
4. Engagement - Dévouement	5,35 (1.56)	.68**	.61**	.86**	*.91*	
5. Engagement - Absorption	5,17 (1.46)	.50**	.50**	.67**	.74**	*.83*

Note. Les alphas de Cronbach sont indiqués sur les diagonales en italiques. Signification des corrélations *p < .05. **p < .01.

Tableau 2
Régression du climat de soutien sur l'engagement au travail et l'effet modérateur de la satisfaction au travail

Modèle		β
1	Climat de soutien sur vigueur	.696**
	Satisfaction au travail sur vigueur	.968***
	Climat de soutien × Satisfaction au travail	-.098*
	ΔR^2	.009*
	Total R^2	.416***
2	Climat de soutien sur dévouement	.736**
	Satisfaction au travail sur dévouement	1.01***
	Climat de soutien × Satisfaction au travail	-.093*
	ΔR^2	.008*
	Total R^2	.495***
3	Climat de soutien sur absorption	.334
	Satisfaction au travail sur absorption	.291
	Climat de soutien × Satisfaction au travail	.011
	ΔR^2	.000
	Total R^2	.284***

Note. = coefficient standardisé ; R^2 = taille d'effet. Les effets sont significatifs lorsque l'intervalle de confiance du *Bootstrap* 95% (*LL* : niveau inférieur, *UL* : niveau supérieur) n'incluent pas zéro. $p < .05$; $**p < .01$; $***p < .001$. Modèles : *dl*1 = 3, *dl*2 = 257 ; Interaction : *dl*1 = 1 ; *dl*2 = 257.

En somme, ces résultats confirment les hypothèses 1a, 1b, 2a et 2b, mais infirment les hypothèses 1c et 2c. En d'autres mots, l'effet modérateur de la satisfaction au travail est uniquement observable sur deux dimensions de l'engagement : la vigueur (H2a) et le dévouement (H2b) (voir Figures 1 et 2 en annexe). Autrement dit, la relation entre le climat et SOP existe seulement lorsque le niveaux de satisfaction au travail et inférieur à 4,88 pour la vigueur et 5,42 pour le dévouement.

Discussion

L'objectif de la présente étude était de déterminer si la satisfaction au travail modère le lien entre le climat de travail et l'engagement au travail dans le contexte de la pandémie de COVID-19. En guise de rappel, la première série d'hypothèses suggérait que le climat de soutien au travail serait positivement lié aux différentes dimensions de l'engagement, soit la vigueur (1a), le dévouement (H1b) et l'absorption (H1c). La seconde série d'hypothèses proposait un effet modérateur de la satisfaction au travail sur la relation entre le climat de travail et les sous-dimensions de l'engagement au travail (H2a, H2b et H2c).

Les résultats confirment les hypothèses 1a et 1b. L'étude appuie donc l'existence d'une relation entre le climat de soutien et deux des trois sous-dimensions de l'engagement au travail, soit la vigueur et le dévouement. Toutefois, les résultats infirment l'hypothèse 1c portant sur l'absorption.

Au niveau des modérations, les résultats démontrent que les hypothèses 2a et 2b sont aussi confirmées. La satisfaction au travail modère donc la relation existante entre le climat de travail et certaines sous-dimensions de l'engagement, soit la vigueur (H2a) et le dévouement (H2b). Ces résultats ne sont cependant pas applicables à l'absorption, réfutant ainsi l'hypothèse 2c. La satisfaction au travail modère l'influence du climat de travail sur la vigueur et le dévouement, seulement lorsque le niveau de satisfaction de l'employé est situé sous un seuil de signification précis. Autrement dit, un score de satisfaction inférieur au seuil de signification nullifie la relation normalement positive entre le climat de travail et l'engagement (c.-à-d., vigueur et dévouement). Les employés avec un score de satisfaction au travail au-delà du seuil de signification, perçoivent généralement le climat de soutien de façon plus favorable et donc, l'impact du modérateur s'atténue et devient de moins en moins important jusqu'à ne plus être significatif au fur et à mesure que la valeur du modérateur augmente car la relation entre la variable indépendante et dépendante plafonne et ne peut plus augmenter davantage.

Implications théoriques

Vigueur et dévouement

La satisfaction au travail modère significativement le lien entre le climat de soutien et deux sous-dimensions de l'engagement au travail, soit la vigueur et le dévouement. Ces résultats suggèrent une relation entre le climat de soutien et la satisfaction au travail, cette relation en question fluctue en fonction du niveau de satisfaction au travail des employés. En somme, l'analyse statistique démontre que l'interaction entre le climat et la satisfaction au travail a un impact sur les deux dimensions de l'engagement seulement lorsque le niveau de satisfaction des participants est inférieur à un certain seuil (voir Figures 4 et 5). D'ailleurs, une étude antérieure évaluant l'effet modérateur de la satisfaction au travail a observé des résultats comparables, selon quoi le niveau de satisfaction au travail joue un rôle modérateur uniquement selon un seuil spécifique. Cette étude présente un lien significatif entre le climat de travail favorable et une réduction des intentions de départ seulement lorsque la satisfaction au travail est élevée (Al Sabei et al., 2019).

Engagement au travail et absorption

Par ailleurs, aucune évidence n'a été trouvée pour la relation entre le climat et l'absorption, ce qui est inattendu considérant les hypothèses préalablement émises. De prime abord, certaines études démontrent un lien significatif entre l'absorption et le climat de travail. Par exemple, une étude abordant le climat de travail d'un groupe d'infirmières présente un lien fort et significatif entre celui-ci et leur engagement (Wan et al., 2018). Cette étude suggère donc une implication équivalente de l'absorption, de la vigueur et du dévouement.

Toutefois, cette disparité concernant l'absorption et ses dimensions connexes coïncide avec les résultats d'une étude portant sur l'engagement, la satisfaction au travail et l'épuisement au travail (Høigaard et al., 2012). Pour tenter d'expliquer ce phénomène, rappelons la définition de l'absorption. Celle-ci réfère à un aspect cognitif de l'engagement au travail. Elle survient lorsqu'un employé ressent que le temps s'écoule plus vite lorsqu'il effectue ses tâches au travail, éprouvant une difficulté à les laisser de côté (Zecca et al., 2015). Ce phénomène s'apparente à l'expérience de *flow*. Cette dernière représente l'expérience de s'adonner à une tâche si captivante et agréable qu'elle vaut la peine d'être exécutée pour cette raison en soi. Ce concept ayant trait à la motivation comprend la notion d'équilibre entre compétences et défis, et s'applique à l'apprentissage de nouvelles compétences (Demerouti, 2006). Sachant cela, les résultats concernant l'absorption semblent logiques. Les variables du climat de travail et de la satisfaction ne contribuent pas à l'absorption de l'employé, et cela expliquerait pourquoi aucun effet n'est observé au niveau de cette sous-dimension.

En somme, contrairement aux études proposant l'adoption d'une définition globale de l'engagement au travail (Wefald & Downey, 2009), cette étude soutient davantage l'idée d'un construit tridimensionnel, comme défini plus tôt. C'est en évaluant la vigueur, le dévouement et l'absorption séparément qu'il est possible d'arriver à ces résultats plus nuancés. En effet, si l'étude a été menée en utilisant le concept global uniquement, il n'aurait pas été possible de tirer ces mêmes conclusions.

Implication pratique

L'étude menée soulève la possibilité d'implications pratiques intéressantes. Dans l'occurrence où des employés seraient faiblement satisfaits, des mesures peuvent être mises en place afin de limiter les conséquences de cette insatisfaction sur leur sentiment de vigueur, leur niveau de dévouement et leur perception du climat de soutien. Il est également pertinent de mentionner que le maintien d'employés faiblement satisfaits au travail est coûteux pour une organisation, et le soutien fourni par cette dernière ne pourra être maximisé. Ainsi, les pratiques de soutien qui s'ensuivent ne seront pas aussi utiles, ni pour les employés, ni pour l'organisation. De prime abord, il faut que les employeurs s'assurent d'avoir un certain seuil de satisfaction pour ne pas inutilement financer des mesures de soutien moindrement efficaces. Il est donc primordial d'augmenter la satisfaction des employés avant de s'attarder au climat de soutien. Par exemple, pour augmenter la satisfaction des employés, les organisations peuvent privilégier le développement de ceux-ci, améliorer la sécurité d'emploi, revoir la nature des tâches et leurs exécutions et réviser les politiques quant à l'organisation en soi, la compensation et les avantages provenant de l'emploi (Sageer et al., 2012). De plus, au lieu de simplement lui offrir une promotion ou de le féliciter pour ses idées, il faudrait, avant tout, s'attarder aux causes de son insatisfaction.

Voici un exemple : deux organisations souhaitent augmenter la vigueur et le dévouement de leurs employés. La première constate que ses employés sont faiblement satisfaits tandis que la deuxième rapporte des niveaux de satisfaction modéré et élevé. En se basant sur la présente étude, il faudrait que la première vise à augmenter le climat de l'organisation, tandis que la deuxième pourrait déjà entamer un autre processus d'amélioration.

Enfin, il est possible pour une organisation de conjointement déployer des mesures au niveau de la satisfaction et du climat de travail pour optimiser le fonctionnement de l'organisation. Il faut tout simplement prendre connaissance du niveau de satisfaction de ses employés avant d'intervenir.

Limites et recherches futures

Outre ses contributions riches pour les communautés scientifiques et organisationnelles, cette étude n'est toutefois pas sans limites méthodologiques. Premièrement, il y a une certaine incohérence entre la définition conceptuelle du climat de travail et la façon dont celle-ci est mesurée. De ce fait, le climat de travail est défini comme étant un attribut organisationnel objectif perçu de manière similaire par les membres d'une unité administrative donnée qui influence leur comportement organisationnel, alors qu'on n'évalue pas une unité administrative en particulier, mais des répondants en provenance d'organismes divers (Brunet & Savoie, 2016). Donc, une agrégation de perceptions individuelles est obtenue, certes, mais de travailleurs ayant des attributs organisationnels objectifs (p. ex., politiques et procédures) complètement différents. Bien qu'Ostroff (1993) souligne l'importance d'explorer l'interaction entre les variables provenant d'employés issus de différentes organisations ce qui a été fait ici, l'effectuation d'une prochaine étude se concentrant sur des unités de travail spécifique par souci de cohérence conceptuelle serait une suggestion pertinente.

Deuxièmement, l'utilisation d'un devis transversal ne permet que d'inférer la direction des relations à l'étude. À l'aide d'un devis longitudinal avec plusieurs temps de mesure, il serait possible d'explorer les liens de causalité entre les variables. Plus encore, comme les données obtenues furent récoltées durant la pandémie, il serait pertinent d'effectuer certaines études en dehors de ce contexte afin d'en comparer les résultats.

À la lumière de ce qui précède, ce projet de recherche a permis d'observer un meilleur portrait de l'interaction entre la satisfaction, le climat de soutien et l'engagement au travail, ainsi que la façon dont celle-ci se matérialise chez les employés, et ce, dans un contexte aussi particulier que celui de la COVID-19.

Conclusion

En continuité avec la littérature, la présente étude a su démontrer l'importance des indicateurs de bien-être que sont la satisfaction, le climat et l'engagement au travail, ainsi que leurs liens pour toute organisation désireuse d'un fonctionnement optimal chez ses employés. Cela dit, la réelle force de cette étude réside dans le fait qu'il s'agit de l'une des études pionnières ayant évalué l'impact de ces variables précises dans une conjoncture pandémique. Qui plus est, des apports non négligeables ont également été suggérés. Au niveau théorique, cette étude comporte des résultats différents pour l'absorption, appuyant ainsi une approche tridimensionnelle de l'engagement favorisant plus de nuances. Au niveau pratique, quant à lui, les résultats de l'étude suggèrent que le niveau de satisfaction des employés interagis avec la perception du climat de soutien au travail de façon à affecter la vigueur et le dévouement au travail des employés lorsque la satisfaction au travail de ceux-ci est sous un certain seuil.

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Annexes

Figure 1
Modération de la satisfaction au travail sur le lien entre le climat de soutien et la vigueur au travail (Engagement)

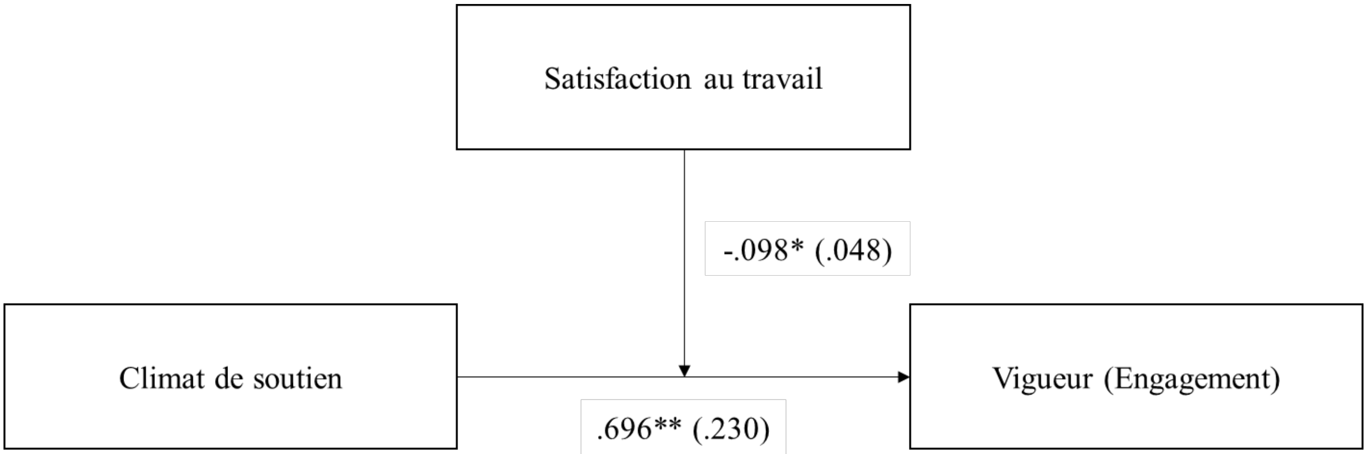


Figure 2
Modération de la satisfaction au travail sur le lien entre le climat de soutien et le dévouement au travail (Engagement)

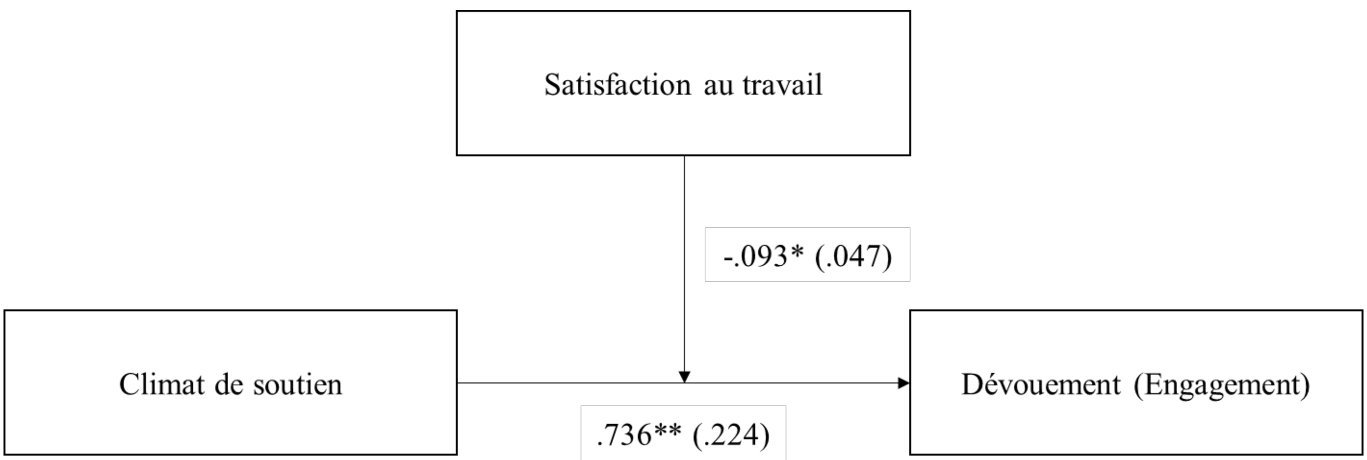
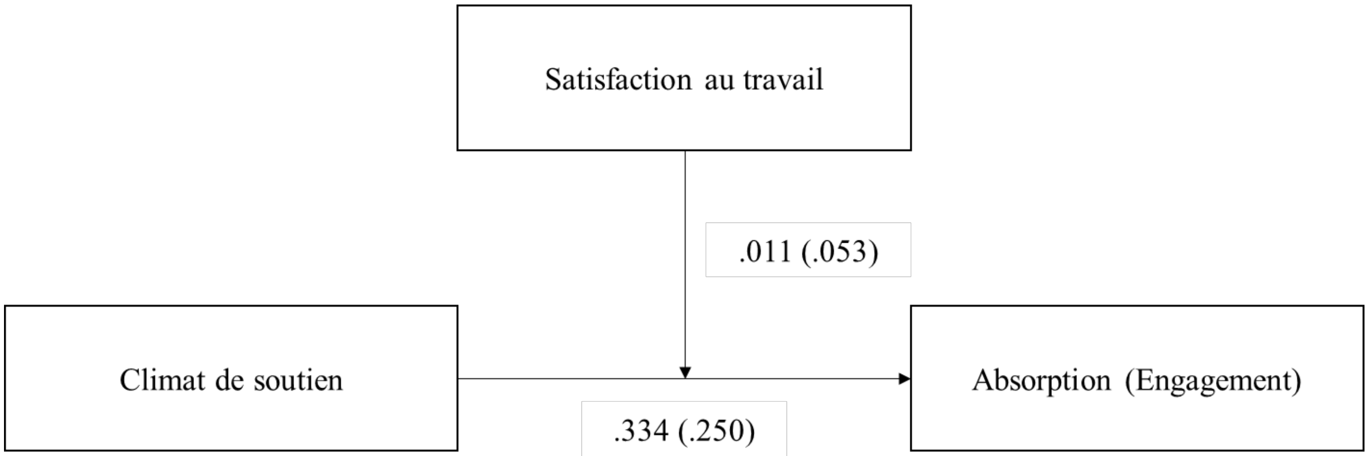


Figure 3

Modération de la satisfaction au travail sur le lien entre le climat de soutien et l'absorption au travail Engagement)



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Sexual Satisfaction During Stressful Times: The Role of Sexual Motivation

Renee St-Jean, B. A. & Cheryl Harasymchuk, Ph. D.
Carleton University

This study examined whether stress negatively relates to sexual satisfaction in the context of the COVID-19 pandemic by way of influencing which type of sexual motivation individuals might have for engaging in sexual relations. Participants (N = 162) completed measures of perceived stress, motivations for engaging in sex, and sexual satisfaction in romantic relationships. Results revealed that participants experiencing higher levels of stress experienced lower sexual satisfaction and were more strongly motivated by avoidance-oriented reasons for engaging in sexual relations. Being more motivated to engage in sexual activity for coping reasons coincided with lesser sexual satisfaction. Conversely, those who were more strongly motivated by approach-oriented reasons for engaging in sexual activity reported greater sexual satisfaction. No support was found for sexual motivation as a mediator of the relation between stress and sexual satisfaction.

Keywords: stress, approach and avoidance sexual motivation, sexual satisfaction, coping, intimacy

Cette étude a examiné si le stress est négativement relié à la satisfaction sexuelle dans le contexte de la pandémie COVID-19 en influençant le type de motivation sexuelle que les individus peuvent ressentir afin d’avoir des relations sexuelles. Les participants (N = 162) ont complété des mesures de stress, de motivations sexuelles, et de satisfaction sexuelle dans les relations romantiques. Les résultats ont révélé que les participants présentant des niveaux de stress plus élevés éprouvaient une moindre satisfaction sexuelle et étaient davantage motivés par des raisons d'évitement pour avoir des rapports sexuels. Le fait d'être plus motivé à avoir des relations sexuelles pour des raisons d'adaptation coïncide avec une moindre satisfaction sexuelle. Inversement, ceux plus fortement motivés par des raisons d'approche pour avoir des relations sexuelles ont présenté une plus grande satisfaction sexuelle. La motivation sexuelle comme médiateur entre la relation entre le stress et la satisfaction sexuelle n'a pas été démontrée.

Mots-clés : stress, motivation sexuelle d'approche et d'évitement, satisfaction sexuelle, adaptation, intimité

The COVID-19 pandemic has caused significant challenges in people’s lives. One of those challenges has been maintaining healthy intimate and sexual relationships in the face of growing economic, employment, and mental health instability. Such instability is known to have a profound impact on couples’ relationship well-being (Karney & Bradbury, 1995). While the full impact of COVID-19 on couples’ relationships and sexual well-being is not yet known, preliminary research indicates that people are experiencing increased levels of stress (Manchia et al., 2022) along with declining levels of sexual satisfaction since the start of the pandemic (Lehmiller et al., 2020; Panzeri et al., 2020; Yuksel & Ozgor, 2020). Given that close relationships are deeply connected to the emotional and physical well-being of both partners, it is important to elucidate the factors that enhance or hinder relationships and sexual satisfaction during these stressful times. One reason why stress might negatively impact sexual satisfaction relates to sexual motivation. That is, the reasons that motivate individuals to engage in sex with their partner. One model for understanding sexual motivation is the *approach-avoidance model* (Elliot & Covington, 2001; Impett et al., 2005). Researchers have found that engaging in sex to promote a positive outcome (approach motives) is related to enhanced sexual satisfaction, whereas engaging in sex to avoid a negative outcome (avoidance motives) is related to less sexual satisfaction and greater relationship conflict (Cooper et al., 2011; Impett et al., 2005; Muise et al., 2017). No research has yet explored how stress might influence individuals’ sexual motivation and, in turn, their sexual satisfaction, leaving a gap in both the stress and sexuality literature. Hence, the goal of this study is to examine whether stress negatively relates to sexual satisfaction by way of impacting the

The data in this study are part of a joint project with Dr. Dar-Nimrod, Dr. Pinkus, and Liam Dacosta from The University of Sydney. We would like to thank the JIRIRI team for their valuable feedback during the review process. Please address all correspondence concerning this article to Renee St Jean (reneestjean@cmail.carleton.ca).

type of approach or avoidance sexual motivation individuals have for engaging in sex during the pandemic.

Stress and Sexual Satisfaction

In light of the coronavirus pandemic and its associated stressors, stress researchers have been increasingly interested in the impact of stress on intimate relationships. Stress is a physical or psychological response to real or imagined threats (Selye, 1974), and it can be examined as a dyadic phenomenon. That is, stress can affect both partners within a romantic relationship regardless of where it originates from (Bodenmann, 2005). For example, stress can originate from outside the relationship (e.g., stress from a global pandemic) and spill over into the relationship to generate stress within the relationship (e.g., decreasing effective communication) (Randall & Bodenmann, 2009; 2017). That said, if people in romantic relationships fail to effectively cope with their stress, then over time this can lead to a deterioration in relationship satisfaction, and, ultimately, the dissolution of the relationship (Randall & Bodenmann, 2017).

Previous research has shown that stress can negatively impact relationship satisfaction, and, more specifically, sexual satisfaction. Sexual satisfaction refers to the subjective evaluation and ensuing affective response of the positive and negative aspects of one's sexual relationship with another (Byers et al., 1998). Specifically, high sexual satisfaction is characterized by positive feelings about one's sexuality (e.g., pleasure) and one's sexual relationship (e.g., feeling close to one's sexual partner) (Pascoal et al., 2014). Sexual satisfaction is intimately connected with relationship satisfaction (Byers, 2005), and changes in one are often associated with changes in the other (Byers, 2005; Sprecher, 2002). Hence, partners experiencing stress that affects both people within the romantic relationship usually report less sexual satisfaction (Randall & Bodenmann, 2017). This decline has been linked to spending less quality time together and having a lower libido (Bodenmann et al., 2007); engaging in less sexual activity due to exhaustion and tiredness (Bodenmann et al., 2006); experiencing impaired sexual functioning (Bodenmann et al., 2006); and experiencing greater dyadic conflict (Randall & Bodenmann, 2009). This results in poorer personal, sexual, and relationship well-being, as individuals who are less sexually satisfied report lower quality of life, worse overall health, and poorer relationship quality than individuals with greater sexual satisfaction (Davison et al., 2009; Sprecher, 2002).

Recent research saw increased levels of stress (Manchia et al., 2022) and a concurrent decline in individuals' sexual satisfaction during the pandemic (Lehmiller et al., 2020; Panzeri et al., 2020; Yuksel & Ozgor, 2020). However, neither that research nor prior research on stress and sexual satisfaction, in general, has addressed the reasons behind this decline. Although it has been well established that stress negatively impacts sexual satisfaction (Bodenmann, 1995; 2000; Bodenmann et al., 2006; 2007; Randall & Bodenmann, 2009), there has yet to be an exploration of the potential mechanism underlying this relationship. One potential reason that stress might have an impact on an important predictor of sexual satisfaction is one's motivations for engaging in sex with a romantic partner.

Sexual Motivation and Sexual Satisfaction

Sexual motivation refers to a person's motive or reason for engaging in sexual relations, and it is inextricably linked to the quality of relationships and feelings of sexual and relationship satisfaction (Impett et al., 2005; Muise et al., 2013). Even though the pursuit of sexual pleasure stands as the most obvious reason for engaging in sexual activity, researchers have found a breadth of sexual motives that extend far beyond hedonism (Impett et al., 2005). For instance, some other motivations for engaging in sex with one's romantic partner include, but are not limited to, the desire to enhance intimacy, to please one's partner, to cope with negative mood, to avoid relationship conflict, and to prevent losing one's partner (Impett & Peplau, 2002; 2003; Impett et al., 2005; Leigh, 1989). The type of motive that lies behind one's reason for engaging in sex can thus engender drastically different consequences.

Whilst certain sexual encounters can act as a powerful force to sustain and enhance romantic relationships, others can go so far as to trigger dyadic conflict, emotional distress, and personal dissatisfaction (Impett et al., 2005; Laumann et al., 1994). One factor that accounts for this disparity in outcomes is the motivational system at play; that is, either approach or avoidance motivations (Cooper et al., 2011; Impett et al., 2005; Muise et al., 2017; Muise et al., 2013). Generally speaking, the approach-avoidance framework posits that individuals are either motivated to behave in ways that will promote or enhance a positive end state or reward (i.e., approach motives) or motivated to behave in a way that will prevent or avoid a negative end state or punishment (i.e., avoidance motives) (Carver et al., 2000; Carver & White, 1994; Elliot & Covington, 2001; Impett et al., 2005). Within the realm of relationships and sexuality, approach motives are those that focus on the obtainment or enhancement of positive outcomes (e.g., intimacy) whereas avoidance motives are those that focus on the eschewal or minimization of negative outcomes or states (e.g., coping) (Cooper et al., 2011; Impett et al., 2005).

Research has shown that those who are motivated by approach-oriented reasons for engaging in sex with their partners experience greater relationship well-being (e.g., closeness, satisfaction, and fun), more positive emotions, greater satisfaction with life, more positive sexual experiences, and less dyadic conflict (Cooper et al., 2011; Impett et al., 2005; Impett & Tolman, 2006; Muise et al., 2017; Muise et al., 2013; Sanchez et al., 2011). In addition, sexual experiences that are more strongly motivated by approach-oriented reasons, such as to express love for one's partner or because it feels pleasurable, have been tied to subsequent feelings of passion, love, and excitement (Impett, 2005), just as intimacy and enhancement motives have been strongly associated with more frequent sexual activity, more positive feelings about sex, and greater sexual satisfaction (Cooper et al., 1998; Cooper et al., 2011; Patrick et al., 2011).

In contrast, research has shown that those who are motivated by avoidance-oriented reasons for engaging in sex experience less relationship satisfaction, more negative feelings about sex, greater dyadic conflict, more negative emotions, and less sexual satisfaction (Cooper et al., 1998; Cooper et al., 2008; Cooper et al., 2011; Impett et al., 2005; Muise et al., 2013; Sanchez et al., 2011). In addition, sexual experiences that are more strongly motivated by avoidance-oriented reasons, such as to cope with one's own negative emotions or to avoid relationship conflict, at best, may provide temporary relief, and at worst, may trigger the negative outcome(s) (e.g., shame, anger, and fear) that one was initially trying to avoid (Downey et al., 1998; Impett et al., 2005; Muise et al., 2017). Hence, as demonstrated by a study by Muise and colleagues (2013), individuals who more frequently had sex motivated by avoidance goals reported less sexual satisfaction over time as well as partners who felt less committed to maintaining the relationship and who felt less sexually satisfied.

In sum, sexual motivation is intimately connected with relationship and sexual satisfaction, given that sexual approach motives are associated with higher sexual desire and satisfaction for both partners in the dyad, and sexual avoidance motives are associated with the opposite outcome (Muise et al., 2017). The existing research has yet to explore how stress might influence individuals' sexual motivation and, in turn, their sexual satisfaction. Hence, filling this gap in the literature would be a novel contribution that would enhance our knowledge of the factors that might impact the type of approach or avoidance motives motivating individuals to have sex with their romantic partners.

Stress and Sexual Motivation

Although the extant literature on stress and motivation does not specifically address stress relation with sexual motivation, there is evidence to support that such a relationship could exist. For instance, researchers examining approach-avoidance motivation in personality found that approach temperaments were characterized by extraversion, positive emotionality, and a behavioural activation system, which is related to sensitivity to reward and approach motivation (Elliot & Thrash, 2002). Avoidance temperaments were characterized by neuroticism, negative emotionality, and a behavioural inhibition system, which is related to sensitivity to punishment and avoidance motivation (Elliot & Thrash, 2002). Neuroticism is the Big Five personality trait denoting hyperreactivity to stress, greater negative appraisals, less effective coping strategies, and more frequent and intense negative reactions to stressful stimuli (Bolger & Zuckerman, 1995; Vollrath, 2001; Lahey, 2009). Hence, neuroticism being a critical component of avoidance temperaments seems to suggest a potential link between stress and avoidance motivation.

In the presence of stressors, avoidance-oriented people seek to avoid dealing with the unpleasant feelings associated with the stressors through denial, escape, and/or distancing (Hofmann & Hay, 2018). While avoidance can be beneficial in the short-term (e.g., early on in a traumatic episode) (Hofmann & Hay, 2018), research shows that this behavior can generate problems in people's romantic relationships in the longer term (e.g., by less communication with their partners about their stress and negative affect, and by perceiving their partner as less supportive) (Kuster et al., 2017). Additionally, in contrast to approach-oriented people, avoidance-oriented people receive poorer ratings from their partners regarding their stress communication (Kuster et al., 2017) and ability to cope with stress as a couple (Falconier & Kuhn, 2019). Partners of approach-oriented people also report experiencing fewer problems in their relationship and more coping with stress as a couple (Kuster et al., 2017).

That said, the absence of research on stress and sexual motivation leaves a gap in both the stress and sexuality literature in terms of empirical evidence. If stress influences the type of sexual motivation driving individuals to have sex with their romantic partner, and sexual motivation impacts individuals' sexual satisfaction, then sexual motivation could be the underlying mechanism mediating the relationship between stress and sexual satisfaction. Given that sexual satisfaction is closely tied to relationship satisfaction and well-being, understanding how stress and sexual motivation influence sexual satisfaction has important implications for the well-being of individuals and couples.

Study Overview & Hypotheses

This novel study aimed to bridge the gap in the stress and sexuality literature by examining the relationship between stress, sexual motivation, and sexual satisfaction within the context of the COVID-19 pandemic. Specifically, the present study set out to test the hypothesis that stress may lead to more avoidant motivations for engaging in sex that, in turn, may lead to lower sexual satisfaction. A proposed reason that stress is associated with decreased sexual satisfaction is that, in the context of stress, people might have more avoidant-related motivations for engaging in sex. Avoidance motivations have been linked to lower relationship and sexual satisfaction (Gable & Impett, 2012; Impett et al., 2005; Muise et al., 2017). Therefore, participants experiencing higher levels of stress may employ more avoidance-oriented motives like coping, which may, in turn, lead to lower levels of sexual satisfaction. Conversely, if stress levels during the pandemic are low, then couples may engage in sex more for approach-oriented motives like intimacy, which in turn may account for higher levels of sexual satisfaction.

Method

Participants

One hundred and seventy-three participants who were enrolled in first- and second-year psychology courses and who reported being in a relationship were recruited from a large Canadian university via an online portal[1]. Of those 173, 10 participants were excluded for taking less than 12 minutes to complete the survey and another was excluded for withholding consent. These exclusions resulted in a final sample of 162 participants (M_{age} = 21.32, *SD* = 6.00; 86.4% women, 13% men, 0.6% other). Participants reported their sexual orientation label as straight (80.9%), bisexual (11.1%), and gay or lesbian (3.1%). As for relationship length, participants reported being in a relationship for one to two years (32.7%), three to five years (17.9%), and one to three months (14.8%). Lastly, participants reported not being diagnosed with COVID-19 (98.1%), knowing someone who had been diagnosed with COVID-19 (38.9%), and being in close contact with a person at high risk of contracting COVID-19 (49.4%). Participants were allotted 0.5% course credit as compensation for participating in this study.

[1] This study was part of a larger project collaboration with the University of Sydney in which 357 participants were recruited. The research question relied on relationship status to test the study hypotheses and, as such, solely participants who reported being in a relationship were included in the analyses.

Procedure and Measures

The demographics questions assessed age, gender identity, sexual orientation labels, relationship status, relationship length, and COVID-19 status. Participants were then prompted to complete a variety of questionnaires, including those that assessed stress, sexual motivation, and sexual satisfaction in relationships during the COVID-19 pandemic.

Stress

Stress was assessed using the stress subscale of the *Depression, Anxiety, and Stress Scales* (DASS-21; Lovibond & Lovibond, 1995). This measure is comprised of 7 items (e.g., *I found myself getting agitated*) that measure the frequency with which participants experience stress on an average week using a four-point Likert scale (1 = *rarely*, 4 = *almost always*). The stress subscale had good internal reliability ($\alpha = 0.93$).

Sexual Motivation

Sexual motivation was assessed using the intimacy and coping subscales of the *Sex Motives Scales* (Cooper et al., 1998). The intimacy subscale is comprised of five items that measure the approach sexual motive of intimacy (e.g., *To make emotional connection*), whereas the coping subscale is comprised of five items that measure the avoidance sexual motive of coping (e.g., *To feel better when low*). Participants were asked to rate how often they personally engaged in sexual activity with their partner for intimacy or coping reasons using a five-point Likert scale (1 = *never*/*almost never*, 5 = *always*/ *almost always*). Both the intimacy ($\alpha = .96$) and coping ($\alpha = .95$) subscales showed good internal reliability.

Sexual Satisfaction

Sexual satisfaction in relationships was assessed using the *Global Measure of Sexual Satisfaction* (GMSEX; Lawrance & Byers, 1998). This measure assesses participants' overall ratings of their satisfaction with their sexual relationships using five seven-point bipolar scales ranging from *very good* to *very bad*, *very pleasant* to *very unpleasant*, *very negative* to *very positive*, *very satisfying* to *very unsatisfying*, and *very valuable* to *very worthless*. Participants were asked to indicate which number best described their sexual relationship. The items yielded high internal consistency ($\alpha = .94$).

Following the completion of the questionnaires, participants were redirected to a debriefing form. In order to conduct this research, ethics clearance was granted by the Psychology Research Ethics Board at the host University.

Results

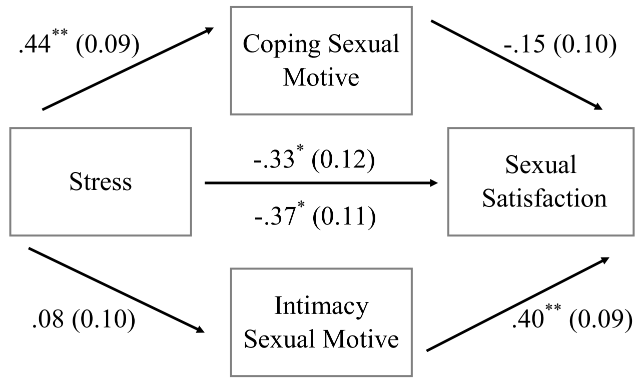
The means, standard deviations, and correlations for stress, sexual motivation (intimacy and coping), and sexual satisfaction are found in Table 1.

The present study assessed a multiple mediation model with coping and intimacy sexual motives simultaneously mediating the relationship between stress and sexual satisfaction (mediation summary is presented in Figure 1). The double mediation analysis was conducted using Model 4 of the PROCESS macro with robust standard errors (using bias corrected confidence intervals calculated using 5000 bootstrapped samples; see Hayes, 2022). The direct effect of stress on sexual satisfaction in the presence of the mediators was significant, $b = -0.33$, $SE = .12$, $p = .004$. However, the indirect effect of stress on sexual satisfaction through coping sexual motive was not significant, $b = -0.07$, $SE = .05$, 95% *CI* [-0.17, 0.02]. Additionally, the indirect effect of stress on sexual satisfaction through intimacy sexual motive was not significant either, $b = 0.03$, $SE = .04$, 95% *CI* [-0.05, 0.11]. As such, the partial mediation between stress and sexual satisfaction via coping and intimacy sexual motives could not be established.

Discussion

Prior to this study, research had been conducted exploring the individual effects of stress and approach -avoidance sexual goals on relationship quality, though none had yet bridged the gap between stress, sexual motivation, and sexual satisfaction. Given that romantic relationships are intimately connected with the emotional and physical well-being of both partners, elucidating the factors that promote or hinder relationship and sexual satisfaction is critical. Hence, this study aimed to examine the relationship between stress, approach-avoidance sexual motivation, and sexual satisfaction. Specifically, it was argued that individuals who feel highly stressed during the pandemic may feel less sexually satisfied due to engaging in sex with their partners more so to cope with stress (avoidance motive) rather than to experience intimacy (approach motive).

Figure 1
Associations Between Stress, Avoidance (Coping) and Approach (Intimacy) Sexual Motives, and Sexual Satisfaction



Note. $^{**}p < .01$. $^{***}p < .001$.

As expected, participants experiencing high amounts of stress concurrently reported being less sexually satisfied. These findings are in line with the extant research demonstrating that stressors have a negative impact on sexual satisfaction (Bodenmann, 1995; 2000; Bodenmann et al., 2006; 2007; Randall & Bodenmann, 2009), whilst also adding to the growing body of literature examining sexuality within the context of the COVID-19 pandemic. Preliminary research has demonstrated increases in pandemic-related stress (Manchia et al., 2022), along with notable declines in the quality of couples' sex lives and sexual satisfaction during the pandemic (Cocci et al., 2020; Lehmiller et al., 2020; Panzeri et al., 2020; Yuksel & Ozgor, 2020). This suggests that a rise in stress could translate into less sexual satisfaction, which may ultimately threaten the stability and quality of romantic relationships.

Second, it was hypothesized that a) increased stress might lead to more avoidant motivations for engaging in sexual activity, such as coping, which may lead to less sexual satisfaction, and b) lower stress levels might lead to more approach motivations for engaging in sexual activity, such as intimacy, which may result in greater sexual satisfaction.

Table 1
Descriptive Statistics and Correlations for Study Variables

	M (rating scale)	*SD*	1	2	3	4
1. Stress	2.22 (1-4)	.91	—			
2. Intimacy Sexual Motive	4.02 (1-5)	1.13	.08	—		
3. Coping Sexual Motive	1.87 (1-5)	1.08	$.37^{***}$	$.18^{*}$	—	
4. Sexual Satisfaction	5.82 (1-7)	1.32	$-.25^{**}$	$.29^{***}$	$-.17^{*}$	—

Note. $^{*}p < .05$ $^{**}p < .01$. $^{***}p < .001$.

Contrary to these hypotheses, neither coping nor intimacy sexual motives mediated the relationship between stress and sexual satisfaction. However, notable associations were found between sexual motivation, stress, and sexual satisfaction. For instance, participants who felt more stressed also felt motivated to have sex with their partners for more coping-related reasons. Although previous research has yet to establish a causal or relational link between stress and avoidance sexual motives, researchers have demonstrated that high stress increases the likelihood of engaging in avoidant coping (Hudd et al., 2000; Ickes et al., 2015). This study's finding that increased stress relates to more coping-related motives for having sex could reflect this propensity towards avoidant coping during times of high stress. Additionally, being more sexually motivated by coping-related reasons was also related to feeling less sexually satisfied. This is in line with existing research demonstrating that avoidance sexual motives are associated with less relationship and sexual satisfaction (Gable & Impett, 2012; Impett, Gable, & Peplau, 2005; Impett, Peplau, & Gable, 2005; Muise et al., 2017). Given that frequently having sex for avoidance-related reasons has been associated with partners feeling less committed to maintaining the relationship and less sexually satisfied (Muise et al., 2013), the increased stress of the pandemic and its association with coping sexual motives and diminished sexual satisfaction may be important factors to consider for preserving relationship and sexual well-being.

Conversely, participants who were more sexually motivated by intimacy-oriented reasons experienced more sexual satisfaction. This is in line with previous research demonstrating that those who are motivated by approach reasons for engaging in sex experience more positive feelings about sex and greater sexual satisfaction (Cooper et al., 2011; Cooper et al., 1998; Cooper et al., 2008; Patrick et al., 2011). A study by Impett (2005) tied this enhanced sexual satisfaction to greater feelings of passion, love, and excitement derived from having sex with one's partner due to strong approach-motivations, like intimacy. Notably, an association was also found between sexual motivations in this study, as participants who reported more coping sexual motives also reported more intimacy sexual motives. While it appears that sexual motives may not be mutually exclusive—as in one can be motivated both by approach and avoidance goals, like intimacy and coping, respectively—perhaps the strong motivation to deepen the intimacy with one's partner through sex can buffer the negative effects of also being motivated by coping in that same sexual encounter. Perhaps the difference between whether coping-motivated sex either provides relief from stress or triggers negative outcomes is that the former could be conjoined with other approach motives like intimacy or hedonism. In contrast, the latter may be conjoined with other avoidance motives like insecurity or peer influence.

Limitations

There are several notable limitations to this study. First, the majority of participants were women (86.4%) and straight (80.9%). Therefore, the findings may not be generalizable to participants of a different gender or sexual orientation. Second, although the correlational design of the study yielded some important associations, no causal inferences can be made from these findings (see Fielder et al., 2018). As such, future research should opt for an experimental approach in order to potentially establish causation amongst these variables. Establishing causation between stress, approach and avoidance sexual motives, and sexual satisfaction could inform the creation of new interventions aimed at enhancing couples' sexual well-being during stressful times. Third, whilst the majority of participants reported being in a relationship for one to two years (32.7%), other participants were in a relationship for three to five years (17.9%) and for one to three months (14.8%). The length of the relationship could have influenced sexual motivation, sexual satisfaction, or stress. For instance, newer relationships may be at an increased risk of being negatively impacted by stress but could also influence the reasons motivating individuals to have sex with their partners (e.g., hedonism, intimacy). In contrast, lengthier relationships may prove to be more resilient against stressors but could be experiencing less sexual satisfaction due to relationship boredom, which may also influence the reasons that are motivating individuals to have sex with their partners. In sum, the length of the relationship could influence couples' susceptibility and response to stress, their motives for engaging in sex, along with their sexual satisfaction in a number of ways. Hence, future research should assess or control for this variable to either confirm or rule out its impact.

Implications and Future Directions

This study adds to the growing body of research examining stress and sexuality during the COVID-19 pandemic. Past research had already established a negative association between stress and sexual satisfaction (Bodenmann, 1995; 2000; Bodenmann et al., 2006; 2007; Randall & Bodenmann, 2009). However, the majority of those studies were conducted amongst married couples and none had yet to explore sexual motivation as a possible mediator of this association. Establishing that high stress relates to diminished sexual satisfaction among undergraduate students is important given that empirical research has consistently demonstrated that post-secondary students experience greater stress levels and mental health issues than the general population (Adalf et al., 2001; American College Health Association, 2013; Booth et al., 2015). With the added stress of the pandemic (Manchia et al., 2022), this population is at an increased risk of suffering on a personal, academic, and relational level. Finding ways to buffer the effects of stress on sexual satisfaction or to increase sexual satisfaction even in the face of stress could help alleviate distress amongst this population and preserve this aspect of their relationship and sexual well-being.

This study is also the first to establish a link between stress and the sexual motivation of coping. High stress levels among post-secondary students have been known to increase the likelihood of practicing avoidant coping (Hudd et al., 2000; Ickes et al., 2015), though no research had yet to examine this relation in the realm of sexuality. Since coping sexual motivation was also associated with lower sexual satisfaction, this presents another potential avenue for enhancing relationship and sexual well-being amongst individuals in romantic relationships. While coping and intimacy sexual motives weren't mutually exclusive, finding ways to increase the use of approach motives and decrease the use of avoidance motives could lead to greater relationship and sexual satisfaction. Hence, future research should examine this overlap in sexual motivations so as to gain a deeper understanding of how the interplay between approach-avoidance sexual motives could impact sexual satisfaction.

Lastly, in addition to potentially establishing causation, replicating these findings amongst a more diverse sample, assessing or controlling for length of relationship, and focusing more on stress and sexual motivation's impact on sexual satisfaction, future research should examine whether these findings also apply to single people. This study solely looked at individuals in romantic relationships, but it would be interesting to investigate whether single people's motivations for engaging in sex during the pandemic are different from people in a relationship's, and whether these motivations relate to their stress levels and sexual satisfaction in a similar or dissimilar way. For instance, although people in a relationship may employ more coping and intimacy sexual motives during stressful times, it would be interesting to see what reasons are motivating single people to potentially risk exposing themselves to COVID-19 in order to have sex, and whether these motives relate to their stress and sexual satisfaction in a positive or negative way.

Conclusion

The impact of the COVID-19 pandemic and its associated stressors can be seen across all areas of life, including the bedroom. Although this study did not support the proposed hypotheses, it nevertheless provided support for the existence of associations between stress, approach and avoidance sexual goals, and sexual satisfaction. During times of high stress, greater attention should be paid to the reasons that are motivating individuals to have sex with their partner, as the relation between sexual motives and sexual satisfaction could have broader implications for couples' emotional, physical, and relationship well-being. More research is needed to further understand the interplay between stress, sexual motives, and sexual satisfaction, so as to uncover new ways of preserving and enhancing the quality of individuals' and couples' romantic and sexual relationships.

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Examen de l'effet d'interaction par le stress dans la relation entre la congruence de valeurs et la motivation intrinsèque au travail

Madeleine Gaudet, B. A. &Denis Lajoie, Ph. D.
Université de Moncton

L'objectif de l'étude est d'observer si le stress en milieu de travail pourrait agir comme modérateur dans la relation entre la congruence de valeurs et la motivation intrinsèque. Selon des perspectives théoriques, les demandes psychologiques liées au stress devraient atténuer l'effet positif des ressources psychologiques liées à la congruence des valeurs sur la motivation. 294 sujets ont participé à cette étude en répondant à des questionnaires portant sur nos trois variables d'intérêts sur la plateforme *Prolific*. Les résultats n'ont pas démontré d'effet d'interaction causé par le stress sur la relation entre la congruence des valeurs et la motivation intrinsèque. Aussi, un test d'équivalence indique que la taille d'effet de la modération est trop petite pour avoir des impacts au niveau pratique. En conclusion, l'hypothèse postulant un lien modérateur du stress sur la relation entre la congruence des valeurs et la motivation intrinsèque n'a pas été confirmée.

Mots-clés : motivation intrinsèque, congruence de valeurs, stress, travail, modérateur

The purpose of this study is to observe whether workplace stress could act as a moderator in the relationship between value congruence and intrinsic motivation. According to theoretical perspectives, stress-related psychological demands should attenuate the positive effect of value congruence-related psychological resources on motivation. 294 subjects participated in this study by completing questionnaires on our three variables of interest on the *Prolific* platform. The results did not show an interaction effect by stress on the relationship between value congruence and intrinsic motivation. Moreover, an equivalence test indicated that the moderation effect size was too small to influence the practical level. In conclusion, the hypothesis postulating a moderating link of stress on the relationship between value congruence and intrinsic motivation was not confirmed.

Keywords: intrinsic motivation, value congruence, stress, work, moderator

Un grand nombre d'employés sont influencés par des sources de motivations externes, tel le salaire, dans leur milieu de travail (Olafsen et al., 2015). Or, les recherches révèlent que les employées et employés qui se sentent gratifiés dans leur travail vivent des retombées positives, notamment par une source quelconque de motivation interne (Steinbauer et al., 2018). Entre autres parce que la motivation intrinsèque est associée à la satisfaction, à l'authenticité, au sentiment de compétence, à l'autonomie et autres, plusieurs études en psychologie organisationnelle et industrielle se sont intéressées à la motivation des employés en milieu de travail (Emmerich & Rigotti, 2017 ; Fall, 2014 ; Vroom, 1964).

Les chercheurs ont développé des théories pour différencier et mesurer les types de motivation (p. ex., intrinsèque et extrinsèque) dans les lieux de travail (Gagné et al., 2015). La littérature indique que la motivation intrinsèque se construit sur la base de sentiments d'autonomie, de compétence et d'affiliation qui pourraient amener un comportement motivé de façon autodéterminée (Emmerich & Rigotti, 2017). Effectivement, cette motivation est décrite comme étant autodéterminée, puisqu'elle émerge lorsque les employés réussissent à répondre à leurs besoins psychologiques (c.-à-d., l'autonomie, l'affiliation, la compétence) qui sont associés à l'authenticité (Emmerich & Rigotti, 2017 ; Fall, 2014 ; Ryan & Deci, 2000). Les comportements authentiques sont des comportements autodéterminés puisqu'ils découlent des vrais pensées et émotions d'un individu. L'authenticité amène donc une amélioration de la motivation intrinsèque (Emmerich & Rigotti, 2017). En bref, les chercheurs discutent de l'authenticité comme étant un type de congruence de valeurs (Wayne et al., 2019). Par définition, la congruence de valeurs désigne une cohérence entre les valeurs personnelles de l'employé et celles que celui-ci perçoit dans son milieu de travail tandis que l'authenticité désigne le fait d'agir en concordance avec les pensées et émotions de l'individu (Datta et al., 2014 ; Emmerich & Rigotti, 2017).

La correspondance concernant cet article doit être adressée à Madeleine Gaudet (emg4733@umoncton.ca)

Étant donné que le stress amène à plusieurs retombées négatives en milieu de travail, il est pertinent d'étudier davantage son interaction avec d'autres variables influentes en psychologie organisationnelle (c.-à-d., la motivation intrinsèque et la congruence de valeurs) (Kelloway et al., 2011).

Motivation intrinsèque

La motivation, qui représente un ensemble de processus psychologiques, est une énergie qui oriente les comportements vers des buts que l'on veut accomplir (Kelloway et al., 2011). La motivation de type intrinsèque se démarque dans un milieu organisationnel, car celle-ci permet un grand niveau d'autonomisation, du plaisir et de la satisfaction chez l'employé (Fall, 2014). De plus, cette motivation ne nécessite pas de besoins ou récompenses externes (Fall, 2014). Par exemple, les résultats de Mitchell et Daniels (2003) suggèrent qu'un employé davantage impliqué intrinsèquement dans une tâche sera plus porté à mettre davantage d'efforts dans cette tâche et sur une plus longue période que s'il n'était pas impliqué intrinsèquement dans celle-ci.

La théorie utilisée le plus souvent pour décrire la motivation intrinsèque est la théorie de l'autodétermination développée par Ryan et Deci (2000). Elle explique que la motivation intrinsèque se construit sur la base de trois besoins psychologiques. Ces trois besoins sont l'autonomie, la compétence et l'affiliation (Fall, 2014). Plus spécifiquement, une personne motivée intrinsèquement sera capable de prendre beaucoup d'initiative dans ses actions (c.-à-d., autonomie), sentira le besoin d'agir de manière efficace dans ses comportements (c.-à-d., compétence), et aura de bons liens avec autrui dans leurs interactions (c.-à-d., affiliation) (Gillet et al., 2008). Une étude de Lloyd et al. (2017) a démontré que les employés qui possédaient de faibles niveaux d'auto-efficacité ainsi que de faibles niveaux de motivation intrinsèque ont bien bénéficié des interventions de gestion de stress en milieu de travail. Ce résultat témoigne d'un lien entre le stress et la motivation intrinsèque (Lloyd et al., 2017).

Des études ont démontré que cette motivation intrinsèque est liée à d'autres états considérés « positifs » dans un milieu de travail, tels que le bien-être, l'affect positif, la satisfaction et l'authenticité ressentie au niveau des valeurs personnelles (Emmerich & Rigotti, 2017). Concernant cette dernière, la congruence des valeurs dans le milieu de travail, comprenant l'authenticité, se définit dans l'ensemble comme étant la cohérence des valeurs personnelles de l'employé et celles véhiculées dans son environnement de travail (Datta et al., 2014). L'authenticité est une forme de congruence de valeurs puisque celle-ci se définit par le fait d'agir et de s'exprimer en cohérence avec nos pensées et émotions. Étant donné que l'authenticité est corrélée négativement avec l'anxiété, la dépression et le stress, les chercheurs suggèrent que celle-ci soit positivement liée à l'engagement au travail, notamment par la motivation intrinsèque (Emmerich & Rigotti, 2017). Plus spécifiquement, les auteurs suggèrent que l'authenticité en milieu de travail augmente la motivation intrinsèque au travail en plus d'amener du bien-être psychologique (Emmerich & Rigotti, 2017). Donc, l'authenticité peut être examinée sous l'angle de la congruence des valeurs.

Congruence des valeurs

La congruence des valeurs est associée à des effets bénéfiques chez les employés dans un milieu organisationnel, notamment une bonne santé psychologique (Datta et al., 2014). La théorie du *Person-Environment fit* explique que la motivation intrinsèque est un état qui peut découler de la congruence des valeurs. Selon cette théorie, des retombées négatives en milieu de travail surviennent lorsqu'il y a une incongruence entre l'employé et son travail, telles une baisse de satisfaction ou une baisse de productivité (French et al., 1974 ; Harrison, 1976 ; Kelloway et al., 2011). L'incongruence des valeurs peut être située au niveau des compétences de l'employé dans son emploi, ou encore au niveau des besoins de l'employé selon les ressources disponibles de son milieu de travail (Kelloway et al., 2011). Cette adéquation entre la personne et son environnement dans le milieu de travail prédit les résultats (positifs ou négatifs) de l'employé selon les caractéristiques de celle-ci envers son emploi (Livingstone et al., 1997). Des résultats des études de Livingstone et ses collaborateurs (1997) qui ont été effectuées avec 143 sujets (étude 1) et 148 sujets (étude 2) démontrent que les exigences de la valeur de créativité présentent une tension moindre lorsque la valeur de créativité de l'employé était à des niveaux élevés et modérés. Ces résultats nous permettent d'observer le rôle des valeurs sur les niveaux de tension des employés, dont la congruence des valeurs et le stress.

Motivation et congruence des valeurs

Lorsque la congruence entre la personne et son environnement concerne son milieu de travail, la recherche propose un modèle plus spécifique : le *Person-Organization fit.* Ce modèle se définit typiquement par un accord des valeurs de l'employé et celles de son emploi (Kelloway et al., 2011 ; Westerman & Cyr, 2004). Ce modèle définit bien la motivation en lien avec la congruence de valeurs étant donné que Gagné et ses collègues (2015) expliquent que les valeurs sont conduites par l'internalisation, qui elle, régule la motivation. L'internalisation n'est pas synonyme de la motivation intrinsèque, mais est plutôt un type de motivation qui est guidé par les valeurs de la personne face à une tâche ou une activité (Gagné et al., 2015).

Les valeurs peuvent être une caractéristique prédictive de comportements chez l'individu, et c'est un indicateur de choix dans leur emploi. Elles peuvent également être utilisées pour mettre en place des lignes directrices afin d'atteindre des résultats acceptables par rapport à la mission d'une organisation (French et al., 1982 ; Westerman & Cyr, 2004). Les données probantes suggèrent qu'un employé qui perçoit un accord entre ses valeurs et celles de son employeur sera satisfait de l'emploi en question. De plus, l'employé engagé dans son travail aura pour but d'atteindre un objectif de réalisation commun, résultats de leurs valeurs communes (Kelloway et al., 2011 ; Westerman & Cyr, 2004).

Selon Emmerich et Rigotti (2017), l'obtention de cette congruence de valeurs peut être un défi pour les employés qui doivent répondre aux attentes des clients ou des supérieurs qui vont à l'encontre de leurs valeurs personnelles. À l'opposé, les employés qui perçoivent une bonne congruence de valeurs et qui peuvent ainsi adopter un comportement authentique dans le milieu de travail tendent à être caractérisés par un style de motivation intrinsèque (Emmerich & Rigotti, 2017 ; Ryan & Deci, 2000). Quelques chercheurs ont démontré un lien entre la motivation intrinsèque et la congruence de valeurs, mais il y a un manque dans la documentation au sujet de ce qui pourrait affecter ce lien entre les deux variables (Emmerich & Rigotti, 2017). Afin de combler cette lacune dans la littérature, le rôle modérateur du stress dans la relation entre la motivation intrinsèque et la congruence de valeurs a été exploré.

Malgré le fait que ces chercheurs et chercheures aient pu montrer que la congruence des valeurs diminue la détresse psychologique des employés, il n'a pas encore été établi que le stress généré par le travail modère la relation de la congruence des valeurs et de la motivation intrinsèque en milieu de travail. Le stress pourrait entrer dans une des catégories de la détresse psychologique, ce qui soulève une possibilité de lien indirect entre le stress et la congruence de valeurs.

Stress

Le stress intervient dans la relation entre la congruence de valeurs et la motivation intrinsèque lorsqu'il est considéré dans le cadre du modèle théorique du *Job Demands-Resources* (Demerouti et al., 2001). Ce modèle décrit des aspects psychologiques, physiques ou sociaux de l'environnement de travail en les caractérisant de demandes ou de ressources (Demerouti et al., 2001).

Les demandes de l'emploi comprennent les heures de travail supplémentaires, la pression du travail, certaines tâches, certaines relations interpersonnelles négatives, ainsi que les émotions que ces demandes engendrent (Bakker & Demerouti, 2007). Ces demandes peuvent être liées à des facteurs de stress, à la fatigue et à une détresse psychologique. Cela fait en sorte que les employés ne sont pas nécessairement motivés à effectuer ces demandes dans le milieu de travail (Bakker & Demerouti, 2007). Selon les résultats de la recherche de Demerouti et ses collègues (2001), les demandes étaient positivement corrélées avec l'épuisement professionnel. Dans cette étude, les demandes reflétaient les exigences défavorables et trop élevées des employés (Demerouti et al., 2001).

En revanche, les ressources sont considérées comme des variables positives et elles jouent sur le bien-être des employés. Ces ressources en question comprennent un bon soutien social des employés, une bonne diversité des tâches ou le sentiment de contrôle sur leur travail (Kelloway et al., 2011). Appuyant cette théorie, les résultats de Demerouti et ses collaborateurs (2001) indiquent que les ressources professionnelles des employés sont négativement associées au désengagement au travail.

Stress, motivation intrinsèque et congruence des valeurs

Comme mentionné plus tôt, les ressources en milieu de travail motivent l'employé dans son milieu de travail. Plus précisément, le sentiment de contrôle apporte chez lui l'engagement, la productivité et également le développement personnel. Le développement personnel désigne le sentiment de compétence et d'autonomie, tel que développé dans la théorie de l'autodétermination pour la motivation (Bakker et al., 2003 ; Bakker & Demerouti, 2007 ; Ryan & Deci, 2000).

De plus, si nous observons la relation du stress avec la congruence des valeurs, les valeurs de l'employé vont davantage lui amener du bien-être au travail et une diminution de la détresse psychologique si elles concordent avec l'emploi (Datta et al., 2014). Ces valeurs pourraient agir comme une ressource pour l'employé. Par exemple, si une des valeurs d'un employé est le sentiment de contrôle au travail et que les tâches de son emploi peuvent lui procurer ce sentiment, cette congruence va lui amener des retombées positives sur son travail ainsi que de la motivation intrinsèque ressentie envers celui-ci (Emmerich & Rigotti, 2017).

L

es ressources psychologiques, comme la congruence des valeurs, qui sont modérées par les demandes (p. ex., stress), démontre que l'on devrait s'attendre à un effet d'interaction du stress sur la congruence de valeurs. Le modèle du *Job Demands-Resources* suggère que les demandes empêchent les ressources de faire bénéficier leur plein potentiel, car les demandes requièrent de l'effort physique et psychologique de la part des employés et employées. Cela peut, par la suite, être perçu comme des facteurs de stress dans un milieu de travail. Du côté des ressources, celles-ci favorisent l'engagement pour un processus motivationnel, donc elles favorisent la compétence, l'autonomie et l'affiliation (Kelloway et al., 2011).

Le stress en milieu de travail agit selon des pressions externes qui donnent un sentiment de perte de contrôle aux employés face à leurs exigences en milieu de travail (Kelloway et al., 2011). Plusieurs réponses face au stress peuvent déterminer le degré de tension que les employés ressentent, soit de manière physiologique, psychologique ou comportementale. Comme illustré par Portoghese et ses collègues (2020), certains facteurs, comme les attentes de l'emploi et l'absence de ressources, peuvent être associés à une haute tension chez les employés et même affecter grandement leur bien-être si ceux-ci n'ont pas le sentiment de contrôle sur ces facteurs de stress.

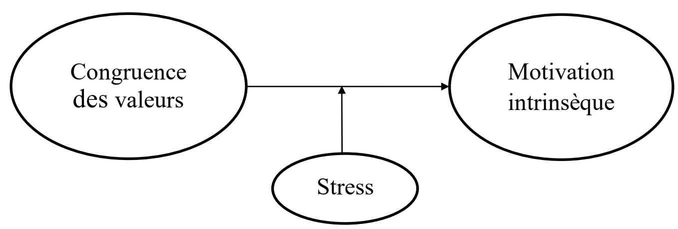
De l'autre côté, si l'employé est capable de gérer et de contrôler ces exigences professionnelles, cela favorise ses compétences, son pouvoir de décision et son autonomie. À leur tour, ces trois besoins psychologiques sont associés à un bon degré d'autodétermination duquel résulte la motivation intrinsèque (Portoghese et al., 2020). Le stress au travail peut résulter de plusieurs facteurs tels que des conflits d'horaires, d'une surcharge ou sous-charge de travail, d'une mauvaise justice organisationnelle, de mauvaises interactions sociales en milieu de travail et même d'une inadéquation entre l'employé et son environnement de travail (Kelloway et al., 2011). Autant du côté scientifique de la psychologie du travail que du côté social, le stress est associé à un manque de satisfaction, à la dépression, à une diminution du sentiment de contrôle face à des tâches et à des interactions sociales négatives (Kelloway et al., 2011 ; Kinman & Jones, 2005 ; Portoghese et al., 2020). Donc, le stress, étant associé à la détresse psychologique, pourrait être atténué en fonction de la congruence de valeurs et de la motivation intrinsèque, puisque celles-ci favorisent une bonne santé psychologique chez les individus en milieu de travail (Datta et al., 2014). Étudier l'interaction du stress sur la motivation intrinsèque et la congruence de valeurs permettrait aux employés et aux employeurs de comprendre si les résultats négatifs au travail résultent d'une interaction de la motivation ou de la congruence avec le stress ou bien seulement d'un manque de motivation ou de congruence entre les valeurs de l'employé et de son emploi (Kelloway et al., 2011).

Hypothèse

Étant donné que le stress peut amener des retombées négatives chez les employés comme l'ont relevé Kelloway et ses collaborateurs (2011) ainsi que le modèle du *Job Demand Control,* l'hypothèse va suivre ce même courant de pensée. La motivation et la congruence des valeurs apportent aux employés plusieurs retombés positives. Cela permet d'observer qu'un stress élevé pourrait modérer la relation entre la variable dépendante (motivation intrinsèque) et indépendante (congruence des valeurs). Donc, nous postulons que la relation entre la congruence des valeurs et la motivation intrinsèque sera affectée par la variable modératrice du stress de manière que celui-ci va atténuer la relation entre la variable dépendante et indépendante.

Figure 1

Effet modérateur du stress sur le lien entre la congruence des valeurs et la motivation intrinsèque.



Méthodologie

Participants

La présente étude comporte 294 sujets. Afin d'avoir une vue d'ensemble sur plusieurs nationalités, âges et types d'emplois, nous avons eu recours à une plateforme de recrutement internationale. Les sujets ont été recrutés par le biais de la plateforme *Prolific.* Cette base de données permet une très bonne accessibilité et rapidité des réponses des sujets. De plus, avec le grand nombre d'études disponibles sur cette plateforme, le choix du questionnaire suggère un certain intérêt de la part des sujets quant à notre recherche.

L'échantillon comprenait 190 hommes et 104 femmes, tous âgés de 18 à 64 ans. Les sujets ont été payés 1.67 livre sterling pour participer à l'étude. Les emplois qu'occupaient les sujets étaient variés. En moyenne, les participants indiquent avoir occupé leur poste depuis 4,74 années (*É-T.* = 5.63). La grande majorité des participants sont diplômés de l'école secondaire (97,3 %) et plusieurs parmi ceux-ci sont diplômés d'un collège ou d'une université (55,5 % de l'échantillon total). Étant donné l'utilisation d'une plateforme de recrutement internationale, les pays d'origine des sujets variaient également. Les pays qui se démarquaient d'un plus grand nombre de participants sont la Pologne avec 57 participants et le Portugal avec 54 participants.

Procédure

Le sondage en ligne de cette étude avait une durée d'environ 20 minutes. La première page du sondage présentait un formulaire de consentement. L'utilisation d'un ordinateur ou d'un appareil électronique était nécessaire pour remplir les questionnaires. Les sujets devaient répondre à trois questionnaires, de manière individuelle, sur la motivation intrinsèque, le stress et la congruence des valeurs. Au cours de l'expérience, les sujets devaient répondre à quelques items de vérification intégrés dans les questionnaires. Si les participants répondaient incorrectement plus de cinq fois à ces items de vérification, ils étaient exclus de l'étude. Ce fut le cas pour 6 participants.

Mesure

Motivation intrinsèque. Le questionnaire utilisé pour la motivation intrinsèque était le *Multidimensional Work Motivation Scale* par Gagné et ses collègues (2015). Ce questionnaire est une mesure à trois items avec des items tels que *because what I do in my work is exciting.*

Congruence des valeurs. Pour ce qui est de la variable indépendante, la congruence des valeurs, nous nous sommes servis de *la mesure à trois items* de Cable et DeRue (2002). Les items présents dans ce questionnaire contenaient des items semblables à *the things I value in life are similar to the things that my organization values.*

Stress. Pour la variable modératrice du stress, la *mesure de quatre items* de Motowidlo et ses collègues (1986) a été mise de l'avant dans cette étude. Les items pour le questionnaire du stress comprenaient des affirmations comme *my job is extremely stressful.*

Résultats

Les statistiques descriptives et les corrélations des variables à l'étude sont présentées dans le Tableau 1. On peut observer que chacune des corrélations entre les variables à l'étude sont statistiquement significatives.

La variable indépendante (congruence des valeurs) et le modérateur (stress) ont été centrés sur SPSS avant de calculer le terme d'interaction. Le Tableau 2 présente les résultats de l'analyse de régression hiérarchique. On peut observer que malgré le fait que la variable indépendante et la variable modératrice maintiennent chacune des relations statistiquement significatives avec la variable dépendante (et que le R^2 reflète un montant assez important de variance partagée avec cette dernière), l'effet d'interaction n'est pas significatif.

Comme le fait de ne pas être en mesure de rejeter l'hypothèse nulle n'implique pas pour autant qu'il n'existe aucune relation, nous avons effectué un test d'équivalence (Lakens et al., 2018) sur nos données pour déterminer si celles-ci impliquent que l'effet d'interaction serait trop petit pour être important. Pour ce faire, nous avons comparé la racine carrée de la valeur de la différence de R^2 du terme d'interaction (la valeur du R^2 de .002 implique une corrélation partielle entre le terme d'interaction et la variable dépendante de .045) à une valeur de corrélation de 0.2. Cette dernière valeur a été choisie notamment sur la base de Ferguson (2009), qui indique qu'il s'agit de la plus petite taille d'effet étant porteuse d'effets pratiques intéressants en contexte de mesures à cohérence interne de l'ordre habituel en psychologie (des tailles d'effets plus petites peuvent être considérées importantes dans différents contextes de mesure). Tel qu'illustré à la Figure 2, nous pouvons confirmer à $p < .01$ que la taille d'effet observée est plus petite que la taille d'effet minimale de 0.2. Ceci suggère donc que même si l'on ne peut pas exclure l'existence d'une relation entre le terme d'interaction et la variable dépendante, on peut être raisonnablement certain sur la base de nos données que cette relation potentielle sera trop petite pour être importante à un niveau pratique.

Tableau 1
Corrélations, moyennes et écarts-types des variables à l'étude

	Motivation intrinsèque	Stress	Congruence des valeurs
Motivation intrinsèque	-0.91		
Stress	-.22**	(.79)	
Congruence des valeurs	.46**	-.24**	(.90)
Moyenne	334	3,04	3,20
Écart-type	1,10	0,89	0,89

**p < .01 ; les alphas de Cronbach sont sur la diagonale.

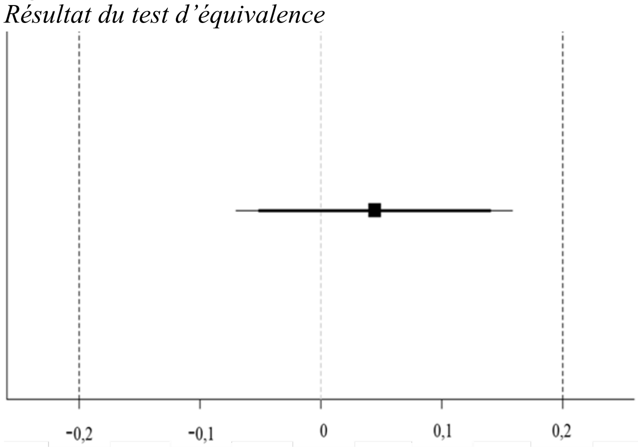
Tableau 2

Résultats de l'analyse de régression hiérarchique

	Coefficient standardisé	Erreur type	Valeur de *p* du coefficient	Différence de R^2
Bloc 1				.23
Constante	3.34	0.06	< .01	
Congruence des valeurs	0.44	0.07	< .01	
Stress	-0.12	0.07	.03	
Bloc 2				< .01
Terme d'interaction	-0.05	0.07	.38	

Figure 2

Résultat du test d'équivalence



Note. La barre grasse représente le test d'équivalence (intervalle de confiance de 90 %), la barre en pointe normale représente le test de l'hypothèse nulle (intervalle de confiance de 95 %). Les résultats montrent que la taille d'effet que nous avons décelée n'est pas statistiquement différente de 0 mais plus petite que 0.2 de façon statistiquement significative.

Discussion

Le but de cette étude était d'observer si le stress peut agir comme modérateur sur la relation existante entre la congruence de valeurs et la motivation intrinsèque en atténuant cette relation. Les études antérieures poussaient à croire qu'un lien pourrait être observé étant donné la forte relation entre la motivation et la congruence des valeurs selon la théorie du *Person-Environment fit.* De plus, le modèle du *Job Demands-Resources* nous indiquait que le stress agissait négativement sur chacune de ces variables individuellement (Bakker & Demerouti, 2007 ; French et al., 1974 ; Harrison, 1976 ; Kelloway et al., 2011). Comme proposé dans la littérature, la congruence des valeurs a un impact sur la motivation intrinsèque d'un employé (Emmerich & Rigotti, 2017).

Le stress, de son côté, peut être causé par plusieurs contextes. Quelques exemples peuvent inclure une mauvaise justice organisationnelle, une incongruité entre l'employé et son organisation, de mauvaises relations entre collègues et supérieurs, des sous-charges ou surcharges de travail et de l'incivilité (Kelloway et al., 2011 ; Portoghese et al., 2020). Ce stress est équivalent au concept de demande selon la conceptualisation du modèle de *Job Demands-Resources.* Ce modèle considère les demandes comme nuisibles sur le bien-être et la motivation des employés et employées. De plus, le *Job Demands-Resources* prévoit que les demandes et les ressources interagissent dans la prédiction de telles variables (Bakker & Demerouti, 2007 ; Kelloway et al., 2011 ; Portoghese et al., 2020).

L'analyse de l'effet de modération du stress sur la congruence des valeurs n'a pas démontré d'influence sur sa relation avec la motivation intrinsèque en tant que modérateur. Non seulement cela, mais le test d'équivalence (Lakens et al., 2018) montre que, même si l'on ne peut pas exclure la possibilité d'une relation autre que nulle sur la base du test d'hypothèse nulle, il est raisonnablement certain ($p < .01$) qu'une relation éventuelle serait petite au point d'être peu intéressante au niveau pratique. L'hypothèse est donc infirmée par les analyses qui semblent expliquer que le stress ne modifie pas la relation entre la congruence des valeurs et la motivation intrinsèque.

Il est possible d'appliquer ces résultats en reconnaissant que le stress et la congruence des valeurs ont une influence (de façon indépendante) sur la motivation intrinsèque des employés. En fait, comme les effets positifs de la congruence des valeurs semblent être robustes face aux effets du stress, on pourrait considérer que cette congruence est une ressource fiable pour la motivation. Les gestionnaires, et les employés auraient donc à gagner à renforcer cette ressource dans le milieu de travail. Il faut bien sûr prendre en considération que le stress est seulement une variable parmi plusieurs qui peut être nuisible dans le milieu de travail. Par contre, comme les demandes en général peuvent aboutir à du stress (pratiquement par définition), il est donc possible que les résultats de la présente étude puissent se généraliser à d'autres variables liées aux demandes (Kelloway et al., 2011).

L'absence d'effet de modération va en quelque sorte à l'encontre du modèle de *Job Demands-Resources.* Les résultats suggèrent donc qu'il pourrait être bénéfique que le modèle devienne plus précis dans ses prédictions. Par exemple, plutôt que de prévoir que les demandes et ressources interagissent de façon générale dans la prédiction de résultats, il serait souhaitable de savoir quand les effets d'interactions devraient effectivement être importants (p. ex., les résultats de la présente étude suggèrent que ce n'est pas systématiquement le cas). À cet égard, il est intéressant que la théorie du *Person-Organization fit* mette l'accent sur le fait que les cibles de congruence doivent être comparables (Edwards, 2008). En d'autres mots, le contenu des variables doit correspondre au même concept à la fois au niveau des personnes et de leur organisation. Possiblement, une correspondance relativement étroite serait nécessaire pour permettre les effets d'interaction entre les demandes et les ressources.

Une des limites qui a été relevée dans cette étude a trait au recrutement en ligne par le biais de la plateforme internationale *Prolific.* D'un côté positif, les analyses ont démontré que l'âge ainsi que le sexe n'ont pas influencé les résultats. De plus, la plateforme *Prolific* permet un recrutement de participants sur une échelle internationale, ce qui augmente l'accessibilité du sondage pour les sujets. Plus précisément, le recrutement international suggère que les résultats obtenus à cette expérimentation devraient être potentiellement généralisables à différents individus ayant plusieurs nationalités différentes. En contrepartie, cela pourrait aussi être considéré comme étant une limite, car l'étude ne cible pas une population en particulier. Par exemple, la grande variabilité d'emploi et d'âge chez les participants recrutés ne cible pas une industrie ou un groupe d'âge en particulier. Pour avoir des résultats plus précis sur une population spécifique, il serait nécessaire d'adopter une différente stratégie de recrutement. Par ailleurs, les données obtenues sont corrélationnelles. Cela fait en sorte qu'il n'est pas possible de conclure à des liens de causalité sur la base des résultats découlant de ce présent projet. Plus précisément, bien que la motivation est une conséquence de la congruence de valeurs, il n'est pas encore possible d'exclure un effet réciproque ou encore une causalité inverse.

Malgré ces limites, les résultats montrent clairement qu'il est impossible de parler d'un effet généralisable ou important de modération par le stress dans la relation entre la congruence des valeurs et la motivation. Effectivement, notre taille d'échantillon a permis d'atteindre une puissance statistique suffisante pour un test d'équivalence assez sévère.

Pour des recherches futures, il serait intéressant d'aller plus en détail sur le concept de niveau de congruence des valeurs. Par exemple, telle qu'illustrée par Emmerich et Rigotti (2017), l'authenticité est un type de congruence qui démontre aussi un effet sur le bien-être au travail. Nous pourrions utiliser un autre type de congruence pour observer si le stress agit comme modérateur pour ces différentes ressources. Une autre proposition pour des recherches futures pourrait être de mesurer la variable du stress de manière plus objective et non seulement de la perception du stress chez les sujets interrogés. Par exemple, l'approche habituelle à la modération propose d'observer les différences des pentes à +/- 1 d'écart-type sur l'échelle de mesure. Il serait possible d'évaluer la fréquence de facteurs de stress spécifiques et sur cette base plus concrète, faire des catégories plus claires entre les participants. De plus, un projet de recherche avec d'autres retombées importantes en psychologie du travail pourrait être proposé. Par exemple, nous pourrions mesurer la satisfaction en milieu de travail et voir si un effet d'interaction de stress et de congruence des valeurs agirait sur cette variable pour guider le développement théorique qui permettra éventuellement de prédire des effets d'interactions entre les demandes et ressources de façon plus claire. Cela pourrait permettre l'observation des diverses raisons d'insatisfaction en milieu de travail et en contact social.

Conclusion générale

Pour conclure, l'hypothèse n'a pas été confirmée ; le stress n'a pas eu un effet modérateur sur la relation entre la congruence des valeurs et la motivation intrinsèque dans nos données. Notre étude a su clarifier que ce lien est probablement peu important en milieu de travail. Ceci peut encourager d'autres études de ce genre, mais avec d'autres types de congruence ou différentes variables dépendantes que la motivation intrinsèque pour éclaircir les prédictions du modèle *Job Demands-Resources.* Les recherches antérieures nous guidaient à croire qu'un effet de modération pourrait être présent, mais nos résultats montrent plutôt des liens directs et indépendants entre la congruence des valeurs, le stress et la motivation intrinsèque. En bref, nos résultats encouragent les superviseurs à diminuer le stress de leurs employés lorsque possible, mais de continuer à renforcer la congruence des valeurs chez leurs employés même dans les situations où le stress devait rester élevé.

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In Sickness and in Wealth: Mental Health, Income Levels, and COVID-19

Hailey Pawsey, B. A. & Kenneth M. Cramer, Ph. D.
University of Windsor

Globally, COVID-19 has brought upon many challenges to mental health. Social distancing and isolation have led people to experience greater anxiety and negative affect, and financial distress has increased due to economic changes. Demographic features may differentiate the severity of distress individuals face. Using data from The Centre for Addiction and Mental Health (CAMH), the present study examined measures of psychological distress across a Canadian sample, identifying differences in age, sex, and income levels. Trends over time were observed. Lower-income Canadians reported higher distress. Women may be at greater risk than men, as well as younger compared to older Canadians. Psychological distress has remained relatively stable throughout the pandemic, although COVID-19 financial worry has lessened as people are not as worried about their finances. The findings of this study are informative of socioeconomic, sex, and age differences in mental health throughout the pandemic in a Canadian sample.

Keywords: COVID-19, mental health, socioeconomic disparities, sex differences, age differences

Globalement, la COVID-19 a créé des défis au niveau de la santé mentale. La distanciation sociale et l'isolation ont augmenté les taux d'anxiété et d'affect négatif et les changements économiques ont causé de la détresse financière. Certaines caractéristiques démographiques peuvent influencer la sévérité des défis rencontrés. Grace au donnés du CAMH, cet article examine les niveaux de détresse psychologique d'un échantillon de la population canadienne en tenant compte des différences d'âge, de sexe et de revenu. Au fil du temps, certaines tendances ont été observées. Les Canadiens à faible revenu vivaient plus de détresse que les mieux nantis. Les femmes étaient plus à risque de détresse que les hommes et les jeunes étaient plus à risque que les plus âgés. Les niveaux de détresse psychologique sont demeurés plutôt stables durant la pandémie, tandis que les soucis économiques se sont atténués. Les résultats de cette étude renseignent sur la santé mentale de la population canadienne selon le sexe, l'âge et le statut socio-économique pendant la pandémie.

Mots-clés : COVID-19, santé mentale, disparité socio-économique, différence de sexe, différence d'âge

Since the coronavirus COVID-19 pandemic was declared in March 2020, specifically in the West, its impacts have been drastic throughout the world, and it has had serious deleterious harmful effects on people and society. Despite the recent vaccination efforts (with over seven billion doses administered to date), 260 million people have been infected with the virus, and over five million people have lost their lives (World Health Organization [WHO], 2021). Many have lost loved ones or their jobs, and had their whole lives upturned because of COVID-19. To help prevent greater tragedy, governments around the globe have instituted lockdowns, mask mandates, social gathering limits, travel bans, and more. With a rising death toll and many isolated from friends, unable to enjoy activities like before the pandemic (such as going to concerts and weddings), and isolated from family living far away, COVID-19 is becoming became a topic no one can escape. Many people are living in significant fear of the virus and experiencing damaging effects on their mental health. People are afraid of getting sick, getting loved ones sick, losing their jobs, and more. Amid this, most have likely heard that the virus does not discriminate (Gupta, 2020; Racine, 2020); whether you are rich or poor or are somewhere in between, everyone is at risk of contracting the virus. Although everyone is at risk to some degree, many argue that some people at higher risk are significantly disadvantaged in terms of contracting the virus than others (Baena-Díez et al., 2020; Bambra et al., 2020; Oronce et al., 2020; Wildman, 2021), there is sparse research examining how those experiencing greater financial strain are coping with the virus, especially in a Canadian sample. The relationship between income level,

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COVID-19, and mental health is important to examine, as the pandemic is still prevalent, mental health is reportedly deteriorating for many (Jenkins et al., 2021), and the financial effects impact of COVID-19 on individuals and families are significant. The present study will investigate how income level and mental health are related during in the context of the pandemic, seeking to determine how those of different income levels are doing psychologically throughout the pandemic, while also adding to the body of literature on socioeconomic health disparities.

Health disparities among individuals of differing income levels are well documented throughout history (Lowcock et al., 2012; Lynch et al., 1997). Research since the start of the pandemic has confirmed these findings, suggesting that lower-income individuals face greater health risks and complications during the COVID-19 pandemic as well (Baena-Díez et al., 2020; Bambra et al., 2020; Finch & Finch, 2020; Jay et al., 2020). These findings are important, as they contribute to the distress these groups must face throughout the pandemic because of their identity including being of lower income statuses. Recent research has confirmed that the COVID-19 global health crisis has increased psychological distress for many (Jenkins et al., 2021), but given that the effects of coronavirus COVID-19 may be worse (and more impactful) for lower-income individuals, it is necessary to determine study how these groups are coping throughout with the pandemic. Research prior to the pandemic has corroborated that lower-income individuals are more likely to have faced psychological distress under pre-coronavirus COVID-19 conditions (Lynch et al., 1997; Wood et al., 2012), and research during the pandemic has confirmed that lower-income individuals may be experiencing greater stress throughout the pandemic as well (Kikuchi et al., 2021; Kimhi et al., 2021; Pieh et al., 2020; Rudbenstine et al., 2020; Yue et al., 2020). Importantly, researchers have also identified age and gender differences in psychological distress throughout the pandemic, further suggesting that other facets of identity can place some individuals at higher risk for psychological distress than others (Kibbey et al., 2021; Mazza et al., 2020; Qiu et al., 2020; Solomou & Constantinidou, 2020; Wang et al., 2020).

Income Level and Coronavirus

Prior to the COVID-19 pandemic, research has consistently found that lower-income individuals are at greater risk for facing health complications, and fare worse than those with higher incomes when health complications arise. For example, Lowcock et al. (2012) found that during the H1N1 pandemic, individuals facing higher material deprivation, lower education, and higher unemployment were more likely to be hospitalized for H1N1 than those of higher socioeconomic statuses. Likewise, Lynch et al. (1997) found that individuals facing economic hardship experienced greater difficulties in physical functioning activities required for daily living (e.g., walking, dressing, housework, etc.). Similar socioeconomic health disparities have been found disseminated reported throughout the coronavirus pandemic. Given that Spain has a similar universal healthcare system to Canada, such that socioeconomic status should theoretically not be a barrier to receiving care (Avanzas et al., 2017), Spanish data were reviewed. Researchers in Spain found that income level was associated with a higher incidence rate of COVID-19 in Barcelona (Baena-Díez et al., 2020). They examined COVID-19 positivity rates and gathered mean income data for each district of Barcelona, comparing incidence rates of COVID-19 to income levels. It was found that as mean income level increased in a district, coronavirus incidence rates significantly decreased (Baena-Díez et al., 2020). Another study found that lower-income individuals tend to fare worse than higher-income individuals once they get ill with COVID-19 (Finch & Finch, 2020). Researchers examined COVID-19 incidence and mortality rates throughout the United States at the beginning of the pandemic, while also utilizing a poverty index to assess levels of deprivation in counties to compare COVID-19 incidence and mortality to deprivation levels. They found that, although counties with the greatest deprivation experienced more cases at the beginning of the pandemic, a curvilinear trend emerged such that higher-income counties ended up with higher incidence rates. However, even though incidence rates shrunk among lower-income counties, mortality rates remained high in the counties experiencing the greatest deprivation (Finch & Finch, 2020). These results suggest that even if lower-income individuals experience lower incidence rates, the effects of COVID-19 on their health could be more deleterious harmful than those with higher incomes.

Although the United States and Canada are different, data may still be compared given the two countries' geographical proximity and well-known cultural similarities. More importantly, although income inequality is higher in the United States, it is also increasing in Canada, which may bring with it many detrimental effects to society (Marchand et al., 2020).

Other researchers offer suggestions as to why lower-income individuals may fare worse with COVID-19. In a review conducted by Bambra et al. (2020), researchers suggest that lower-income individuals are significantly disadvantaged by the impacts of COVID-19 due to social determinants of health. They suggest that individuals of lower-income levels are more likely to have many of the health risk factors for COVID-19 (e.g., obesity, hypertension, asthma, etc.), work outside the home in essential services with high exposure rates, and rely on public transportation, all while having less access to healthcare (Bambra et al., 2020). These suggestions have been supported by researchers, such as Jay et al. (2020), who examined physical distancing among Americans with of varying income levels. In their study, mobility data from cellular phones were gathered in over 210 000 census blocks, allowing tracking of mobility for several months. Census blocks that fell in the higher-income quintiles contained individuals who were able to stay home significantly more than those in lower-income quintiles, thereby physically distancing significantly more. Likewise, the quintiles with the highest incomes observed more people working from home. Results also indicated that those in lower-income quintiles experienced greater declines in visiting places like carryout takeout restaurants and stores, suggesting that even though lower-income individuals may have tried to stay home more when they could (such as fewer visits to stores), they ultimately had to leave the house more for work, whereas higher-income individuals had the privilege of working from home (Jay et al., 2020). Therefore, those with lower incomes may experience greater health implications of COVID-19 than those with higher incomes due to factors such as having to work outside the home, having more health risk factors, not being able to socially distance, and less access to healthcare.

Income and Mental Health

Prior to the pandemic, research has found that individuals of lower-income levels experience greater mental health difficulties than those with higher-incomes. In a cohort study by Wood et al. (2012), researchers measured psychological distress (i.e., anxiety and depression) and overall physical functioning. They then examined demographic information, such as income level, and income relative to others in their region. It was found that income level was associated with greater distress when income was analyzed relative to others, suggesting that income acts as a proxy for social rank, such that when inequalities are large, lower-income individuals experience greater psychological distress. Authors suggest the increase in distress is due to factors of their income rank compared to others, like having fewer resources (Wood et al., 2012). Psychological distress has also been found to increase as income level decreases by Lynch al. (1997). Researchers used measures to assess demographic information and psychological functioning, including depression, and it was found that those who experienced greater economic hardship were significantly more likely to be clinically depressed and have a cynically hostile temperament (Lynch et al., 1997). Together, these findings suggest that lower-income individuals generally face greater difficulties with psychological distress due to factors such as less access to resources compared to higher-income individuals.

Researchers thus far into the pandemic have corroborated findings that those with lower incomes are facing more mental health struggles amidst COVID-19 than those with higher-incomes. Kikuchi et al. (2021) tracked the mental health of nearly 2000 individuals in Tokyo, also obtaining demographic information such as age, gender, and income level. It was found that participants in the lower-income groups experienced higher levels of severe psychological distress compared to those in the higher -income groups. Results also indicated that as the pandemic progressed, lower-income participants were more likely to develop new severe psychological distress compared to higher-income groups, suggesting that lower-income participants experienced greater mental health declines compared to higher-income participants (Kikuchi et al., 2021). Although Canada and Japan are different in many ways, these nations can be compared in this way given their similarities in their healthcare systems (Esmail, 2013). Likewise, Rudenstine et al. (2020) examined demographic and psychological variables for over 1800 university students at The City University of New York. Depressive and anxious symptoms were assessed, as well as COVID-19 stressors (such as COVID-related job loss and financial strain), and demographic information. Results demonstrated that over half of the participants met the criteria for depression, and over 40% met the criteria for anxiety. As income increased, rates of depression and anxiety decreased, and those with the highest levels of anxiety and depression experienced greater COVID-19 stressors, like decreased access to resources and financial troubles related to COVID-19 (Rudenstine et al., 2020).

Similarly, researchers in Israel found that those with lower-incomes experienced greater mental health difficulties (Kimhi et al., 2021). Given that Israel and Canada have close cultural, social, and economic links, data from Israel was explored (Government of Canada, 2022a). Researchers examined demographic and mental health variables of over 800 Israelis throughout the pandemic. Results were organized into four categories to explain participants' frequency of symptoms throughout the pandemic. Income level was found to significantly predict the frequency of symptoms, such that those in the lower income categories experienced the most symptoms. Small effects were also found regarding economic difficulties, such that those who experienced the least amount of COVID-19 related economic troubles were the most resilient to symptoms of anxiety, but not depressive symptoms (Kimhi et al., 2021). Others have confirmed that lower-income individuals are more likely to suffer greater mental health difficulties throughout the pandemic. For example, an Austrian study examined the effects of demographic variables on mental health among 1000 participants during Austria's first COVID-19 lockdown (Pieh et al., 2020, Budimir & Probst, 2020). In all measures of psychological distress, lower-income individuals were at greater risk for experiencing higher stress, anxiety, and depression (Pieh et al., 2020). Although healthcare in Austria is ranked higher than Canada in many measures (Moir & Barua, 2021), Austria has a similar universal healthcare system as to Canada, thereby justifying this comparison. A final study highlights similar findings, examining over 1300 families with children in China during the pandemic in China (Yue et al., 2020). Parents with lower-income levels were found to report more symptoms of anxiety, depression, and post-traumatic stress disorder, suggesting that the mental health of parents with children during COVID-19 is significantly worse for those in of lower income levels (Yue et al., 2020). Moreover, these findings demonstrate the detrimental effects of COVID-19 on individuals' mental health during the pandemic. Canada and China are vastly different nations, both of which have large wealth gaps. Importantly, China is witnessing a largely increasing wealth gap, thus making these two nations comparable in this respect (Jain-Chandra et al., 2018).

Sex Differences in Mental Health

Throughout the pandemic, research has shown that there are going to be differences in mental health depending on the sex of the person. One study in Cyprus sought to determine whether demographic variables could predict increased prevalence of depression and anxiety (Solomou & Constantinidou, 2020). Over 1600 adults were asked questions about on their sociodemographic data, COVID-19 knowledge, and safety measures, quality of life, and mental health. Results indicated that women were significantly more likely to have higher anxious and depressive symptoms compared to men, suggesting that having certain demographic characteristics, such as being a woman, make one more likely to suffer greater mental health consequences (Solomou & Constantinidou, 2020). Notably, Canada and Cyprus are vastly different countries with different cultures; moreover, gender differences in mental health should be examined under the presumption that results in Canada may be different. Arguably, these differences may matter less in the context of COVID-19, as the pandemic brought upon challenges in both nations. Researchers in New Jersey have confirmed findings that women are at greater risk for mental health impairments during the pandemic than men (Kibbey et al., 2021). They sought to test whether certain demographic characteristics could predict higher psychological distress in university students at the start of the pandemic. Participants were asked about their demographic data, as well as anxiety, depression, and health anxiety symptoms. Results indicated students who were women were over two times more likely to suffer from more anxiety and depression symptoms compared than to students who were men (Kibbey et al., 2021). In an Italian study, Mazza et al. (2020) examined whether factors such as gender could predict higher risk of psychological distress during the pandemic. Due to the large proportion of Canadians with Italian backgrounds, and the cultural and social similarities between the two nations, data from Italy may be especially pertinent to Canada (Government of Canada, 2022b). Over 2700 participants were asked about their sociodemographic data, depression, anxiety, and stress levels (Mazza et al., 2020). Indeed, respondents who were women reported higher levels of depression, anxiety, and stress (Mazza et al., 2020).

To explore the psychological impact of mental health on young adults in China at the start of the pandemic, Wang et al. (2020) examined demographic information, knowledge about COVID-19 (such as patient knowledge, concerns, precautionary measures, etc.), psychological impact of COVID-19, and participant mental health status. Women reported a significantly higher psychological impact of the pandemic, as well as increased levels of stress, anxiety, and depression (Wang et al., 2020). Another final study in China at the beginning of the pandemic examined demographic risk factors for psychological distress during the beginning of the pandemic in China (Qiu et al., 2020). Over 52 000 adults were asked about their demographic data, anxiety, depression, phobias, and more. Results indicated that being a woman predicted higher psychological distress (Qiu et al., 2020). Together, these findings suggest that being a woman places one at a higher propensity for increased mental health issues, especially during the pandemic.

Age Differences in Mental Health

Several studies have also found age differences in psychological distress throughout the pandemic. Solomou and Constantiniodou (2020) examined whether the age groups predicted increased distress during the pandemic among four age groups: 18-29, 30-49, 50-59, and 60+. The youngest age group (ages 18-29) experienced the highest levels of anxiety and depression, followed by the 30-49 age group. Interestingly, the two older groups (50-59 and 60+)

did not demonstrate significant differences in psychological distress, suggesting that certain demographic characteristics, such as being under age 50, predict increased risk for psychological distress during the pandemic (Solomou & Constantinidou, 2020). Likewise, Mazza et al. (2020) examined differences in stress, anxiety, and depression levels by age. Interestingly, age was only significantly associated with stress levels, such that younger participants experienced increased levels of stress compared to older participants, but was not significantly associated different with depression or anxiety levels (Mazza et al., 2020). An Italian study examining predictive factors for increased psychological distress among students during the pandemic among students asked about demographic information, psychological distress, and mindfulness (Conversano et al., 2020). It was found that older respondents had significantly lower levels of distress compared to their younger counterparts, further suggesting that younger age to be is a risk factor for increased distress during the pandemic (Conversano et al., 2020). Qiu et al. (2020) also explored age differences in psychological distress throughout the pandemic. They found that those in the younger age group (18-30) and those aged 60+ experienced the highest distress, suggesting that psychological distress may display a curvilinear trend across ages, such that distress is high when participants area younger, drops in for middle-aged participants, and is once more elevated in older participants (Qiu et al., 2020).

While the world is still combatting the COVID-19 virus, individuals continue to battle the mental health struggles associated with the pandemic. The world still faces a long battle with COVID-19. So too, individuals continue to battle mental health struggles produced associated by with the virus pandemic. Importantly, lower-income individuals have been shown to be at greater risk for facing health complications (Lowcock et al., 2012; Lynch et al., 1997), and these effects appear to persist throughout the pandemic. Those with lower-income levels have also been found to be at greater risk for contracting the virus and faring worse when ill due to factors like an increased health risk, not being able to socially distance, and lesser access to healthcare (Baena-Díez et al., 2020; Bambra et al., 2020; Finch & Finch, 2020; Jay et al., 2020). Importantly, individuals of lower-income levels have been found to have experienced greater psychological distress pre-pandemic (Wood et al., 2012; Lynch et al., 1997), and these increased stress levels in lower-income individuals appear especially pronounced throughout the pandemic (Kikuchi et al., 2021; Kimhi et al., 2021; Pieh et al., 2020; Rudenstine et al., 2020; Yue et al., 2020). Other demographic characteristics have been found to predict increases in distress throughout the pandemic, such as being female a woman (Kibbey et al., 2021; Mazza et al., 2020; Solomou & Constantinidou, 2020; Wang et al., 2020; Qiu et al., 2020) and young er age (Conversano et al., 2020; Mazza et al., 2020; Solomou & Constantinidou, 2020; Qiu et al., 2020). Although there is research on the effects of income level, health outcomes, and psychological distress both before and during the pandemic, there is a gap in the literature on how these variables impact a Canadian sample during COVID-19. In a time where more Canadians are facing increased mental health struggles (Jenkins et al., 2021) and the threat of the virus is still prominent, research is needed to fill this gap and determine how income, gender, and age have impacted Canadians' mental health during in response to the coronavirus COVID-19 pandemic.

Present Study and Hypotheses

The purpose of the present study is to assess the relationship between income level, age, and and gender, and to anxiety, negative affect, COVID worry, and COVID financial worry. This study will also consider the wave of the survey (early in the pandemic vs. late in the pandemic) to assess how these variables change over time as the pandemic progresses.

Based on those who have found that lower-income individuals are more likely to experience heightened psychological distress (Lynch et al., 1997; Wood et al., 2012), especially during the pandemic (Kikuchi et al., 2021; Kimhi et al., 2021; Pieh et al., 2020; Rudenstine et al., 2020; Yue et al., 2020), it was hypothesized (H1) that respondents of lower-income levels will experience higher negative affect, anxiety, COVID worry, and COVID financial worry.

Based on those who have found that women are more likely to experience more psychological distress at a greater level than men—especially during the pandemic (Kibbey et al., 2021; Mazza et al., 2020; Qiu et al., 2020; Solomou & Constantinidou, 2020; Wang et al., 2020), it was hypothesized (H2) that females women would report higher levels of negative affect, anxiety, COVID worry, and COVID financial worry than men.

Finally, based on those who have found that younger individuals are more likely to experience psychological distress (Conversano et al., 2020; Mazza et al., 2020; Qiu et al., 2020; Solomou & Constantinidou, 2020), it was hypothesized (H3) that younger respondents would have the highest levels of anxiety, negative affect, COVID worry, and COVID financial worry.

Methods

The present study is an archival design based on research conducted by the Centre for Addiction and Mental Health (CAMH) in collaboration with Delvinia, a global research and data collection company (2021). This study utilized data collected by The CAMH during the COVID-19 pandemic. The *CAMH COVID-19 National Survey* is a national cross-sectional study assessing Canadians' demographic information, mental health experience, and substance use throughout the pandemic. Questions were asked in a Likert scale format. Data CAMH were gathered data in eight waves, on encompassing approximately 8000 Canadians in total, assessing how responses changed over time as the pandemic progressed.

Procedures

CAMH and Delvinia utilized *Methodify*, an online survey platform, to create their survey. Participants were recruited via the interactive research platform, *Asking Canadians,* which is a website through which individuals throughout Canada can create an account and agree to be contacted to participate in several surveys per month. Those who met the demographic criteria for the survey, such as being over 18 and being an English-speaking Canadian, were contacted. Participants would then log on to the *Asking Canadians* website, through which they were redirected to the survey. Approximately thirty questions in each wave were asked per wave, ranging from demographic questions, such as age and genders, to questions on substance abuse, feelings of loneliness, and more. See Appendix A for the full survey.

Participants

The full sample contained responses from 8022 Canadians; however, 1416 were removed due to missing items (namely providing an answer other than male or female for gender or indicating *prefer not to answer* for income level). Each wave contained an approximately equal number of respondents (about 1000 per wave). In each wave, approximately 40% of respondents were between 18-39 years of age, 30% were between 40-59, and 30% were 60 or older. Each wave had an approximately even gender distribution, with about 50% identifying as men and 50% identifying as women (69 respondents were removed for providing an answer other than man or woman). Regarding annual household income, each wave varied slightly; however, approximately 12% made less than $40 000, 25% made between $40 000 and $79 000, 25% made between $80 000 and $119 000, and 25% made above $120 000. Approximately 13% per wave did not indicate an answer and thus were excluded from analysis. Participants were distributed throughout the country; each wave differed slightly, but approximately 15% resided in British Columbia, 15% in Alberta, 10% in Saskatchewan or Manitoba, 40% in Ontario, and 20% in Quebec or Atlantic Canada.

Measures

This study considered whether there are differences in negative affect, anxiety, COVID worry, and COVID financial worry by age, gender, income level, and wave. Respondents were asked to indicate their total annual household income level they and other members of their household received in 2019. Eight income groups were listed; for this study, income level was condensed into four groups: less than $40 000, $40 000 to $79 999, $80 000 to $119 000, and above $120 000. Respondents were also asked to indicate their age groups. Six age groups were listed in the survey; however, age was condensed into three categories: younger (18-39), middle-aged (40-59), and older (60+). Respondents were asked as well to indicate their gender identity from the following choices: man, woman, transgender man, transgender woman, non-binary (genderqueer, gender fluid), questioning/not sure of my gender identity, and identity not listed. However, only 69 respondents provided an answer other than man or woman, and were thus excluded from analysis. To assess wave, waves 1-4 were merged into an early waves category and waves 5-8 into a later waves category. Each individual wave was then further examined when significant differences were found in early vs. later waves.

Negative affect was assessed via three items in the survey, which was then used to create a negative affect composite score based on a respondent's answers to these three questions. CAMH asked respondents: *In the past seven days, how often have you felt depressed?*, *In the past seven days, how often have you felt lonely?*, and *In the past seven days, how often have you felt hopeful about the future?* Respondents could indicate an answer of: *rarely* or *none of the time* (less than 1 day), *some* or *a little of the time* (1-2 days), or *occasionally* or *a moderate amount of the time* (3-4 days), and *most* or *all of the time* (5-7 days).

Anxiety was assessed via seven questions in the survey, which was then used to create an anxiety composite score. CAMH asked respondents: *Over the past two weeks, how often have you been bothered by the following problem?* The problems were: (9) *feelings nervous*, *anxious*, *or on edge*, (10) *not being able to stop or control worrying*, (11) *worrying too much about different things*, (12) *trouble relaxing*, (13) *being so restless that it's hard to sit still*, (14) *being easily annoyed or irritable*, and (15) *feeling* *afraid as if something awful might happen*. Respondents could indicate an answer of: *not at all*, *several days*, *over half the days*, or *nearly every day*.

COVID worry was measured via a respondent's answer to the question: *How worried are you that you or someone close to you (close friend or relative) will get ill from COVID-19?* to which respondents could indicate an answer of: *very worried*, *somewhat worried*, *not very worried*, or *not at all worried*.

Finally, COVID financial worry was measured via a participant's response to the question *How worried are you about the impact of the COVID-19 pandemic on your personal financial situation?*, to which respondents could answer: *very worried*, somewhat *worried*, *not very worried*, or *not at all worried*.

Statistics

Using SPSS (Version 26), all analyses employed a significance level of $p < .05$. Due to mild deviation from normality in several dependent variables (anxiety and negative affect), nonparametric analyses (using ranked scores, free of derivational assumptions) were conducted alongside the parametric statistics to confirm any significant results. Using negative affect, anxiety, COVID worry, and COVID financial worry as dependent variables, and age (younger, middle, older), gender (male, female), income level (less than 40k, 40-79k, 80-119k, 120k+), and wave (earlier vs. later waves) as independent variables, a multivariate analysis of variance (MANOVA) was conducted. Table 1 outlines the descriptive statistics for all independent variables, as well as correlations among them, thus justifying the use of multivariate analysis of variance. Wilks' lambda (Λ) was reported as an estimate of *unexplained* multivariate variance, whereas its complement ($1-\Lambda$) represents *explained* multivariate variance. For follow-up, univariate analyses of variance (ANOVA) explained variance was estimated using η^2. Post hoc Student-Newkam-Keuls (S-N-K) tests indicated within which level of the variable the differences existed.

Results

Overall, results indicated four significant main effects, as well as an age x wave interaction and an age x income interaction ($p < .05$).

Main Effects

After inputting age, gender, wave, and income level as independent variables and negative affect, anxiety, COVID worry, and COVID financial worry as dependent variables, a significant multivariate effect was observed for wave, ($\Lambda = 0.93$, $F(4, 6603) = 11.55$, $p < .001$). The ANOVAs revealed significant differences in COVID financial worry by wave, ($F(1, 6606) = 37.56$, $p < .001$, $\eta^2 < 0.01$). Waves were split into two groups (the first four waves vs. the last, more recent four waves), and it was found that respondents in the early waves had significantly higher COVID financial worry scores ($M = 2.74$) compared to respondents in the later waves ($M = 2.58$). Upon further examination of each individual wave, post hoc Student-Newman-Keuls tests confirmed significant differences in COVID financial worry by wave. When considering all eight individual waves, it was found that respondents in wave 1 had the highest COVID financial worry scores ($M = 2.83$), compared to respondents in waves 2, 3, 4, 5, and 6 ($M = 2.72, 2.69, 2.72, 2.67, 2.72$), who were higher than respondents in wave 7 ($M = 2.52$). Respondents in wave 8 had the lowest COVID financial worry scores ($M = 2.42$). These results were confirmed using nonparametric (ranked) statistics.

To test whether respondents of different income levels would have different levels of negative affect, anxiety, COVID worry, and COVID financial worry, a MANOVA was conducted, and also pulled outfound significant multivariate effects for income level, ($\Lambda = 0.95$, $F(12, 17470) = 29.79$, $p < .001$). The 1,322 respondents who indicated *prefer not to answer* were withdrawn from the present analysis. Univariate ANOVAs revealed significant differences in negative affect scores for those in the fourth income step (\$120k+) ($M = 5.64$) compared to those in the third income step (\$80-119k; $M = 6.04$) who had significantly lower negative affect scores than respondents in the second income step (\$40-79k, $M = 6.30$). Respondents in the first income step (less than \$40k) were significantly different from other groups, with the highest negative affect scores ($M = 6.74$). Significant differences were also found in anxiety scores by income level, ($F(3, 6606) = 24.20$, $p < .001$, $\eta^2 = 0.01$). Respondents in the fourth income step (\$120k+) experienced the lowest anxiety scores ($M = 12.12$). Respondents in the third income step (\$80-119k) experienced lower anxiety scores ($M = 12.57$) compared to those in the second step (\$40-79k; $M = 13.05$) who were lower than the first step (less than \$40k), who observed reported the highest anxiety scores ($M = 13.73$). Significant differences were also found in COVID worry by income level as well, ($F(3, 6606) = 4.84$, $p = .002$, $\eta^2 < 0.01$). Respondents in the fourth income step (\$120k+) had the lowest COVID worry scores ($M = 2.84$), but were not significantly different from those in the third income step (\$80-119k; $M = 2.89$). Respondents in the second income level (\$40-79k) had higher COVID worry scores ($M = 2.94$) than the fourth income level, but were not significantly different from the third income level (the third income level fit into two subsets). Respondents in the lowest income level (less than 40k) had the highest COVID worry scores (M = 2.97), and were significantly different from the third and fourth income levels, but not the second (the second income level also fit into two subsets). Finally, significant differences were also found in COVID financial worry depending on income level, (F(3, 6606) = 73.59, p < .001, η^2 = 0.03). Respondents in the fourth income step (above $120k) had the lowest COVID financial worry scores (M = 2.44) compared to the third income step ($80-119k; M = 2.62), who were lower than the second income step ($40-79k; M = 2.74). Respondents in the first income step (less than $40k) had the highest levels of COVID financial worry (M = 2.91). These results were confirmed using nonparametric statistics based on ranked scores.

Multivariate effects were also observed for gender, (Λ = 0.99, F(4, 6603) = 22.99, p < .001). The 69 respondents who provided an answer other than male or female were withdrawn from the present analysis. Significant differences were observed in negative affect scores by gender, (F(1, 6606) = p < .001, η^2 < 0.01). Females had significantly higher negative affect scores (M = 6.23) compared to males (M = 5.88). Significant sex differences were also observed in anxiety levels, (F(1, 6606) = 60.81, p < .001, η^2 = 0.01); wherein women had significantly higher anxiety scores (M = 13.20) compared to men (M = 12.03). Finally, significant sex differences were also observed in COVID worry levels, (F(1, 6606) = 45.75, p < .001. η^2 = 0.01). These results were confirmed using nonparametric (ranked) statistics.

Multivariate effects were also observed for age, (Λ = 0.92, F(8, 13206) = 67.98, p < .001). Significant differences in negative affect scores were observed for age, (F(2, 6606) = 158.35, p < .001, η^2 = 0.05). Older respondents had the lowest negative affect scores (M = 5.41) compared to those in the middle-aged group (M = 6.20), who had significantly lower negative affect scores than the younger age group (M = 6.47). Anxiety levels also significantly differed by age (F(2, 6606) = 201.54, p < .001, η^2 = 0.03). Older respondents had the lowest COVID financial worry scores (M = 2.47) compared to middle-aged and younger respondents (M = 2.76 and 2.73, respectively), who were not significantly different from one another. These results were confirmed using nonparametric (ranked) statistics.

Interactions

Several multivariate interaction effects were observed. A multivariate interaction effect was observed by age, (Λ = 0.997, F(8, 13206) = 2.33, p = .017). ANOVAs indicated significant differences in COVID worry by age and wave, (F(2, 6606) = 5.83, p = .003, η^2 < 0.01). In the earlier waves, age groups did not significantly differ in COVID worry scores. However, in the later waves, younger respondents had the highest COVID worry scores (M = 2.96), followed by middle-aged (M = 2.92) and older respondents (M = 2.86). A simple effects test revealed that in later waves, only younger respondents had significantly different COVID worry scores compared to older respondents (p < .001). Figure 1 shows mean COVID worry scores by age and wave. Upon further examination of each individual wave (Figure 2), younger, middle-aged, and older respondents followed a similar trend of COVID worry over time. Results were confirmed using nonparametric (ranked) statistics; however, in the later waves only, younger respondents were significantly different than older respondents, and older respondents were significantly different than middle-aged respondents. Younger and middle-aged respondents were not significantly different from one another.

A multivariate interaction effect was also found for income and age, Λ = 0.99, F(24, 2306) = 1.83, p = .008. Significant differences were found in negative affect scores by income and age, (F(6, 6606) = 2.37, p = .027, η^2 < 0.01). ANOVAs revealed a similar trend across ages, such that as income bracket increased, negative affect scores decreased. Simple effects tests indicated that older respondents in the first three income brackets (less than $40k, $40-79k, and $80-119k) had lower mean negative affect scores compared to middle-aged and younger respondents, who were not significantly different from one another. In the fourth income bracket (above $120k), older respondents once more had significantly lower negative affect scores than younger and middle-aged respondents. Additionally, middle-aged respondents had significantly lower negative affect scores than younger respondents in the highest income bracket (above $120k only). Figure 3 shows mean negative affect scores by age and income. Due to the mild skew (0.63) of negative affect, nonparametric tests were conducted to confirm these results. However, using ranked scores it was determined that these results were no longer significant when using ranked scores (p = .106).

Significant differences were also found in anxiety levels by age and income, (F(3, 6606) = 2.48, p = .021, η^2 < 0.01). An indicated a trend across each age group such that as income bracket increased, anxiety decreased (Figure 4). In the lowest income bracket (less than $40k), older respondents had significantly lower anxiety scores compared to middle -aged and younger respondents, who were not significantly different from one another. In the remaining income brackets ($40-79k, $80-119k, and above $120k), older respondents had the lowest anxiety scores, followed by middle-aged respondents, who were significantly lower than younger respondents, who reported the highest anxiety scores. Due to the mild skew (1.04) of anxiety, nonparametric tests were conducted to confirm these results. However, ranked parametric statistics revealed only marginally insignificant differences (p = .053).

Significant differences in COVID worry also emerged by income and age, ($F(6, 6606) = 2.61$, $p = .016$, $\eta^2 < 0.01$). A trend emerged such that younger and middle-aged respondents saw decreases in COVID worry as income increased, whereas older respondents saw relatively stable COVID worry regardless of income bracket (Figure 5). In the lowest income bracket (less than $40k), older respondents had significantly lower COVID worry scores compared to middle-aged and younger respondents, who were not significantly different from one another. In the second income bracket ($40-79k), older respondents had significantly lower COVID worry compared to middle-aged respondents, but were not significantly different from younger respondents. Middle-aged and younger respondents were not significantly different from one another. The third- and fourth-income brackets saw that age groups were not significantly different from one another in terms of COVID worry. These results were confirmed using nonparametric statistics based on ranked scores.

A final significant difference was found in COVID financial worry scores by age and income level, ($F(6, 6606) = 3.73$, $p = .001$, $\eta^2 < 0.01$). A trend emerged across income brackets such that as income increased, COVID financial worry decreased (Figure 6). Simple effects tests revealed that throughout each income bracket, older respondents demonstrated the lowest levels of COVID financial worry. In the second income bracket only, middle-aged respondents had significantly higher COVID financial worry compared to younger respondents; however, in the first, third, and fourth income brackets, middle-aged and younger respondents were not significantly different from one another. Results were confirmed using nonparametric statistics based on ranked scores.

Discussion

The present study conducted a multivariate analysis of variance test to examine whether there were differences in anxiety, negative affect, COVID worry, and COVID financial worry varied by demographic factors such as age, gender, and income level. Trends were also assessed in these variables over time as the pandemic progressed. Regarding the hypotheses that individuals of different ages, genders, and income levels would demonstrate differing levels of anxiety, negative affect, COVID worry, and COVID financial worry, findings were mixed.

Income Differences

The first hypothesis–that lower-income individuals would have higher levels of negative affect, anxiety, COVID worry, and COVID financial worry–was supported. Canadians who participated in the survey had higher negative affect scores throughout the pandemic if they were in a lower income level compared to those in higher income levels. As income bracket increased, significant decreases were found in negative affect scores. It was also observed that those who participated in the survey experienced higher anxiety levels if they were in a lower income bracket compared to those in higher income brackets, such that as income level increased, anxiety decreased. It was also found that those who participated in this survey experienced higher COVID worry and COVID financial worry if they were in a lower income bracket compared to those in higher income brackets. Indeed, as income level increased, both COVID worry and COVID financial worry decreased.

The respondents in lower income levels had higher negative affect, anxiety, COVID worry, and COVID financial worry, which supports existing literature that lower-income individuals face greater psychological distress (Lynch et al., 1997; Wood et al., 2012), especially during the pandemic (Kikuchi et al., 2021; Kimhi et al., 2021; Pieh et al., 2020; Rudenstine et al., 2020; Yue et al., 2020). These findings contribute to research on socioeconomic disparities in mental health, further highlighting that the pandemic is no exception. Differences in anxiety and negative affect by income levels may indicate that those of lower incomes face unique struggles contributing to the distress that those with higher income levels do not have to face (Kikuchi et al., 2021; Kimhi et al., 2021; Pieh et al., 2020; Rudenstine et al., 2020; Yue et al., 2020). Lower-income individuals may be more likely to work in settings where job security is not stable, such that they may be more likely to face pandemic related layoffs than those with higher incomes, such as factories or service industries (i.e., hair salons). Lower -income individuals may also be working in essential services, such as grocery stores or restaurants, that are increasingly busy due to the pandemic, and facing effects of current staffing crises in many industries (Rao et al., 2021). These groups may also face other stressors that those with high incomes do not have to face, such as food insecurity, loss of essential income if they contract COVID, and more (Kikuchi et al., 2021; Kimhi et al., 2021; Pieh et al., 2020; Rudenstine et al., 2020; Yue et al., 2020). Working conditions may play a role in higher COVID worry and COVID financial worry as well. Lower-income individuals may work more in on-site congregate settings, such as service industries and factories, compared to higher-income individuals who often had the privilege of working from home (Rao et al., 2021). This higher exposure may contribute to these groups feeling more afraid of getting ill. Lower-income individuals may also have less in savings (Mian et al., 2021); coupled with the increased risk of pandemic-related layoffs (Parker et al., 2020) and dips in the economy throughout the pandemic, this might also contribute to greater financial distress. Although higher-income groups face the risk of pandemic-related layoffs as well, they have more money in the bank as a protective cushion and do not have to live paycheck-to-paycheck like many lower-income individuals (Mian et al., 2021). Together, these scenarios may contribute to lower-income groups feeling more distress throughout the pandemic, which manifest as negative affect, anxiety, COVID worry, and COVID financial worry.

Sex Differences

The second hypothesis–that women would demonstrate higher negative affect, anxiety, COVID worry, and COVID financial worry–was partially supported. Indeed, women reported higher negative affect and anxiety. These findings support the literature on psychological health and sex, which asserts that women are more likely to experience more psychological distress than men, especially during the pandemic (Kibbey et al., 2021; Mazza et al., 2020; Qiu et al., 2020; Solomou & Constantinidou, 2020; Wang et al., 2020). The finding that men and women did not differ significantly in terms of COVID financial worry was contrary to our hypothesis. Although it was expected that women would experience greater COVID financial worry given this is a source of psychological distress, it could be that men and women are equally providing for themselves and their families financially. In Canada, men and women represent an approximately equal percentage of the workforce, so they may be equally worried about the future or their financial stability (The World Bank, n.d.).

Age Differences

The hypothesis that younger respondents would experience higher negative affect, anxiety, COVID worry, and COVID financial worry was partially supported. That younger respondents had the highest negative affect and anxiety compared to middle-aged and subsequently older respondents (who had the lowest scores) supports the existing literature on age differences in mental health (Conversano et al., 2020; Mazza et al., 2020; Qiu et al., 2020; & Solomou & Constantinidou, 2020). That older respondents had lower COVID financial worry compared to younger and middle-aged respondents also partially supports these findings. Although the literature states that younger individuals should have the highest distress, it makes sense that middle-aged respondents would have similar distress levels in this domain. Older adults are most often retired and do not have to worry about layoffs from work; however, younger and middle-aged individuals are most likely working and must worry about losing income (Statistics Canada, 2023). That there were no differences in COVID worry did not support our hypothesis. Different ages may experience similar COVID worry for different reasons; younger adults may be most worried about exposure through friends and work, middle-aged adults may be worried about their children and elderly parents getting ill, and older adults may be worried about pre-existing health conditions placing them at greater risk. Future research should further explore these avenues.

Although not hypothesized, interactions were observed between income and age. In the lowest three income levels, older adults had the lowest negative affect scores, and middle-aged and younger adults were not different from each other. However, the highest income bracket saw all three age groups differ in negative affect, such that older adults had the lowest scores followed by middle-aged and younger respondents. The lowest income level saw older adults have lower anxiety scores than middle-aged and younger adults, who were not significantly different. The subsequent three income levels saw younger adults have the highest anxiety scores, followed by middle-aged and then older adults. These findings support the literature that older adults experience fewer mental health effects of the pandemic, whereas younger adults experience the greatest detriment (Conversano et al., 2020; Mazza et al., 2020; Qiu et al., 2020; Solomou & Constantinidou, 2020). These findings also support existing literature on income differences, which states that those higher income levels face lower psychological distress compared to those in lower income levels, especially during the pandemic (Lynch et al., 1997; Kikuchi et al., 2021; Kimhi et al., 2021; Pieh et al., 2020; Rudenstine et al., 2020; Wood et al., 2012; Yue et al., 2020). This interaction also highlights differences in COVID worry and COVID financial worry by age and income. As income level increased, COVID worry decreased for younger and middle-aged adults; however, income and age only mattered in the lowest two income levels, such that middle-aged and younger adults were not different from one another but had higher COVID worry than older adults. Importantly, the two highest income levels did not see differences by age in terms of COVID worry. This supports our hypothesis such that the lower income brackets had higher COVID worry, but the higher income brackets did not significantly differ. Finally, all age groups saw decreases in COVID financial worry as income increased, such that older respondents had the lowest COVID financial worry, regardless of income level.

Younger and middle-aged adults were not different from one another, except in the second income bracket. These findings support our hypotheses, suggesting that distress regarding finances during COVID is greatest for younger and middle-aged adults of lower income levels.

Wave Differences

Differences in negative affect, anxiety, COVID worry, and COVID financial worry by wave of survey were further explored to examine how responses changed with time throughout the pandemic. Only COVID financial worry changed significantly by waves, such that early waves saw higher COVID financial worry than later waves, predicting that Canadians became less worried about their money and more acclimated to new spending habits. It may be predicted that people have become habituated to new budgets (such as paying less for gas due to working from home or having hours reduced and making less money), finding new work after pandemic-related layoffs, or returning to pre-pandemic schedules after pandemic-related layoffs. Negative affect, anxiety, and COVID worry did not significantly change as time progressed, suggesting that there are factors about the pandemic that negatively contributed to mental health that are not directly related to financial situation. However, it should be noted that although distress in these domains is not improving with time, distress is also not getting significantly worse either.

Interactions were also observed between age and wave. That younger respondents had higher COVID worry scores than middle-aged and older respondents in later waves only supports the literature that younger adults experience poorer mental health effects throughout the pandemic (Conversano et al., 2020; Mazza et al., 2020; Qiu et al., 2020; Solomou & Constantinidou, 2020). Perhaps in early waves, individuals faced mass confusion surrounding the pandemic as information was constantly changing; everyone was still trying to figure COVID-19 out; however, in the later waves, younger adults became more worried as they continued to work, go to school, and possibly be more exposed, whereas middle-aged and older adults may have gotten used to working from home or being retired and being able to stay home, thereby having lower exposure and less worry about getting ill (Pew Research Center, 2022).

Strengths and Limitations

There are various strengths of this study worth mentioning. This study fills a gap in the literature examining how mental health differs across different ages, genders, and income levels are experiencing mental health throughout the pandemic in Canada. Few studies have examined these independent variables together, especially during the pandemic. As well, there is a dearth of research on socioeconomic mental health disparities in Canada, and the present study highlights these disparities while also utilizing a large and diverse sample size. Moreover, a unique study design was used consisting of both parametric and nonparametric statistics to examine a large database.

There are also various limitations worth mentioning. This study was not causal, and therefore no causal conclusions can be drawn from this research. The sensitive nature of topics covered in the survey may have led people to inaccurately report their levels of distress. For example, one may have not wanted to admit how anxious or worried they were about their finances they felt due to the stigma that often comes associated with mental illness. The present study did not differentiate between clinical and nonclinical populations, and it can be presumed that most respondents were from a nonclinical population; however, it is possible that some respondents met diagnostic criteria (e.g., for an anxious or depressive disorder), and this could have skewed results. Additionally, The CAMH collected data on various gender identities, yet very few indicated an identity other than man/woman. As such, these identities were excluded from analysis. Moreover, this study does not consider how individuals who identify with gender identities other than man/woman experienced changes in mental health throughout the pandemic. Additionally, although a unique method of utilizing parametric and nonparametric statistics was utilized, no corrections were made for familywise errors in the parametric analyses. Finally, reasons for feelings of anxiety, negative affect, COVID worry, or COVID financial worry were not assessed. As was examined, sometimes different ages, for example, had equal COVID worry, and it is likely that the age groups were worried for different reasons, such as higher exposure in younger adults and pre-existing health conditions in older adults. Future research should examine the causes of differences between groups.

Directions for Future Research

Future research should examine a more diverse population to analyze how those of different ages, sexes, and incomes respond. It would be especially useful to examine differences in regions where socioeconomic health and mental health disparities are more pronounced, such as the United States. It could be hypothesized that there would be greater differences in these four domains of psychological distress in a nation where healthcare expenses are left to the individual and many lower-income individuals do not have insurance. Future research should also examine why differences occur between groups and what these differences are, such as why younger and older respondents differ in COVID worry, for example. Finally, it would be beneficial to determine whether differences observed between groups in this study are replicable in clinical vs. nonclinical populations. It could be that in nonclinical populations, levels of anxiety and negative affect may be different; however, when examining clinical populations, those struggling with depression and anxiety may have similar degrees of severity regardless of age, gender, and income level.

Conclusion

Findings in this study largely support the existing literature that suggests that certain groups (like lower income individuals, younger individuals, and women) may be more likely to experience heightened psychological distress, especially during the pandemic. It was found that lower income individuals experienced greater psychological distress in terms of negative affect, anxiety, COVID worry, and COVID financial worry, providing important insights into socioeconomic disparities in mental health. It was also found that women may experience greater distress in Canada during the pandemic in terms of negative affect, anxiety, and COVID worry, suggesting that women cope differently with the stressors of a global pandemic than men, and thus may need more mental health help during these trying times. Younger adults also experienced greater distress in terms of negative affect, anxiety, and COVID financial worry. These individuals may be more susceptible to distress due to varying circumstances, such as greater exposure, or possibly less developed coping skills, than older adults. Mental health initiatives should focus on ensuring these groups are receiving adequate care, and direction should be taken to help them as it appears these domains are not improving as the pandemic progresses (except for COVID financial worry).

Moreover, this study contributes to research on socioeconomic mental health disparities and differences in psychological distress throughout the pandemic by gender and age. Individuals and communities are still facing unique challenges due to the pandemic, and psychological distress is undoubtedly still heightened for many. Due to the isolating nature of the COVID-19 pandemic, which had a negative impact of individuals' wellbeing, it is most pertinent to engage in greater social support and find ways to further promote wellbeing in these groups. As was demonstrated in this study, certain demographic features may contribute to worsening mental health; further, individuals and government initiatives should focus efforts onto improving the mental health experience of these individuals.

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Appendix A

Survey Questionnaire

CAMH/Delvinia

Examining the Impact of COVID-19 on Mental Health and Substance Use among Canadians
Invitations to participate in the survey were sent to participants 18 years and older, currently living in Canada, from the AskingCanadians panel. Participants were invited based on quota sampling by age, gender, and region (proportional to the English-speaking Canadian population 18+). The survey includes questions on sociodemographic characteristics, COVID-19 related information and experience, mental health, and substance use.

NOTE: THE SKIP PATTERN AT Q18 AND Q20 CHANGES FROM WAVE 2 ONWARDS

1. In which province or territory do you currently live?
    - Alberta
    - British Columbia
    - Manitoba
    - New Brunswick
    - Newfoundland and Labrador
    - Northwest Territories
    - Nova Scotia
    - Nunavut
    - Ontario
    - Prince Edward Island
    - Quebec
    - Saskatchewan
    - Yukon
    - I currently live outside of Canada

{*NOTE: Some web panel members might have moved outside of Canada. Respondents who indicate that they currently live outside of Canada will be excluded/exited from the survey.*}

2. To which of the following age groups do you belong?
    - 18 to 29 years
    - 30 to 39 years
    - 40 to 49 years
    - 50 to 59 years
    - 60 to 69 years
    - 70 years and over
3. How do you describe your gender identity?
    - Man
    - Woman
    - Transgender man
    - Transgender woman
    - Two-spirit
    - Non-binary (genderqueer, gender fluid)
    - Questioning/Not sure of my gender identity
    - Identity not listed
    - Prefer not to answer

The next few questions are related to the COVID-19 pandemic.

4. Have you, or those close to you (e.g., close relative/friend), tested positive for COVID-19 or are at high risk of COVID-19 (check all that apply)
    - I, or someone close to me, has tested positive for COVID-19
    - I, or someone close to me, has had symptoms of COVID-19 but has not been tested
    - I, or someone close to me, has been tested for COVID-19 but it was negative (i.e., they did not have COVID-19)
    - I, or someone close to me, is elderly and/or has a health condition that increases the risk of serious illness from COVID-19
    - I have a job that exposes me to high risk of getting COVID-19

Someone close to me has a job that exposes them to a high risk of getting COVID-19
None of the above

5. How worried are you about the impact of COVID-19 on your personal financial situation?
   Very worried
   Somewhat worried
   Not very worried
   Not at all worried
6. How have physical distancing measures due to the COVID-19 pandemic affected your employment situation? (check one only)
   I have continued working, but now I am working from home instead of my usual location
   I am not currently working, or I have been laid off/let go, due to the pandemic (***Skip to Question 8)***
   I was working from home due to the pandemic, but now I am back working at my usual location outside the home
   I was previously not working/ laid off/let go due to the pandemic, but now I am back at work with the same or a new employer
   No change – I have continued working outside my home, as I always did
   No change – I have continued working from home, as I always did
   No change – I was not employed prior to the pandemic (e.g., retired, student, paid leave, recently graduated) and I have remained unemployed (***Skip to Question 8***)
   Other
7. On average, how has the number of hours you are working for pay been affected by the COVID-19 pandemic?
   Increased a lot
   Increased somewhat
   No change
   Decreased somewhat
   Decreased a lot
8. How worried are you that you or someone close to you (close relative or friend) will get ill from COVID-19?
   Very worried
   Somewhat worried
   Not very worried
   Not at all worried

The next few questions are about how you have been feeling lately.

Over the PAST 2 WEEKS, how often have you been bothered by the following problem?

9. Feeling nervous, anxious or on edge
   Not at all
   Several days
   Over half the days
   Nearly every day
10. Not being able to stop or control worrying
   Not at all
   Several days
   Over half the days
   Nearly every day
11. Worrying too much about different things
   Not at all
   Several days
   Over half the days
   Nearly every day
12. Trouble relaxing
   Not at all
   Several days
   Over half the days
   Nearly every day
13. Being so restless that it's hard to sit still
   Not at all

Over half the days
Nearly every day

14. Becoming easily annoyed or irritable
    Not at all
    Several days
    Over half the days
    Nearly every day
15. Feeling afraid as if something awful might happen
    Not at all
    Several days
    Over half the days
    Nearly every day

The next few questions are about alcohol and cannabis.

16. During the PAST 7 DAYS, on how many days did you drink ALCOHOL?
    __Number of days
    I do not drink alcohol
    Prefer not to answer

WAVE 1 ONLY {Note: If response is 0 days or "I do not drink alcohol', other alcohol questions (Q17-18) ARE SKIPPED}

WAVE 2 ONWARDS: ONLY SKIP Q17

17. On how many of the PAST 7 DAYS did you drink [4 (if woman) or 5 (if man) or 5 (if other gender)] or more drinks on one occasion? A drink means a 341 ml or 12 oz. bottle of beer or cider/cooler (5% alcohol content), a 142 ml or 5 oz. glass of wine (12% alcohol content), or a straight or mixed drink with 43 ml or 1.5 oz. of liquor (40% alcohol content – e.g., rye, gin, rum).
    __Number of days
    Prefer not to answer

WAVE 2 ONWARDS: ASK ALL Q18

18. In the PAST 7 DAYS, did you drink more ALCOHOL, about the same, or less alcohol overall than you did before the COVID-18 pandemic started?
    Drink more alcohol
    Drink slightly more alcohol
    No change
    Drink slightly less alcohol
    Drink much less alcohol
    Prefer not to answer
19. During the PAST 7 DAYS, on how many days did you use CANNABIS (also known as marijuana, hash, "pot")?
    __Number of days
    I do not use cannabis
    Prefer not to answer

WAVE 1 ONLY {Note: If response is 0 days or "I do not use cannabis", the next cannabis question (Q20) is SKIPPED}

WAVE 2 ONWARDS ASK ALL Q20

20. In the PAST 7 DAYS, did you use CANNABIS more often, about the same, or less often overall than you did before the COVID-19 pandemic started?
    Much more
    Slightly more
    No change
    Much less
    Slightly less
    Prefer not to answer

Now, we would like to ask you some questions about how you have been feeling over the past 7 days.

21. In the PAST 7 DAYS, how often have you felt depressed?
    Rarely or none of the time (less than 1 day)
    Some or a little of the time (1-2 days)
    Occasionally or a moderate amount of the time (3-4 days)
    Most or all of the time (5-7 days)

22. In the PAST 7 DAYS, how often have you felt lonely?
    Rarely or none of the time (less than 1 day)
    Some or a little of the time (1-2 days)
    Occasionally or a moderate amount of the time (3-4 days)
    Most or all of the time (5-7 days)
23. In the PAST 7 DAYS, how often have you felt hopeful about the future?
    Rarely or none of the time (less than 1 day)
    Some or a little of the time (1-2 days)
    Occasionally or a moderate amount of the time (3-4 days)
    Most or all of the time (5-7 days)

The next few questions are about yourself and your household.

24. Including yourself, how many people are currently living in your household?
    __Enter number
    Prefer not to answer
25. How many children in each of the following categories live in your household?
    Under 6 years old: __ Enter number
    6-12 years old: __ Enter number
    13-17 years old: __ Enter number
26. What is the highest level of education you have completed?
    Did not graduate from high school
    Completed high school
    Some post-high school education (college, technical, university, etc.)
    College diploma / degree
    University diploma / degree
    Prefer not to answer
27. What is your current marital status?
    Married
    Living with a partner
    Widowed
    Divorced
    Separated
    Never married
    Prefer not to answer
28. Which of the following best describes your racial or ethnic group? (Check one only)
    Asian – East (e.g., Chinese, Japanese, Korean)
    Asian – South (e.g., Indian, Pakistani, Sri Lankan)
    Asian – South East (e.g., Malaysian, Filipino, Vietnamese)
    Black (Africa, Caribbean, North American)
    Indigenous (First Nations, Inuit, Métis)
    Latin American (e.g., Argentinean, Chilean, Salvadoran)
    Middle Eastern (e.g., Egyptian, Iranian, Lebanese)
    White (European, North American)
    Mixed heritage (e.g. Black – North American & White – North American)
    Other
    Not sure
    Prefer not to answer
29. What is the total household income you and other members of your household received in the year ending December 31st, 2019 before taxes? Please include FROM ALL SOURCES such as savings, pensions, rent, and unemployment insurance as well as wages.
    Less than $20,000
    $20,000 - $39,999
    $40,000 - $59,999
    $60,000 - $79,999
    $80,000 - $99,999
    $100,000 - $119,999
    $120,000 - $139,999
    $140,000 or more

Prefer not to answer

30. Do you consider yourself to be living in a…

Urban area

Suburban area

Rural area

Thank you for your time.

Appendix B

Table 1

Dependent Variable Correlations

	Negative Affect	Anxiety	COVID Worry	COVID Finances
Negative Affect	1	0.67	0.23	0.35
Anxiety	0.67	1	0.35	0.41
COVID Worry	0.23	0.35	1	0.43
COVID Finances	0.35	0.41	0.43	1
Mean	6.06	12.63	2.91	2.66
SD	2.15	5.61	0.8	0.91
Skew	0.63	1.04	0.43	0.23
Kurtosis	-0.09	0.33	-0.2	-0.74

Note. Correlations between all dependent variables entered.

Table 2

Significant Multivariate Tests

	Lambda	F	Hypothesis df	Error df	(*p*)
Wave	0.99	11.55	4	6603	< .001
Income	0.95	29.79	12	17470	< .001
Sex	0.99	22.99	4	6603	< .001
Age	0.92	67.98	8	13206	< .001
Wave x Age	0.99	2.33	8	13206	.017
Income x Age	0.99	1.83	24	23036	.008

Note. Results of MANOVA.

Table 3

Significant ANOVAs by Wave, Income, Gender, and Age

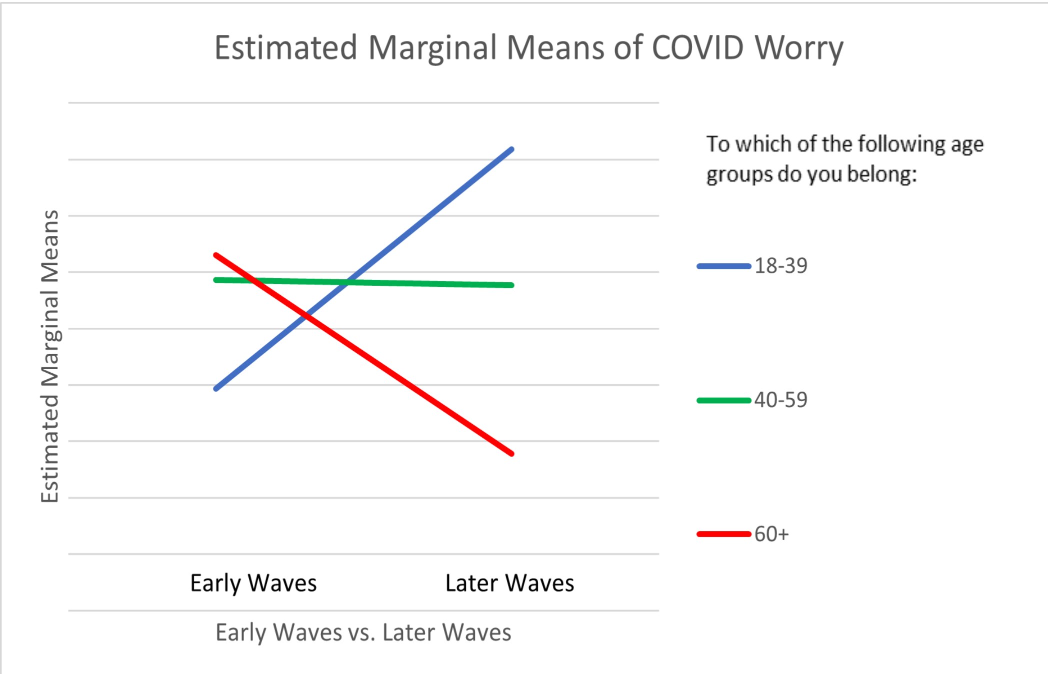
Independent Variable	Dependent Variable	F	(*p*)	Partial eta squared
Wave	COVID Finances	37.56	< .001	0.006
Income	Negative Affect	72.63	< .001	0.032
	Anxiety	24.2	< .001	0.011
	COVID Worry	4.84	.002	0.002
	COVID Finances	73.59	< .001	0.032
Gender	Negative Affect	32.63	< .001	0.005
	Anxiety	60.81	< .001	0.009
Age	Negative Affect	158.35	< .001	0.046
	Anxiety	201.54	< .001	0.058
	COVID Worry	4.28	.014	0.001
	COVID Finances	98.71	< .001	0.029
Wave x Age	COVID Worry	5.83	.003	0.002
Income x Age	Negative Affect	2.37	.027	0.002
	Anxiety	2.48	.021	0.002
	COVID Worry	2.61	.016	0.002
	COVID Finances	3.73	.001	0.003

Note. Significant ANOVAs following the MANOVA.

Appendix B

Figure 1

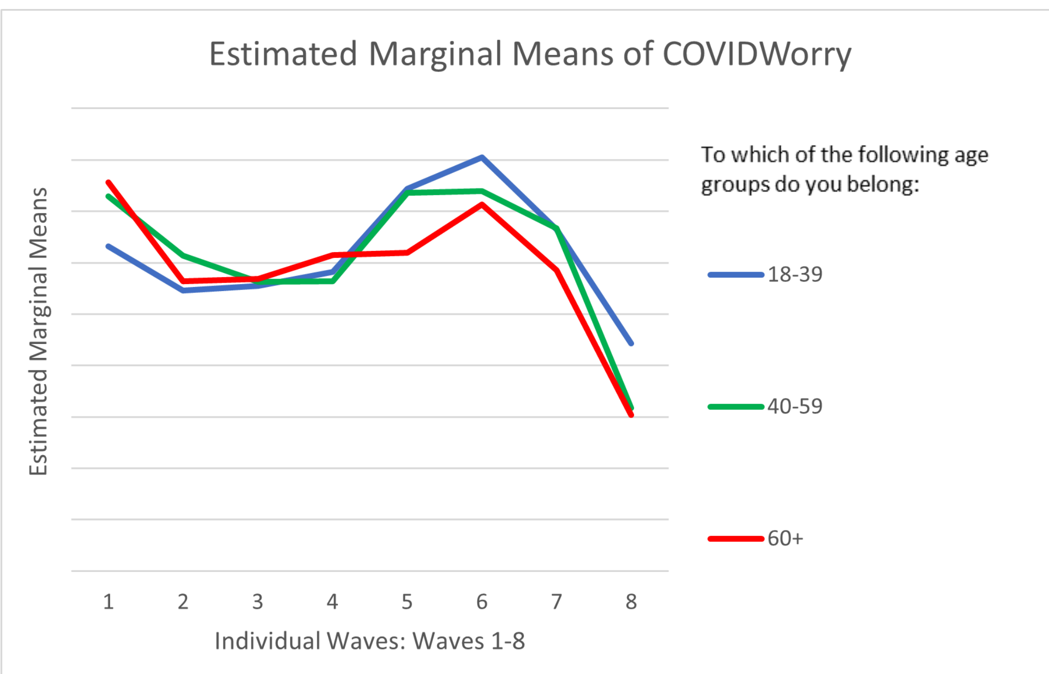
Age x Wave Interaction: COVID Worry–Early Waves vs. Later Waves



Note. Interaction between age group and early vs. later waves in COVID worry differences.

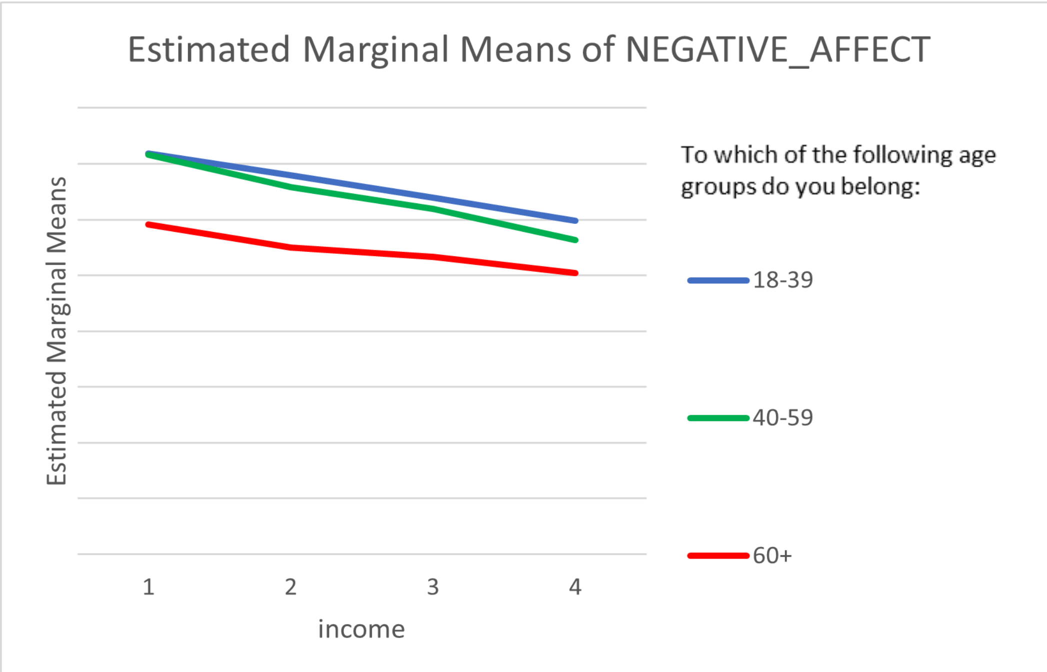
Figure 2

Age x Wave Interaction: COVID Worry–Each Individual Wave (Waves 1-8)



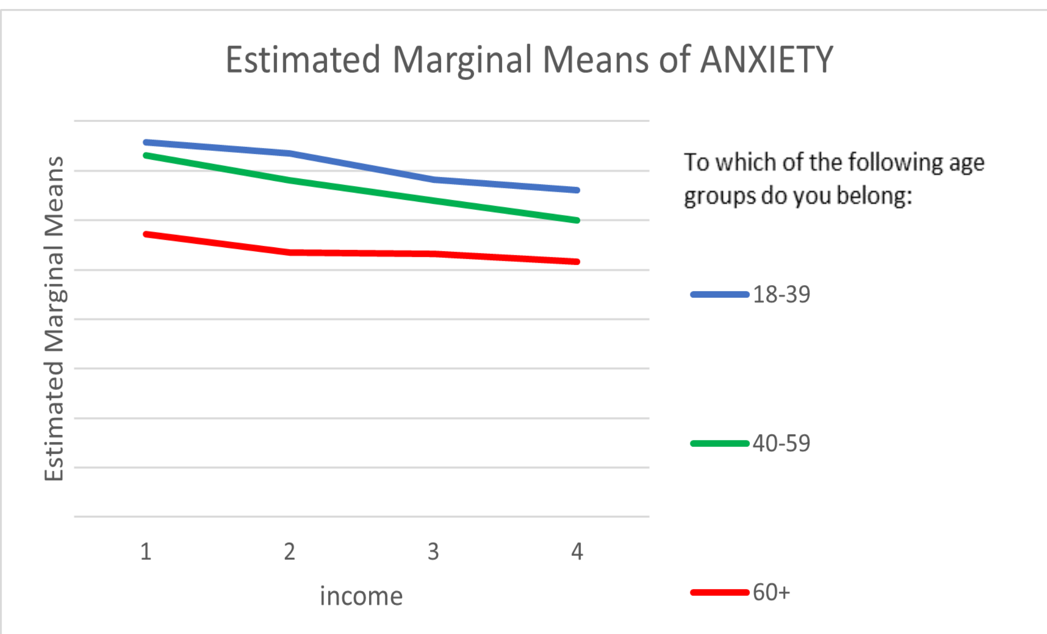
Note. Interaction between age group and wave in differences in COVID worry differences.

Figure 3
Mean Negative Affect Scores by Age and Income



Note. Interaction between age group and income level in differences in negative affect.

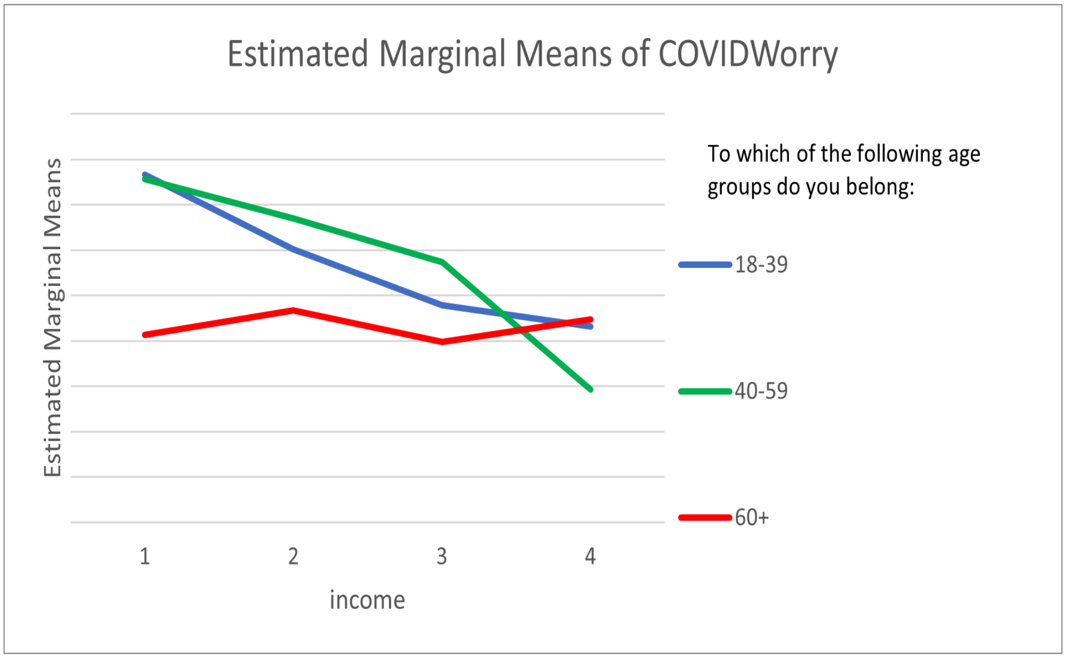
Figure 4
Mean Anxiety Scores by Age and Income



Note. Interaction between age group and income level in differences in anxiety.

Figure 5

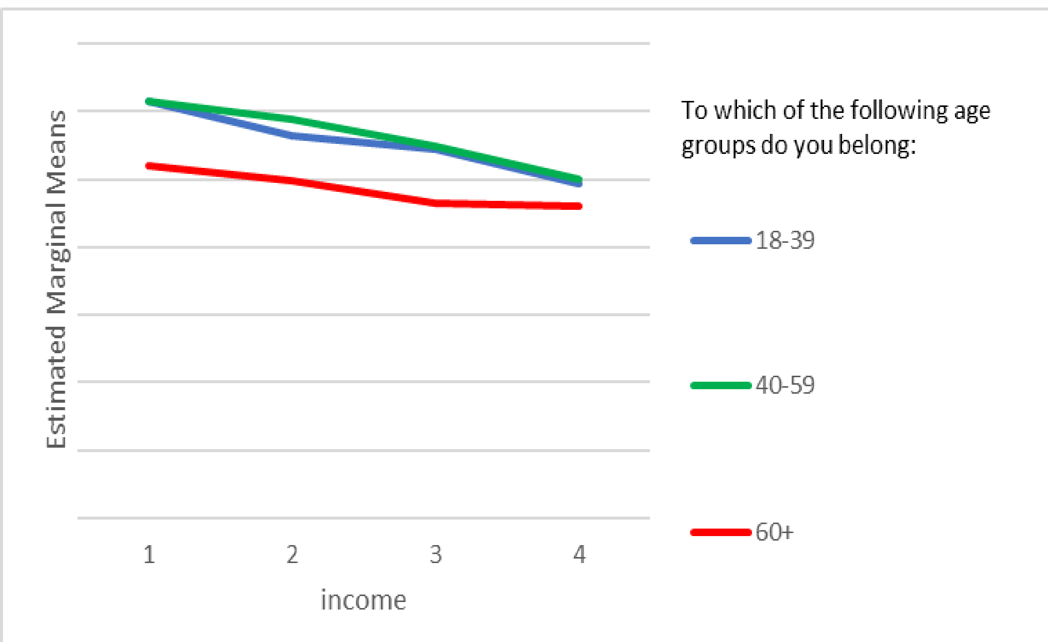
Mean COVID Worry Scores by Age and Income



Note. Interaction between age group and income level in differences in COVID worry.

Figure 6

Mean COVID Financial Worry by Age and Income



Note. Interaction between age group and income level in differences in COVID financial worry.

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Redefining Dissociative Identity Disorder: An Exploration of Diagnostic Criteria

Sydney Altieri, B. A.
University of New Haven

This article is an investigation of the current diagnostic criteria set for dissociative identity disorder. Advancements in scholarly research have resulted in the current diagnostic criteria not reflecting new insights gathered since its most recent update. An examination of the progression of diagnostic criteria reveals the need for continual updates, including the proposed stipulation that while distinct, personalities seen in individuals diagnosed with dissociative identity disorder are fragmentations of a singular core, or host, personality. Recommendations for the application of the proposed amendments and its their strengths and limitations are discussed.

Keywords: dissociative identity disorder, diagnostic criteria, multiple personalities, childhood sexual trauma, dissociation, divergence

Cet article est une enquête sur les critères diagnostiques actuels établis pour le trouble dissociatif de l'identité. Les progrès de la recherche scientifique ont fait en sorte que les critères de diagnostic actuels ne reflètent pas les nouvelles connaissances recueillies depuis sa dernière mise à jour. Cet article examine les divergences entre les résultats de la recherche et les critères diagnostiques actuels. De plus, cet article propose une modification afin de mieux s'adapter aux perceptions et aux connaissances modernes entourant le trouble, ce qui pourraient pourrait amener aider à réduire les écarts découverts par la recherche.

Mots-clés : trouble dissociatif de l'identité, critères diagnostiques, personnalités multiples, traumatisme sexuel de l'enfance, dissociation, divergence

Over the last two decades, mental health issues have become publicly discussed and destigmatized. As this process of destigmatization has occurred, people have become more open about their struggles with mental health issues, especially when discussing disorders that were not discussed often in the past, such as dissociative identity disorder. Formally known as multiple personality disorder, dissociative identity disorder is a psychiatric disorder characterized by an individual experiencing the occurrence of multiple, distinct personalities, often coupled with dissociation, amnesia, and fugue (American Psychiatric Association [APA], 2013). In the same light, while the concept of multiple personalities has been discussed since the early 1800s, focus and research has grown exponentially within the last three decades (Chu, 2011; Herman, 1992; van der Kolk, 2014).

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The concept of false-positive diagnoses, made by clinicians, is not new when discussing any psychological disorder, but in regards to dissociative identity disorder being very controversial within the field, the implications of false diagnoses must be considered (Fraser, 2005). Investigation into false-positive diagnoses of dissociative identity disorder have been carried out since the early 1990s, wherein the validity of different measures was examined in regards to the identification and diagnosis of dissociative identity disorder. Carlson et al. (1993) examined the application of the *Dissociative Experiences Scale* against a sample of over 1,000 psychiatric patients, identifying that in instances where those previously diagnosed with dissociative identity disorder did not meet the cutoff score of 30 within the measure, a more accurate diagnosis would be either a dissociative disorder other than dissociative identity disorder or post-traumatic stress disorder.

Pietkiewicz et al. (2021) examined 85 individuals who were a part of a larger sample investigating dissociation within a clinical setting. Through analysis of qualitative data collective through semi-structured interviews, 6 participants previously suspected of having dissociative identity disorder were found to not meet the diagnostic criteria, representing a 7.05% rate of false diagnosis, albeit in an extremely small sample. The study further examined noted features of false positive diagnoses caused by imitated cases of dissociative identity disorder, highlighting the expectation for a diagnosis, incorporating the diagnosis into one's identity, and other, all of which were cited to play a role in the possible iatrogenic presentation of dissociative identity disorder-like symptoms that could be misinterpreted through diagnosis. In this context, iatrogenic describes the presentation of illness symptoms directly relating to psychological assessment and diagnosis (Pietkiewicz et al., 2021). While no true empirical figure has been established regarding rates of false diagnoses of dissociative identity disorder, the ever-changing nature of knowledge regarding the disorder as well as mixed clinical opinions on its existence and presentation demonstrate a likelihood for false positive diagnoses (Chu, 2001; Herman, 1992; Pietkiewicz et al., 2021; van der Kolk, 2014).

False diagnoses of any mental health disorder pose negative implications for the diagnosed individual, as even with the increasingly open discussion surrounding mental health issues, diagnoses still carry the weight of stigmatization. The type of diagnosis received regarding psychological disorders can impact impacts the treatment an individual can receive and their own self-image, but more globally, a diagnosis carries social weight that can place the individual into the role of self-burden (Corrigan, 2007; Wakefield, 2010). If an individual is falsely diagnosed with dissociative identity disorder, they may begin to associate themselves with the diagnosis as an aspect of their self, possibly impacting their medical, personal, and social life.

Special consideration must also be paid to the concept of self-diagnosis of dissociative identity disorder. Diagnostic criteria, while providing a framework for clinicians to use in order to work towards a diagnosis, is also available to the public, creating scenarios where individuals may use said criteria to diagnose themselves as a result of numerous factors. One significant factor contributing to self-diagnosed dissociative identity disorder is the amount of time it can take to receive a diagnosis, with Brand et al. (2014) reporting that patients may spend anywhere from 5 to 12.5 years receiving treatment before receiving an official dissociative identity disorder diagnosis. Individuals may feel the need to receive a diagnosis, even an unofficial one, in order to fully understand their experiences, in turn relying on self-diagnosis. Another factor is the disproportionality of access for mental health care within the United States. Marginalized communities, minorities, and individuals of low socioeconomic status all have limited access to mental health care when compared to their counterparts, demonstrating a correlation between these factors and increased reliance on self-diagnosis (Ani et al., 2008). Because self-diagnoses are not a direct result of the current diagnostic criteria for dissociative identity disorder, and due to the accessibility of an official diagnosis varying widely, no stipulation of the necessity for an official diagnosis will be discussed as an amendment to the current criteria.

This paper is proposing the modification of the current diagnostic criteria for dissociative identity disorder found in the *Diagnostic and Statistical Manual of Mental Disorders*, or *DSM* , to form more narrowly defined guidelines for diagnosis, thus reducing the number of false positive diagnoses, and aiding in the diagnosis process of dissociative identity disorder. This modification will include amending the current criteria to include that 'alter' personalities are subsystems of one personality, with each holding its own thoughts, memories, feelings, and behavioral patterns. This amendment will keep with the trend of the *DSM* updating their diagnostic criteria as issues and solutions come to light, mirroring the need for an updated set of criteria to reflect the increasingly open conversation surrounding mental health issues.

Background

To understand why the current diagnostic criteria for dissociative identity disorder is not a sufficient reflection of modern perceptions and findings related to the disorder, previous criteria need to be examined in order to establish a baseline level of knowledge for how perception of the disorder has shifted over time. By considering the diagnostic criteria used within the United States, published by the American Psychiatric Association, or APA, within the *DSM*, the trend of advancing criteria can be corroborated to determine the best approach for modifying the current criteria to best fit modern scholarship.

DSM-I and II

While the first edition, or *DSM-I*, mentioned a dissociative reaction wherein a person may experience "symptomatic expressions, such as depersonalization, dissociated personality..." the classification of these symptoms appeared under an umbrella diagnosis of psychoneurotic reactions (APA, 1952, p. 32). The second edition, published in 1968, was the first publication of diagnostic criteria for mental disorders that specified a major aspect of dissociative identity disorder: the prevalence of distinct personality states. Conversely, the second edition separates the presentation of distinct personalities into a sub-diagnosis, classified as hysterical neurosis, dissociative type (APA, 1968). While brief, the criteria presented in the *DSM-II* incudes possible presentations of symptoms for the specification of hysterical neurosis, dissociative type, establishing symptoms of "amnesia, somnambulism, fugue, and multiple personality" occurring as a direct result of an altered state of consciousness (APA, 1968, p. 40). Due to the broad and nondescript nature of the diagnostic criteria presented both in the *DSM-I* and *DSM-II*, dissociative identity disorder was not characterized as a disorder, nor was it investigated in order to develop a more refined set of features that could present in order to lead to a formal diagnosis.

DSM-III and III-R

Multiple personality disorder was first recognized in the third edition of the *DSM*, compared to the previous two editions where similar symptoms were grouped as a typing under a different disorder. While the terminology 'multiple personalities' is not used in modern context to describe dissociate identity disorder, aspects of the diagnostic criteria present in the *DSM-III* continue to be presented in more recent editions. This edition included three specifications for diagnosing an individual with multiple personality disorder, alongside specifications of the age of onset, predisposing factors, sex ratio, and differential diagnoses that occur within the disorder. The criteria presented includes:

> (a) The existence within the individual of two or more distinct personalities, each of which is dominant at a particular time; (b) the personality that is dominant at any particular time determines the individual's behavior; and (c) each individual personality is complex and integrated with its own unique behavior patterns and social relationships (APA, 1980, p. 257-259).

The specification of three criteria that had to be met for a diagnosis to be given worked to allow for clinicians to have clearer guidelines for diagnosis, especially with a disorder that was considerably new and under-researched at the time.

Seven years after its release of the *DSM-III*, the American Psychiatric Association released a revised version of the *DSM-III*, known as the *DSM-III-R*. While the changes from the previous edition were not extreme, the diagnostic criteria presented in this revised edition made for clearer-cut guidelines in diagnosing multiple personality disorder. The new criteria outlined were as follows:

> (a) The existence within the person of two or more distinct personalities or personalities states (each with its own relatively enduring pattern of perceiving, relating to, and thinking about the environment and self); and (b) at least two of these personalities or personality states recurrently take full control of the person's behavior (APA, 1987, p.14).

The updated criteria worked to clarify issues surrounding the aspect of one personality being dominant or dormant, misconceptions that were heightened by the criteria in the *DSM-III*. Dormancy and dominancy continue to be discussed in updated criteria, but concepts relating to recurrence outlined in the *DSM-III-R* have since been omitted.

DSM-IV and IV-TR

As a major change to the previous editions, the fourth edition of the *DSM* included a significant revision in the renaming of multiple personality disorder to its modern nomenclature, dissociative identity disorder. Both the *DSM-IV* and *DSM-IV-TR*, or text revision, include the same criteria and additional information for dissociative identity disorder, but the presented criteria include modifications to the one present in the *DSM-III-R*. In both editions, four specific aspects were present within the criteria, including:

> (a) The presence of two or more distinct identities or personality states (each with its own relatively enduring pattern of perceiving, relating to, and thinking about the environment and self); (b) at least two of these identities or personality states recurrently take control of the person's behavior; (c) inability to recall important personal information that is too extensive to be explained by ordinary forgetfulness; and (d) the disturbance is not due to the direct physiological effects of a substance (e.g., blackouts or chaotic behavior during alcohol intoxication) or a general medical condition (e.g., complex partial seizures). Note: In children, the symptoms are not attributable to imaginary playmates or other fantasy play (APA, 2000, p. 484).

An important facet of this criteria was the specification that the disorder was not resulting from either psychological presentation of a substance, or a physiological condition that could result in similar symptoms. Similarly, the note that presentation of dissociative identity disorder in children was not resulting from play was significant, as a leading theory in the formation of dissociative identity disorder is that it stems from incidence of childhood trauma, a feature that will be discussed as part of the proposal for updated criteria. This is akin to the idea of cultural differences, wherein the presentation of multiple personalities may be a result of religious or cultural contexts rather than the presence of dissociative identity disorder or another mental health condition.

DSM-V and V-TR

The fifth publication of the *DSM* includes an updated version of diagnostic criteria for dissociative identity disorder that shows considerable changes from the previous criteria of preceding editions of the *DSM*, with five specifications for what entails diagnosable symptom presentation. While some aspects of this updated criteria are similar to previous editions, the updated version worked to limit rates of false-positive diagnoses that had resulted from ambiguous aspects of the previous criteria, with this being accomplished through the following specifications:

> (a) Disruption of identity characterized by two or more distinct personality states, which may be described in some cultures as an experience of possession. The disruption in identity involves marked discontinuity in sense of self and sense of agency, accompanied by related alterations in affect, behavior, consciousness, memory, perception, cognition, and/or sensory-motor functioning. These signs and symptoms may be observed by others or reported by the individual; (b) recurrent gaps in the recall of everyday events, important personal information, and/ or traumatic events that are inconsistent with ordinary forgetting; (c) the symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning; (d) the disturbance is not a normal part of a broadly accepted cultural or religious practice. Note: In children, the symptoms are not better explained by imaginary playmates or other fantasy play; and (e) the symptoms are not attributable to the physiological effects of a substance (e.g., blackouts or chaotic behavior during alcohol intoxication) or another medical condition (e.g., complex partial seizures) (APA, 2013, p. 292).

With the additional criteria presented here, clinicians have been able to narrow down instances where dissociative identity disorder may be appearing as a differential diagnosis, but also, to ensure presentations are not fictitious or iatrogenic in nature. While being successful to a degree, there are still flaws within the current diagnostic criteria, mainly surrounding the fact that perceptions on mental health disorders have shifted remarkably within the last decade, and the current diagnostic criteria do not reflect both public perceptions and new findings related to dissociative identity disorder.

Although the *DSM-V-TR* shows the same diagnostic criteria as the *DSM-V*, the additional information provided about dissociative identity disorder was updated to reflect recent opinions in the clinical circle examining the disorder. In reviewing environmental factors that may increase risk of developing dissociative identity disorder, the *DSM-V-TR* discusses the relationship between early life trauma, occurring before the age of 5–6, and the later development of dissociative identity disorder, identifying that approximately 90% of individuals with the disorder report multiple instances of maltreatment or abuse in their early childhood (APA, 2022). This change is significant, as it reflects the updating of criteria to reflect ideas put forward by researchers relating directly to the disorder's genesis.

Proposed Amendment to Diagnostic Criteria

Through the thorough review of available literature concerning the diagnostic criteria of dissociative identity disorder, a discrepancy between the current criteria and recent research was revealed concerning resulting false-positive diagnoses (Pietkiewicz et al., 2021; Tyrer, 2019). Through a modification of the current diagnostic criteria for dissociative identity disorder present in the *DSM*, made through an amendment of the current criteria, these instances of false-positive dissociative disorders will hopefully decrease.

Symposium of Alters

Dissociative identity disorder is, at its core, a reaction to childhood trauma that impedes the development of one's personality, resulting in multiple personalities, or alters, living within one person (Morgan, 2021). Each alter usually takes on a specific role associated with a trait or behavior, such as acting as a protector or being the caretaker of the body. While the fragmentation of these personalities does exist, each in itself is not a separate personality (Gleaves, 1996; Pietkiewicz et al., 2021; Gleaves, 1996). Simply put, the alters are subsystems of one's a personality, with each showing its own distinct memories, thoughts, feelings, and behavioral patterns. Considering terminology often associated with dissociative identity disorder, the amendment could be read as follows: "Alter personalities are conceptualized as fragmented aspects of an individual's whole, or core, personality."

Due to the lack of specification of this quality in the current diagnostic criteria for dissociative identity disorder, many clinicians who are unfamiliar with the disorder have misinterpreted its clinical presentation, resulting in instances where imitated cases are falsely diagnosed since they present multiple personalities rather than dissociative parts of one personality. This lack of specification has resulted in a gap within the current diagnostic criteria, leading to increased instances of false-positive diagnoses from clinicians not properly trained to look beyond the diagnostic criteria to critically examine each possible case of the disorder separately, avoiding generalization.

Review of Current Literature

The misconception that those with dissociative identity disorder have completely different personalities living within one body has spurred a conversation of the validity of the disorder, adding to opponent's ability to discredit current findings. By implying that the separate personality states are just that, states of personality, each taking on an aspect of a fragmented personality at the core of the individual diagnosed, these misconceptions would be reduced and further prevented. Pietkiewicz et al. (2021) explains the separate personality states as subsystems of a cohesive personality, a description best suited for removing these misconceptions and aiding in the diagnostic process. Hartmann and Benum (2019) established this idea to an additional extent, formulating a baseline of fragmentation by using psychological testing to determine differences in two personality states of an individual diagnosed with dissociative identity disorder. The personality states showed remarkable differences, such as distinct levels of intelligence and cognitive abilities, giving the appearance of completely distinct test-takers. Through interpretations of the findings from psychological testing, researchers were able to determine that while distinct, the personalities' specific scores were attributed to be a result of the fragmented aspects of a single core personality, rather than stemming from separate beings whose personalities are completely in opposition with each other. By specifying that the personalities of a person with dissociative identity disorder are fragmentations of different aspects of a singular personality, misconceptions arising from current diagnostic criteria can prevent the disorder from being viewed as invalid or fictitious.

Discussion

Initially, the current diagnostic criteria for dissociative identity disorder were explored in order to identify discrepancies that did not reflect current findings relating to the disorder. Once these gaps were identified, a possible solution was investigated that would best fit with current literature and opinions on the discrepancies that were discovered in the initial search. At this time, the proposal has been developed, with the solution included in a thorough review of literature and evidence to best support their necessity moving forward. The need for continuous modification to the diagnostic criteria presented in the *DSM* stems from continuously advancing ideas regarding dissociative identity disorder. Nester et al. (2021) compared diagnostic rates between the diagnostic criteria in the *DSM-IV-TR* and the *DSM-V*, identifying that while 83.85% of patients examined met the criteria from both editions, 6.21% met only the *DSM-V* criteria and 9.94% met only the *DSM-IV-TR* criteria. Updated language in the *DSM-V* criteria was hypothesized to have contributed to this difference, but however, another reasoning could surround the increasingly narrow definition of what constitutes dissociative identity disorder as the criteria is amended.

Strengths

Although fully theoretical in nature, this manuscript does pose an innovative perspective on dissociative identity disorder diagnostic criteria that has yet to have been explored in depth. Aiding clinicians in the diagnostic process by explaining the specific feature of dissociative identity disorder to present within an individual as alter personalities existing as fragments of a singular core personality can work to provide clarity to otherwise broad diagnostic criteria, especially when discussing a disorder that many clinicians have not seen in a clinical setting. While similar ideas regarding the concept of alter personalities being fragments of one core personality have been posed by other researchers (Gleaves, 1996; Hartmann & Benum, 2019; Pietkiewicz et al., 2021), no recommendation for the concept's application into the *DSM* or other psychological manual has been made. Thus, this proposal provides a compelling insight into ideas regarding dissociative identity disorder that have been established but not applied past a theoretical standpoint, progressing the criteria as findings have become more developed and refined with research.

Keeping with the trend of the *DSM* to update frequently to reflect new research findings, this manuscript provides a concise history of the diagnostic criteria for dissociative identity disorder as well as relevant literature and research that support the proposed criterion, summarizing past and recent literature to both identify a discrepancy within the current criteria and to suggest the additional amendment. The intention of this publication is to function as an addition to the literature as a narrative review to educate researchers and psychologists in training in regards to the current consensus in the dissociative identity field.

Limitations

While the process to modify the current diagnostic criteria for dissociative identity disorder will not be a simple feat, it is a necessary step that must be taken to prevent the number of false-positive cases of dissociative identity disorder from. Issues that may be faced in this process of modification must be discussed, as their impact on the process could be substantial if not addressed properly. One possible issue that could be faced would be based on the unknown publication date of the next edition of the *DSM*, with no possible publication date being discussed at the time of this proposal. As the most recent edition of the *DSM*, the *DSM-V-TR*, was published in March of 2022, the application of the proposed amendment would be included in the sixth edition at the earliest due to the timeline followed by the APA in regard to updating the manual. While this factors into the overall release of the modified criteria discussed in the proposal, it would not prevent the criteria from being released to the community of psychologists who specialize in dissociative and personality disorders, thus allowing for feedback to be gained and for the criteria to be implemented in a smaller setting in order to view its impact on the rates of false-positive cases.

While discussing the amendment's relation to rates of false diagnoses, the potential that the amendment could result in increased rates of false diagnoses must be raised as well. Any modification of diagnostic criteria can impact diagnostic rates, especially when pertaining to a disorder that many clinicians are unfamiliar with outside of basic information presented within the *DSM*. Criteria in the *DSM* is kept somewhat broad to ensure that the process of diagnosis is objective, and that only quantifiable symptoms may be coded directly into the criteria. In adding another criterion, the strictness of the criteria would narrow, carrying both positive and negative implications. As for positive implications, a narrower definition for what constitutes as dissociative identity disorder may result in less instances of false positive diagnoses if individuals do not meet all the presented criteria. On the contrary, tightening the diagnostic criteria for dissociative identity disorder could lead to individuals who have previously been diagnosed not meeting the updated criteria. Although this does pose an issue, one solution would be for clinicians with clients diagnosed with dissociative identity disorder to reevaluate their diagnosis on a case-by-case basis to ensure there is no disproportionality in diagnostic rates within marginalized communities, an issue seen frequently with regards to mental health.

Implications and Significance

Rates of dissociative identity disorder have increased exponentially in the last seven years, with the *DSM* citing a rate of 1.5% of the population in 2013, but a more recent statistic found the rate to exist "anywhere from 0.01% to 15% of the population" (APA, 2013; Morgan, 2021). These rates coincide with the movement to destigmatize mental health issues that has occurred over the last three decades, showing a correlation between the increasing acceptance and increasing rates. Without discounting the positive impacts, the destigmatization of mental health issues have had on those with genuine diagnoses, one must be open to reviewing the negative impacts, with these increasing rates of diagnosis coming from available diagnostic criteria and gaps in said criteria. Through modifying the diagnostic criteria of dissociative identity disorder to specify certain aspects that are necessary to entail a diagnosis, these increasing rates will flatten out without affecting the movement to accept mental health issues in society.

Application Into DSM-VI

By posing this modified criterion to the American Psychiatric Association with a recommendation that it is considered for publication into the sixth edition of the *DSM*, it is anticipated that rates of incidences of false-positive diagnoses of dissociative identity disorder will decrease. This presumption stems from previous modifications to other diagnostic criteria resulting in a similar impact, wherein clinicians are able to further specify what entails sufficient presentation of symptoms for a diagnosis, ensuring that cases where some but not all symptoms are present do not receive an inaccurate diagnosis. This will follow the trend of previous editions of the *DSM* modifying diagnostic criteria as well, keeping with public perception and advancing knowledge of mental disorders as research homes in on specific aspects of symptom presentation.

Foreseen Impact

While no specific impact can be predicted without reasonable doubt, viewing similar situations where the diagnostic criteria for dissociative identity disorder was modified in other nations can lead to a plausible presumption of the impact modifying the *DSM* diagnostic criteria would have on diagnosis rates. Subsequently, this proposal will be presented to multiple voices within the community discussing dissociative identity disorder, gaining feedback and alternate perspectives on the amended criteria to ensure it reflects current opinions and scholarly knowledge. After the feedback has been considered and the criteria refined, the proposal will be published, and ideally, will be used within the sixth edition of the *DSM* at the time of its eventual publication.

Because diagnosis rates continue to rise due to increasing access to mental health services as well as an increasingly positive public perception on seeking support for mental health struggles, it would be illogical to presume that this modified criterion would lead to a decrease in diagnosis rates of dissociative identity disorder within the United States, as well as countries around the globe who implement the *DSM* into their diagnostic processes. However, a plausible prediction for the impact these modifications would have is the idea of a tapering effect on the increasing rates, wherein the rates of diagnosis continue to increase, just at a more level rate without significant jumps. No prediction can be certain, but based on current knowledge, this is the best estimate for the impact the proposed amendments of the diagnostic criteria of dissociative identity disorder would have on diagnosis rates within the United States, and on a larger scale, globally.

Conclusion

The current diagnostic criteria for dissociative identity disorder presented in the fifth edition of the *DSM* provides a solid basis for diagnosis, but its lack of updates to mirror increasing rates of diagnosis and the destigmatization of mental health disorders over the last decade leaves it open for false positives. Through modification of these current diagnostic criteria, made through additions and amendments of certain aspects that currently exist, instances of false-positive cases of dissociative identity disorder will decline. Application of this amendment should be presented in the sixth edition of the *DSM* at the time of its publication, broadening its reach to practicing clinical psychologists operating under the guidelines of the American Psychiatric Association.

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Table 1
DSM Diagnostic Criteria Progression, Dissociative Identity Disorder

DSM Edition[a]	Diagnostic Criteria[b]
DSM-I	This reaction represents a type of gross personality disorganization, the basis of which is a neurotic disturbance, although the diffuse dissociation seen in some cases may occasionally appear psychotic. The personality disorganization may result in aimless running or "freezing." The repressed impulse giving rise to the anxiety may be discharged by, or deflected into, various symptomatic expressions, such as depersonalization, dissociated personality, stupor, fugue, amnesia, dream state, somnambulism, etc. The diagnosis will specify symptomatic manifestations. These reactions must be differentiated from schizoid personality, from schizophrenic reaction, and from analogous symptoms in some other types of neurotic reactions. Formerly, this reaction has been classified as a type of "conversion hysteria." (APA, 1952, p. 32).[c]
DSM-II	Hysterical neurosis, dissociative type In the dissociative type, alterations may occur in the patient's state of consciousness of in his identity, to produce such symptoms as amnesia, somnambulism, fugue, and multiple personality. (APA, 1968, p. 40).
DSM-III	Multiple personality disorder A. The existence within the individual of two or more distinct personalities, each of Which is dominant at a particular time. B. The personality that is dominant at any particular time determines the individual''s behavior. C. Each individual personality is complex and integrated with its own unique behavior patterns and social relationships. (APA, 1980, p. 257-259).
DSM-III-R	Multiple personality disorder (a) The existence within the person of two or more distinct personalities or personalities states (each with its own relatively enduring pattern of perceiving, relating to, and thinking about the environment and self); and (b) at least two of these personalities or personality states recurrently take full control of the person's behavior. (APA, 1987, p.14)
DSM-IV & *DSM-IV-TR*	Dissociative identity disorder (a) The presence of two or more distinct identities or personality states (each with its own relatively enduring pattern of perceiving, relating to, and thinking about the environment and self); (b) at least two of these identities or personality states recurrently take control of the person''s behavior; (c) inability to recall important personal information that is too extensive to be explained by ordinary forgetfulness; and (d) the disturbance is not due to the direct physiological effects of a substance (e.g., blackouts or chaotic behavior during Alcohol Intoxication) or a general medical condition (e.g., complex partial seizures). Note: In children, the symptoms are not attributable to imaginary playmates or other fantasy play. (APA, 2000, p. 484)
DSM-V & *DSM -V-TR*	Dissociative identity disorder (a) Disruption of identity characterized by two or more distinct personality states, which may be described in some cultures as an experience of possession. The disruption in identity involves marked discontinuity in sense of self and sense of agency, accompanied by related alterations in affect, behavior, consciousness, memory, perception, cognition, and/or sensory-motor functioning. These signs and symptoms may be observed by others or reported by the individual; (b) recurrent gaps in the recall of everyday events, important personal information, and/ or traumatic events that are inconsistent with ordinary forgetting; (c) the symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning; (d) the disturbance is not a normal part of a broadly accepted cultural or religious practice. Note: In children, the symptoms are not better explained by imaginary playmates or other fantasy play; and (e)€ the symptoms are not attributable to the physiological effects of a substance (e.g., blackouts or chaotic behavior during alcohol intoxication) or another medical condition (., complex partial seizures) (APA, 2013, p. 292).

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Shared Stressful Situations and Affiliation in Stranger Dyads: An Experimental Analysis

Atara Lonn, B. Sc., &Cheryl Haramsymchuk, Ph. D.
Carleton University

According to the *tend-and-befriend* theory, shared stressors may create situations in which the inclination to interact with another person (i.e., immediate affiliative desire) is elevated. This may create a situational context in which sustained affiliative responses towards an interaction partner are more likely to occur in the longer-term. In the present study, we randomly assigned 85 undergraduate stranger dyads (N = 170 participants; all women) to either shared stress or shared control experiences and measured immediate affiliative desire. The strangers in the dyads then interacted with one another in a discussion task, and participants' long-term affiliative responses (liking and future intentions to affiliate) were assessed. The evidence suggested that shared stressful experiences (vs. the shared control experiences) promoted significantly more immediate affiliative desire. Furthermore, immediate affiliative desire mediated the association between shared stress and long-term affiliative responses. These findings offer insight into how shared stress may influence friendship development.

Keywords: psychological stress, friendship, tend-and-befriend, affiliation, social bonds

Selon la théorie du *tend-and-befriend*, des stresseurs partagés peuvent créer des situations favorisant l'envie d'interagir avec une personne (c.-à-d. le désir immédiat d'affiliation), ce qui peut ensuite favoriser le désir d'affiliation soutenu à long terme. Dans cette étude, 85 dyades d'étudiantes ne se connaissant pas (N = 170 participantes) ont été assignées aléatoirement aux conditions stress partagé ou de contrôle. Le désir immédiat d'affiliation était ensuite mesuré. Puis, il était demandé aux participantes d'interagir avec leur partenaire de dyade dans une tâche de discussion avant que leurs appréciations et intentions futures d'interagir soient évaluées. Les résultats montrent que les expériences où les stresseurs sont partagés (en comparaison avec le groupe contrôle) favorisaient significativement le désir immédiat d'affiliation qui, lui, agissait comme variable médiatrice entre les stresseurs partagés et les réponses affiliatives à plus long terme. Ces résultats offrent des pistes pour mieux comprendre comment les stresseurs partagés peuvent influencer le développement d'amitiés.

Mots-clés : stress psychologique, amitié, tend-and-befriend, affiliation, liens sociaux

Stress has been classified as a 21st-century epidemic by the World Health Organization (WHO) and has been widely implicated in deleterious physical and mental health conditions (Fink, 2016). Therefore, it appears that stress is a pervasive and ubiquitous response that causes problems in daily life. However, the outcomes of stressful experiences might not all be negative. Social bonding and affiliative behaviours have been observed in lab situations involving the completion of physically stressful tasks in the presence of other people sharing similar experiences (Bastian et al., 2014). Similarly, exposure to shared psychological stressors may also promote affiliative responses and, further, facilitate personal friendship development in dyads. In other words, the positive effects of shared stressful situations may not be limited to physical stressors. In daily life, people typically do not experience shared physical pain conditions. Instead, people in similar situations tend to share similar psychosocial stressors, such as university students in similar programs enrolling in the same challenging math course. The present study, therefore, aims to examine whether experiencing a mild shared psychologically stressful event with another person in a more realistic setting can act to promote affiliative responses.

Friendship Formation

Friendship development has been described as a process that involves revealing personal information to potential friends and receiving personal information from them in return (Altman & Taylor, 1973). This information sharing process as well as the resulting creation of friendship bonds typically progress slowly and gradually over many repeated interactions. Scholars have noted that sharing exceedingly intimate

The authors would like to thank the participants for generously taking the time and effort to engage in this research. Please address correspondence to Atara Lonn (email: ataralonn@cmail.carleton.ca).

personal information, especially too close to the beginning of a new relationship, is perceived negatively by others and carries potential risks, such as social rejection (Chaikin & Derlega, 1974). However, the contexts surrounding the situations in which people affiliate has been found to modulate whether people feel more inclined to affiliate with each other (i.e., immediate affiliative desire), and this can impact how positively the sharing of information is perceived (Greene et al., 2006). For example, engaging in a positive interaction with a potential friend, such as sharing a pleasant meal, may cause more immediate desire to affiliate. Conversely, engaging in a negative interaction with a potential friend, such as getting into a heated debate, may prompt social withdrawal. In the present study, we examined the role of shared stressful contexts in promoting immediate affiliative desire. We also examined whether elevated feelings of immediate affiliative desire in response to the shared stressful context can impact how information sharing is perceived after a discussion task as measured through the lens of long-term affiliative responses, such as liking the other person and wanting to affiliate with them in the future.

The Role of Shared Stress in Friendship Formation

Stress has conventionally been studied as a solitary phenomenon with potentially negative consequences. In response to an acute stressor, a person needs to employ their own physical and psychological resources to cope with it (Lazarus & Folkman, 1984). For example, a student who is preparing for a difficult test needs to manage their feelings of perceived stress by mobilizing their internal resources to reduce the negative emotions associated with stress and then engaging in problem-solving coping strategies, such as studying for the test. Although stress has many long-term negative effects (Beauchaine et al., 2011; Gouin, 2011; McEwen, 2000; Repetti & Wang, 2017; Vitaliano et al., 2002), scholars have noted some positive aspects of the stress response, especially on an acute timescale.

Acute stress has been found to promote affiliative behaviours in certain situations. In several different experimental laboratory studies, including psychophysiological experiments, participants individually exposed to stressful situations have exhibited various affiliative responses, such as trust and sharing behaviours, altruistic behaviours (such as allocating more resources to others in dictatorship games), empathy towards others, and even increased desire for social closeness (Takahashi et al., 2007; Vinkers et al., 2013; von Dawans et al., 2012; von Dawans et al., 2019). For example, Bastian et al. (2014) exposed groups of participants to experience either a painful or a neutral task and observed that participants in the pain condition reported higher levels of group bonding and loyalty compared to participants that completed the neutral task. On a psychophysiological level, the tend-and-befriend response has been found to be somewhat related to the activation of the hypothalamic-pituitary-adrenal axis, though strong inference into examining these biological pathways has been inconclusive as of the current knowledge in the literature (Margittai et al., 2018; von Dawans et al., 2021). Outside of lab experiments, researchers recorded social responses in situations after communities experienced environmental disasters, such as earthquakes and hurricanes (Rao et al., 2011; Rodriguez et al., 2006). In the wake of these disasters, affiliative responses within the affected communities were elevated in the short-term. Taylor et al. (2000) classified these varied affiliative responses to stressful situations as a unified tend-and-befriend evolutionary response to stress. Instead of mobilizing individual resources to manage a stressor alone, the tend-and-befriend stress response encourages people to reach out to others and cope with the stressor together.

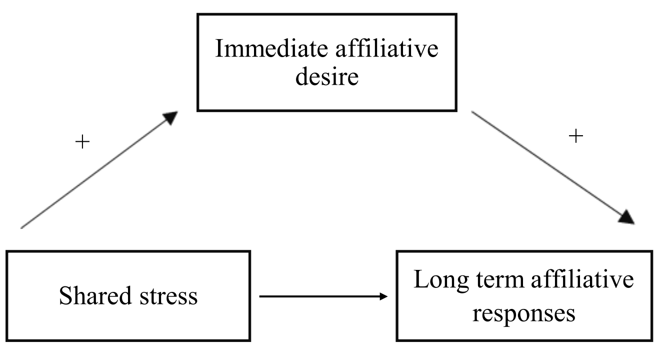
Sharing stressful events with other people, therefore, has the well-documented effect of activating the tend-and-befriend stress response to create general affiliative tendencies; however, there are gaps in the literature. For instance, it has not been established whether experiencing a shared stressful event with one other person, as opposed to a group context, elevates immediate affiliative desire in such a way to encourage long-term affiliative responses. Moreover, many studies in the affiliation and stress literature focus primarily on prosocial help and trust behaviour (Takahashi et al., 2007; Vinkers et al., 2013; von Dawans et al., 2012). Experimental research also tends to use unrealistic and intensive lab procedures to induce psychosocial stress in the examination of stress and affiliation (see Kudielka et al., 2007 for a discussion on the *Triers Social Stress Test*) or to maintain a focus on physical pain and group bonding (e.g., Bastian et al., 2014). Therefore, there is a lack of research examining how psychological stressors can affect dyadic friendship formation processes.

Overview and Hypotheses

In the present study, we examined whether mild psychological shared stressful experiences in stranger pairs would activate the tend-and-befriend response in a scenario which mimicked a realistic shared stressful event that two university students might experience in their daily lives. This is a novel experiment, as previous research has not assessed whether the tend-and-befriend response can promote the immediate desire to affiliate with another person in the presence of a shared psychological stressor. To assess our novel research question, we recruited stranger dyads and randomly exposed them to either shared stress or shared control experiences. We then asked participants within the dyads individually how about their propensity to affiliative with one another (i.e., immediate affiliative desire). We hypothesized that if the tend-and-befriend response was activated by the shared stressful environment, participants exposed to the shared stress condition would report higher immediate desire to affiliate with their partners relative to the control condition. Additionally, as a preliminary test of friendship formation likelihood, we wanted to examine whether immediate affiliative desire as prompted through the tend-and-befriend response to the shared stressful situation could alter an initial interaction between stranger dyads and result in the expression of long-term affiliative responses. Based on the literature consulted, immediate affiliative desire is hypothesized to mediate the relationship between shared stress condition and long-term affiliative responses (see Figure 1).

Figure 1

Proposed Mediation Model



Note. This model proposes that immediate affiliative desire will mediate the association between shared stress and long-term affiliative responses after a discussion task.

Our reasoning behind the mediation model was that in reaction to a realistic shared stressor, such as two university students taking a challenging test together, the tend-and-befriend response may promote more immediate desire to affiliate with people who shared the same experience. Therefore, shared stress could potentially create a situation in which people are more inclined to interact with each other, creating a context in which in-depth self-disclosure is appropriate. As a result of this predisposition, self-disclosure interactions between strangers could become more enjoyable and could generate stronger positive feelings within the dyad and more desire to affiliate. Given that people tend to evaluate positive feelings in relationships (i.e., reciprocal liking) as one of the most important reasons for developing friendships with others (Sprecher, 1998), this immediate affiliative desire caused by the shared stressful situation might contribute to greater long-term affiliative responses, which could be beneficial for friendship formation.

Method

Participants

We recruited 180 participants from a large Canadian University (*N* = 170 participants included in analysis after exclusionary criteria). All participants were taking first and second-year psychology courses. As part of these courses, students could receive extra credit for participating in research studies posted by various university psychology labs. Two students signed up independently for the same timeslot of a research study purporting to examine how cognitive tests affect interaction among Carleton students. Each of the students received one-percent course credit for participating in the study. As we wanted to make sure that the participants in each dyad were not already affiliated with each other, the study recruitment notice asked students not to sign up with their friends. We also asked the participants in the study procedure to confirm that they were not already friends with their partner in the dyad.

Due to previous research indicating intergender interactions function slightly differently from intragender interactions (Dindia & Allen, 1992), and that women are hypothesized to respond more to the tend-and-befriend response in general (Taylor et al., 2000), only participants who identify as women were recruited. We also wanted to focus solely on friendship development, without the confound of romantic attraction. Therefore, our primary exclusionary criterion was romantic attraction expressed by either partner within the dyad.

Three dyads were eliminated from further analyses due to stated romantic attraction within the dyad, as measured by asking participants at the end of the survey, *Do you feel romantically attracted to the other participant?* One dyad was eliminated from further analyses due to errors within the procedure, such as inattention to the presented math test stimulus. An additional dyad was eliminated due to a participant identifying as a gender other than "woman". Therefore, 170 participants (85 dyads) were examined in the data analyses.

Out of the 170 participants, 55.9% identified as White, 15.9% identified as Black, 9.4% identified as Asian, 5.3% identified as Middle Eastern, 1.2% identified as Latin, 0.6% identified as Indigenous

Peoples, 11.1% identified as multiracial or self-identified as "other", and 0.6% refused to answer. The participants' ages ranged from 17 to 46 (M_{age} = 19.27, *SD* = 2.96).

Procedure and Materials

The present study was implemented in two parts. In part one, stranger dyads were brought into the lab and exposed for five minutes to either a shared stressful experience (i.e., a hard math test) or a shared control experience (i.e., an easy math test). After writing either of the math tests, the participants individually reported how much they were inclined to interact with their partner, as a measure of immediate affiliative desire. In part two, the stranger dyads engaged in a *get -acquainted discussion task* with each other, where they discussed several personal questions for fifteen minutes. Following the discussion task, participants individually reported whether they liked each other and wanted to interact in the future to measure long-term affiliative responses.

Shared Stressful Experience Manipulation and Manipulation Check. Two strangers arrived at the lab for a study they were told was examining how cognitive tests affect social interaction. The participants sat side-by-side at a station with two computers. After completing initial consent forms, the participants filled out basic demographic information and *Positive and Negative Affect Schedule* (PANAS) questionnaires (Mackinnon et al., 1999) assessing their moods. Participants then attempted one of two math tests on the computers for five minutes: both participants completed either easier or more difficult math tests while, regardless of the condition, they were told the tests were very simple (i.e., the difficult math test was used for the stress induction procedure, while the easy math test was used for the control procedure).

The two different versions of tests were created on *Qualtrics*. The easy math test was based on questions from the standardized *Ontario Education Quality and Accountability Office* (EQAO) grade six assessment. The more difficult math test was based on questions from the quantitative section of the *Graduate Record Examinations* (GRE). The easier math test consisted of questions such as, *What is the mean of the following seven numbers?* The harder math test consisted of questions such as, *A hat contains 18 raffle tickets, numbered 1 through 18. If two raffle tickets are chosen at random from the hat, what is the probability that both tickets are even numbers?* The difficult test also included a salient timer for participants, whereas the easier test was only timed by the researcher. Participants were provided with calculators for both versions of the test, and their answers on the tests were not record during data collection.

Participants completed the PANAS for a second time after the five minutes had elapsed. The PANAS questionnaire was used as a manipulation check. The questionnaire was comprised of two scales (five positive arousal items and five negative arousal items), with positive items including emotions such as *determined* and *alert*, and negative arousal items including emotions such as scared and nervous. Participants answered whether they were feeling each of the listed emotions both before and after the math tests on a 5-point Likert scale from 1 (*not at all*) to 5 (*extremely*). Within the present study, Cronbach's alpha for positive arousal before and after the math test was .82 (ω = .82) and .81 (ω = .86), respectively. Cronbach's alpha for negative arousal before and after the math test was .75 (ω = .74) and .79 (ω = .88), respectively. Mean positive arousal for the entire experimental sample (*N* = 170 participants) before the math test was 2.70 (*SD* = 0.80) and after the math test was 2.38 (*SD* = 0.80). Mean negative arousal for the entire experimental sample before the math test was 1.51 (*SD* = 0.56) and after the math test was 1.73 (*SD* = 0.73).

Immediate Affiliative Desire. After the shared experiences, participants' immediate affiliative desire was measured via a modified questionnaire from a previous study on affiliative tendencies (Okken et al., 2013). This measure was modified to conform to participants' feelings in the current study, as the original measure was more concerned about physical space (e.g., *I felt uncomfortable in sharing personal information inside this room*). The modified questionnaire contained the following four items: *I want to know more about my partner*, *I feel that I would be comfortable sharing information about myself with my partner, I feel that it would be hard for me to speak about myself with my partner*, and *I want my partner to know more about me.* Cronbach's alpha for this measure was .68 (ω = .69). All items were measured on a 5-point Likert scale from 1 (*strongly disagree*) to 5 (*strongly agree*). Mean affiliative desire for the entire experimental sample was 3.38 (*SD* = 0.67).

Get-Acquainted Task and Affiliation Questionnaires. The participants were then asked to move to a table where they could engage in a brief discussion session based on a modified version from Aron et al. (1997) *Fast Friends* procedure. In the original *Fast Friends* procedure, participants are asked to talk to each other in a *get-acquainted task* which consists of several questions about themselves that slowly get more personal (low, medium, and high disclosure) over the span of 45 minutes. In this modified task, participants were given a total of fifteen minutes to complete a shorter version of the *Fast Friends* discussion task, which only included low and medium disclosure questions. This modification was made to decrease the length of the study and, therefore, consider participants' fatigue. The average discussion time for the discussion task for the entire experimental sample (*N* = 85 dyads) was 8.89 minutes (*SD* = 3.89). When comparing the different conditions (*N* = 43 shared stress dyads), there was no significant difference between the mean discussion time for the shared stress condition (*M* = 9.35 minutes, *SD* = 3.60) and the mean discussion time for the shared control condition (*M* = 8.43 minutes, *SD* = 3.84), $t(83) = 1.14$, $p = .26$, 95% *CI* [-41.00, 151.44].

After the task had been completed, participants were instructed to move back to their original seats and complete questionnaires assessing how much they liked their partners and whether they wanted to affiliate with their partners in the future. The affiliative responses measure was a composite of these two different measures. The liking portion of the questionnaires (Montoya & Insko, 2008) presented participants with items such as *I feel warm about my partner* and *I feel friendly towards my partner*, while the future affiliation section consisted of items such as *I would like to keep the conversation going* and *I would like to study with my partner in the future.* Both questionnaires were assessed via a 7-point Likert scale from 1 (*strongly disagree*) to 7 (*strongly agree*). Cronbach's alpha for the composite scale was .80 ($\omega = .82$), suggesting substantial internal consistency. Mean affiliative responses for the entire sample was 5.88 (*SD* = 0.71).

Statistical Analysis

To ensure that the shared stress condition was successful in increasing negative arousal, while either decreasing or not affecting positive arousal, the participants' mood was assessed before and after both the shared stress and control conditions as a manipulation check. This was examined as two separate factorial ANOVA analyses (shared condition X mood pretest/post-test).

For the first analysis, we wanted to examine whether the shared stress condition (relative to the shared control condition) caused participants to individually report more immediate affiliative desire[1]. We used multilevel modeling, specifically the *Actor Partner Interdependence Model* (APIM) (Kashy & Kenny, 1999; Kenny, 1996) to account for the interdependence of our data (i.e., participants sorted into stranger dyads). This analysis was conducted in R using the "nlme" package (Pinheiro et al., 2021).

For the second analysis, we wanted to test whether there was an association between stress induction and long-term affiliative responses, mediated by immediate affiliative desire. To account for the non-independent dyadic data structure, we used multilevel modeling statistical techniques. As the sample size was low (*N* = 85 dyads) and the intraclass correlation (*ICC*) for the affiliative responses null model was also low (*ICC* = 0.09), we decided to use *unconflated multilevel modeling* (UMM) instead of *multilevel structural equation modeling* (MSEM) to increase the power of our analysis (Preacher et al., 2011). We also chose to estimate the UMM with random slopes (Bauer et al., 2006) as we had two experimental conditions and we wanted to test whether the conditions would differently impact immediate affiliative desire and, subsequently, long-term affiliative responses. The UMM analysis was conducted using *Mplus* (Muthén & Muthén, 1998-2017). There was no missing data in this sample.

Results

Manipulation Check

The 2X2 mixed factorial ANOVA indicated that the interaction between mood pretest/post-test and stress task had a significant effect on negative arousal, $F(1, 168) = 33.80$, $p < .001$, $\eta p^2 = .17$. Specifically, the shared stress condition produced an increase in participants' negative arousal levels from the pretest to the post-test, *MD* = 0.44, *SE* = .06, $t(168) = 7.85$, $p < .001$, while the shared control condition did not produce a pronounced change in participants' negative arousal levels from the pretest to the post-test, *MD* = -0.02, *SE* = .06, $t(168) = -0.42$, $p = .68$. A similar 2X2 mixed factorial ANOVA was performed for positive arousal; the results indicated that both conditions decreased positive arousal from pre-to post -test (although the shared stress condition decreased positive arousal by a greater amount). Therefore, the manipulation succeeded in producing psychological stress for the shared stress condition only, while not producing confounding positive arousal emotions in either of the experimental conditions.

Shared Stressful Experiences and Immediate Affiliative Desire

Consistent with our hypothesis, there was a significant association between shared stress condition and immediate affiliative desire, $b = 0.28$, *SE* = .09, $t(168) = 3.08$, $p = .002$, 95% *CI* [0.11, 0.47]. Specifically, participants' immediate affiliative desire in the shared stress condition (*M* = 3.51, *SD* = 0.72)

[1]We initially tested two serial mediation models, where we separated affiliative responses into liking and future affiliation intentions. However, we could not determine the directionality of the serial mediation. Therefore, we went with the most parsimonious model and combined both liking and future affiliation into a single composite element: long term affiliative responses.

was significantly higher compared to the control condition (*M* = 3.24, *SD* = 0.58). Therefore, there is direct evidence to suggest that shared stress activated the tend-and-befriend response to promote participants' preferences to affiliate in the immediate short-term.

Shared Stressful Experiences and Affiliative Responses Mediated by Immediate Affiliative Desire

Also consistent with our hypothesis, the unconflated multilevel model produced a significant mediation indirect effect, b = 0.19, *SE* = .08, 95% *CI* [0.03, 0.34]. Shared stress condition significantly predicted more immediate affiliative desire, b = 0.28, *SE* = .09, p = .002, 95% *CI* [0.11, 0.47]. Immediate affiliative desire, in turn, significantly predicted more long-term affiliative responses, b = 0.38, *SE* = .13, p = .004, 95% *CI* [0.12, 0.64]. However, interestingly, neither the total effect nor the direct effect of shared stress condition on long-term affiliative responses was significant, b = 0.20, *SE* = .13, p = .12, 95% *CI* [-0.05, 0.45] and b = 0.01, *SE* = .12, p = .92, 95% *CI* [-0.21, 0.24], respectively. Regardless, as the indirect effect was significant, there was evidence to suggest that immediate affiliative desire was a significant mediator in this model.

Discussion

The present research is one of the first studies to examine how mild shared psychological stressful experiences can promote affiliative responses specifically within the domain of friendship. Within the present study, we randomized 85 stranger dyads to experience either shared stress or control situations in an experimental lab setting to examine whether shared stress conditions could influence immediate desire to affiliate and, in turn, affiliative tendencies after a discussion task. We first hypothesized that participants in the shared stress condition would express greater immediate affiliative desire tendencies relative to the control condition. We also hypothesized that immediate affiliative desire would mediate the association between shared stress and long-term affiliative responses, such as liking and future affiliation intentions.

Immediate Affiliative Desire

In line with our initial hypothesis, the evidence obtained from the present study suggested that participants were more inclined to immediately affiliate with each other in the shared stress condition relative to the shared control condition. Therefore, the shared stressful condition directly impacted immediate affiliative tendencies. According to Taylor et al.'s (2000) tend-and-befriend response, in the presence of stressors, people reach out to others as a coping strategy to mobilize resources from social allies and maximize their ability to deal with the stressor. However, there may be alternative explanations as to why shared stressful conditions promote more immediate affiliative desires, especially related to attraction and liking. Psychological arousal inherent to the stress response has been found in previous research to affect first impressions regarding attraction and liking (Foster et al., 1998). Although the literature in this area is focused on romantic attraction, stress has been implicated somewhat in influencing non-romantic attraction. If feelings of psychological arousal caused a small boost in attraction (i.e., liking) during the shared stressful condition, this increased attraction may have been driving the desire to be affiliative, not stress itself. Moreover, perceptions of similarity have been shown to predict attraction and liking (Montoya et al., 2008). As both participants within the dyads were experiencing similar situations and were in similar emotional states, the similarity between participants could have been salient and, therefore, provided an initial jumpstart in liking, which could then have acted to promote immediate affiliative desire. Consistent with the concept of emotional similarity, Gump and Kulik (1997) found participant dyads that experienced similar threat situations exhibited more affiliate behaviour (e.g., more eye contact, more mimicry of expressions and body language) than participant dyads that experienced dissimilar threat situations.

Long Term Affiliative Responses

Consistent with our second hypothesis, we found evidence to suggest that there was a significant indirect effect such that immediate affiliative desire was a mediator in our model. However, we did not find evidence to suggest that the shared stress condition was directly associated with long-term affiliative responses, such as liking and future affiliative intentions. There were significant differences in negative arousal levels between conditions, suggesting that participants reported experiencing more negative arousal in the shared high stress condition than in the shared low stress condition. However, the absolute value of negative arousal in the shared stress condition was low when considering the 1-5 Likert scale measurement (*M* = 1.90, *SD* = 0.68). The stress induction procedure was possibly not powerful enough to directly predict differences in long-term affiliative responses over time. It is notable, therefore, that the indirect effect was detected and could predict differences in these responses at all. It could be the case that stress directly affected immediate affiliative desire, which then translated behaviourally into more affiliative behaviours during the discussion task. However, the content of the discussion tasks was not recorded nor assessed in the present study and, therefore, we do not know specifically what occurred during the discussion tasks.

Strengths of the Present Research

The present study suggests, through the means of a novel experiment, that sharing stressful situations with other people promotes the inclination to affiliate with others. The proposed mediation pathway in the present study provides a broader understanding of how shared stressful situations can prompt long-term affiliative behaviours by examining the mediating role of this elevated immediate affiliative desire. The findings of this study suggest that shared stress can provide valuable and advantageous opportunities to create affiliative bonds with others. A large body of research is dedicated to analyzing the negative effects of stress (Beauchaine et al., 2011; Gouin, 2011; Vitaliano et al., 2002). Although that work is important and can help to improve quality of life and health outcomes, it is also important to recognize that stress is a ubiquitous part of life. It is, therefore, crucial to find and examine any positive consequences and silver linings that may be present from experiencing stressful situations, especially in social contexts.

Limitations and Future Research

There were several limitations that can be identified in the present study. The dyads were drawn from a convenience sample of students taking similar courses. Although we attempted to recruit random strangers in this study, as these students were taking similar classes, it could have been the case that they interacted with each other, albeit briefly, before the study occurred. As previously discussed, the math test paradigm was not very effective in inducing negative affect. Although the aim of this study was to induce mild, shared stress, it may be the case that long-term affiliative responses require a greater induction of stress to see stronger affiliative impacts. Stress was also operationalized via the PANAS questionnaire to assess high arousal of positive and negative emotions. However, the present study did not measure subjective feelings of stress (e.g., perceived stress) nor how anxiety disorders such as social anxiety that could have impacted the results. Moreover, liking as part of long-term affiliative responses was only measured after the discussion task. The shared stress induction condition may have enhanced liking before the discussion task occurred, which may have acted as a confounding factor involved in experiencing immediate affiliative desire. The measures of the present study could also be improved. These measures were either created or modified for the purpose of the present study and, therefore, have not been rigorously tested for validity. Additionally, the tested internal reliability and consistency of some of these measures were slightly lower than the thresholds that are usually accepted. Finally, the present research only examined stress and affiliative responses in the short-term related to a single university-specific context.

To address these limitations, there are many avenues for future research. First, it would be beneficial to attempt to find more effective stress induction techniques in the future. For example, dyads may be asked to watch movie clips together or the *Triers Social Stress Test* (TSST) might be modified as a procedure to accommodate milder shared stressful experiences. Additionally, as the present study only examined shared stressful situations, future studies should clarify whether sharing the stressful experience with another person is necessary to promote immediate inclinations to affiliate. Moreover, as the shared stress induction experiment may have enhanced liking and other affiliative responses even before the discussion task occurred, future research should further examine whether shared stress can impact these factors as an alternative explanation to increasing immediate affiliative desire. As responses to Likert scales can be subjective, future research should also aim to record both the discussion tasks and affiliative behaviours after the tasks to analyze if observable behaviours such as body language is different based on shared stress experiences. In addition to recording behaviour during the discussion tasks, future research should seek to replicate the findings of the current study using validated measures for affiliation, such as the inclusion of other in the *self -closeness scale* (Aron et al., 1992). Future research should also aim to expand the scope of the findings, specifically examining whether the affiliative responses predicted the formation of long-term friendships (e.g., 3-months after the experiment), how different people create new friendships (e.g., intergender friendships, same-sex friendships among men, nonbinary and trans-friendships, samples beyond university students, clinical settings), and whether the findings of the present study replicate in different shared and unshared stress contexts (e.g., walking home at night with or without another person present). Finally, as the tend-and-befriend response has been demonstrated to promote immediate affiliative desire, the present study may aid in informing future psychological studies in similar fields that examine connections between individuals, such as loneliness research.

Implications and Conclusion

Findings from the present study may improve the understanding of how strangers can create high-quality, long-lasting friendships, especially in the face of the increasing stress levels of modern life.

Specifically, how elevated affiliative desire experienced during shared stressful events could act as a spark to facilitate new friendships. Ensuring people have access to friendships and social networks is a valuable strategy to mitigate stress, as friendships can provide people with the social support resources they need to cope with stress (Cohen, 2004). Sias and Bartoo (2007) go as far as to insinuate that social support is the fundamental function of friendship and that interventions to create and bolster friendships should be implemented as health regimens, especially for populations that are vulnerable to the negative effects of stress and/or have difficulties maintaining friendships, such as the elderly. The employment of mild acute shared stressful situations could provide opportunities for creating affiliative bonds in these populations.

In conclusion, the present study found that shared stressful situations can promote affiliative behavior in a setting that university students may experience in daily life. Specifically, immediate affiliative desire prompted by shared stressful exposure to a difficult test mediated long-term affiliative responses, such as liking and future intentions to affiliate with the partner. Although this is not the only important factor in forming new friendships and the negative consequences of chronic stress should not be overlooked, mild experiences of shared stressful situations can act as a potential avenue for friendship formation experiences.

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