Mission

Le *Journal sur l'identité, les relations interpersonnelles et les relations intergroupes* (JIRIRI) est une revue scientifique internationale publiée annuellement en avril. La mission du JIRIRI 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 désirant approfondir et diffuser des idées ou des résultats portant sur les thèmes de l'identité, des relations interpersonnelles ou des relations intergroupes est invité à soumettre un manuscrit.

Processus de révision

Dès la réception des manuscrits, 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 quatre étudiants de premier cycle et à un étudiant des cycles supérieurs. Ces étudiants rendront une évaluation anonyme, 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.

Le responsable du manuscrit fera la synthèse de ces évaluations dans une lettre d'édition destinée à l'auteur. La rédaction de la lettre d'édition sera supervisée par les Éditeurs consultants, étudiants aux cycles supérieurs. La lettre d'édition devra souligner les critiques les plus importantes et rendre la décision concernant la publication de l'article. L'article peut être accepté, accepté avec révisions majeures, accepté avec révisions mineures, rejeté avec invitation à soumettre à nouveau ou rejeté.

L'auteur apportera alors les modifications suggérées par le comité de rédaction. Le processus de révision et de correction se poursuivra ainsi 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 devra confirmer qu'il est présentement étudiant au premier cycle 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 <u>six mois</u> avant la soumission du manuscrit.

La première page du manuscrit devra contenir le titre de l'article ainsi qu'un titre abrégé de **45 caractères maximum**. La deuxième page devra contenir un résumé de l'article de **150 mots**. De plus, l'auteur devra fournir **cinq mots-clés** en lien avec les thèmes abordés dans l'article. Le texte doit contenir **au maximum 10 000 mots et respecter les règles 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 révisions 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

Mission

The *Journal of Interpersonal Relations, Intergroup Relations and Identity* (JIRIRI) is an international scientific journal published annually in April. 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.

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 four undergraduate students and one graduate student. These students will write anonymous reviews to the author and send them to a member of the editorial team responsible of the manuscript.

The editorial team member 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, accepted with major modifications, accepted with minor modifications, rejected with the invitation de resubmit, or it may be rejected completely.

The author will then carry out the modifications considered necessary 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/she has co-written with a professor or a graduate student only if he/she is 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 **not exceeding 45 characters**. The second page must include an abstract 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 10,000 words and 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

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Remerciements

Acknowledgments

Éditorial

JULIE ZAKY
Université de Montréal

C'est avec beaucoup de fierté que je vous présente le 11ᵉ volume du *Journal sur l'identité, les relations interpersonnelles et les relations intergroupes* (JIRIRI). Le JIRIRI ne cesse de faire preuve de la motivation, du talent et de l'engagement qu'ont les étudiants de premier cycle, tant les auteurs que l'équipe éditoriale.

Depuis onze ans, le JIRIRI offre une occasion unique aux étudiants de premier cycle universitaire de s'impliquer pleinement dans le monde de la publication scientifique. Il n'est pas surprenant qu'année après année, le JIRIRI continue d'attirer l'attention de plus d'une centaine d'étudiants provenant de partout dans le monde, qui souhaitent acquérir une expérience concrète dans le monde de la recherche et de la rédaction. Avec son approche centrée sur l'étudiant, le JIRIRI se démarque réellement des autres méthodes d'enseignement. Celle-ci s'est d'ailleurs reflétée par la nomination du journal au prestigieux concours *Reimagine Education* 2018.

Cette année, l'équipe éditoriale était composée de treize rédacteurs adjoints, de six étudiants aux cycles supérieurs, et d'une centaine d'évaluateurs provenant de plus de dix universités différentes à travers le monde. Il est également important de souligner que nous avons travaillé conjointement avec l'équipe de la revue *Neuropsychologie Clinique et Appliquée / Applied and Clinical Neuropsychology* (NCACN), dirigée par Janie Mendes (Rédactrice en chef), afin d'assurer la visibilité et la promotion des deux revues, tout en gardant un contenu distinctif. Un Gala du JIRIRI et du NCACN, organisé par Lydia Hébert-Tremblay et son équipe, a même eu lieu en janvier 2018 afin de célébrer l'initiative étudiante qui perdure depuis plus de dix ans pour le JIRIRI, et qui continuera de croitre grâce au lancement du NCACN.

Pour cette édition, Le JIRIRI a reçu un total de treize manuscrits provenant de douze universités différentes. De ces manuscrits, neuf ont été acceptés et huit sont publiés dans ce volume, ce qui représente un taux de rejet de 31%. Comme à chaque année, notre comité éditorial a suivi diverses formations afin d'assurer une qualité supérieure des lettres d'éditions et des évaluations envoyées aux auteurs.

Pour ce 11ᵉ volume, l'équipe avait comme objectifs de solidifier et d'améliorer les bases établies depuis les dix dernières années, ainsi que d'assurer une plus grande visibilité au journal. Nous avons donc retravaillé le contenu des formations et des documents de soutien offerts à l'équipe de cette année. De plus, afin d'augmenter la cohérence des évaluations d'un collaborateur à l'autre, nous avons modifié le processus d'évaluation. Pour ce faire, nous avons remplacé l'ancien format des évaluations par un nouveau, qui se divise en deux sections : une grille d'évaluation et une section dédiée aux commentaires. De plus, après avoir été rendue anonyme, chaque lettre d'édition a été envoyée aux collaborateurs ayant participé à l'évaluation de l'article concerné. Cette nouvelle procédure leur a permis d'optimiser leurs apprentissages et de bénéficier d'une rétroaction sur leur travail. De plus, notre équipe d'édition, dirigée par la formidable Iulia Cerniavschi, a suivi les pas de l'équipe précédente, et a préparé et animé une formation pour nos évaluateurs, rassemblant plus d'une trentaine d'étudiants de différentes universités.

Je tiens à remercier chaque membre de l'équipe du JIRIRI, ainsi que chaque auteur qui s'est aventuré dans cette expérience. Mon implication a été l'une des plus enrichissantes et agréables de mon parcours universitaire, et tout cela grâce à votre passion, votre dévouement et votre persévérance. Ce fut un réel plaisir de travailler à vos côtés. Je tiens aussi à remercier Roxane de la Sablonnière, qui a cru en moi et en tous les autres étudiants qui ont contribué au 11ᵉ volume du JIRIRI. Merci de ton soutien continuel et de ta confiance en nous.

Finalement, j'aimerais souligner le travail exceptionnel de Diana Cárdenas et de Simon Coulombe, qui continuent de s'engager, année après année, au sein du JIRIRI. Je félicite également les efforts et le leadership des responsables : Iulia Cerniavschi (Chef d'édition), Kathleen Bazinet (Directrice des communications), Lydia Hébert-Tremblay (Coordonnatrice des événements), Stéphanie Duguay (Trésorière) et Audrey Plante (Directrice des médias). Votre travail et votre professionnalisme ont fait de cette année un grand succès pour le JIRIRI. Un grand merci à vous tous.

Editorial

JULIE ZAKY
Université de Montréal

It is with great pride that I present to you the 11ᵗʰ volume of the *Journal of Interpersonal Relations, Intergroup Relations and Identity* (JIRIRI). The JIRIRI never ceases to demonstrate the motivation, the talent and the commitment of undergraduate students from the authors to the Editorial Team.

For eleven years, The JIRIRI offers a unique opportunity for undergraduate students to fully experience the process of scientific publication. It is not surprising that, year after year, the JIRIRI continues to attract more than 100 students from all around the world who wish to gain experience in both research and editing. The JIRIRI truly stands out from other teaching methods with an approach that places the student at the center of the learning experience. This has been reflected in the JIRIRI's nomination at the prestigious *Reimagine Education* 2018 competition.

This year, the Editorial Board included thirteen Associate Editors at the undergraduate level, six graduate students and more than one hundred reviewers from more than ten different universities from all around the world. It is also important to highlight that we are working closely with the members of *Applied and Clinical Neuropsychology/ Neuropsychologie Clinique et Appliquée* (NCACN), led by Janie Mendes (Editor in Chief) in order to ensure the visibility and promotion of both journals while keeping a distinctive content. In January 2018, The JIRIRI and NCACN's gala was organized by Lydia Hébert-Tremblay and her team to celebrate these two initiatives and the ongoing work of the JIRIRI for more than a decade and the work that will continue to grow with the launch of the first volume of NCACN.

For this volume, the JIRIRI received a total of thirteen manuscripts from twelve different universities. Of these, nine were accepted and eight are published in this volume, which represents a rejection rate of 31%. As always, our Editorial Board has gone through different trainings to ensure a superior quality of the Editor's Letters and the evaluations that are sent to the authors.

For this 11ᵗʰ volume, our goals were to solidify and improve the foundations established over the last ten years, as well as to ensure greater visibility for the journal. We therefore worked on improving the content of our trainings and support documents. In addition, we changed the evaluation process to ensure the consistency from one reviewer to another. To achieve such results, we replaced the old format of the evaluation by a new one that is divided into two sections: a checklist and a section dedicated to comments. Moreover, each Editor's Letter was sent in an anonymous format to every collaborator who participated in the evaluation of the article in question. This new procedure allowed the collaborators to optimize their learning experience and to benefit from feedback concerning their work. Also, our Managing Team, led by the formidable Iulia Cerniavschi decided to continue offering a training to our reviewers, which they prepared and facilitated themselves. This training brought together more than thirty different undergraduate students from different universities.

I would like to thank every member of the JIRIRI team, as well as every author who ventured into this experience. My involvement was one of the most rewarding and enjoyable during my undergraduate years all thanks to your passion, dedication and perseverance. It was a pleasure to work with you. I would also like to thank Roxane de la Sablonnière who believed in me and all the other students who collaborated in the 11ᵗʰ volume of the JIRIRI. Thank you for your constant support and trust in us.

Finally, I would like to highlight the exceptional work of Diana Cárdenas and Simon Coulombe, who continue to commit year after year to the JIRIRI. I would also like to congratulate the efforts and leadership of Iulia Cerniavschi (Managing Editor), Kathleen Bazinet (Communications Director), Lydia Hébert-Tremblay (Events Coordinator), Stéphanie Duguay (Treasurer) and Audrey Plante (Media Director). Your work and professionalism have made this year a great success for the JIRIRI. A big thanks to all of you.

Lettre des rédacteurs adjoints séniors

DIANA CÁRDENAS, PH. D.,[1] SIMON COULOMBE PH. D.,[2] & ROXANE DE LA SABLONNIÈRE, PH. D.[1]
Université de Montréal[1], Wilfrid Laurier University[2]

C'est avec énormément de fierté et d'excitation que nous vous présentons le 11e volume du *Journal sur l'identité, les relations interpersonnelles et les relations intergroupes* (JIRIRI). Depuis déjà onze ans, cette initiative étudiante a été mise sur pieds, permettant aux étudiants de premier cycle en psychologie de participer au processus de publication scientifique, et ce de la réception d'un manuscrit à la publication de celui-ci. Le JIRIRI est aussi très enthousiaste d'offrir la chance aux étudiants de premier cycle partout à travers le monde de jouer divers rôles associés au monde de la publication, allant de réviseurs à membres du comité éditorial.

C'est d'ailleurs le caractère unique de cette revue scientifique qui a inspiré des professeurs en neuropsychologie de l'Université de Montréal à se lancer dans l'aventure à leur tour. En effet, en septembre dernier est parue le premier volume de la revue *Neuropsychologie Clinique et Appliquée/Applied and Clinical Neuropsychology* (NCACN). Le processus de révision du JIRIRI ayant fait ses preuves, le NCACN a décidé de l'adapter à sa manière. Le JIRIRI et le NCACN travaillent désormais conjointement pour assurer la qualité et l'originalité de leur contenu respectif. C'est dans cette optique qu'a eu lieu, en janvier 2018, le tout premier gala pour la promotion de deux revues scientifiques de l'Université de Montréal offrant l'opportunité à des étudiants de premier cycle en psychologie à travers le monde d'effectuer leur première expérience dans le monde de la publication scientifique. Lors de cette célébration, des étudiants ayant pris part à la publication du JIRIRI, du volume 1 au volume 11, ainsi que des étudiants ayant participé à la publication du premier volume du NCACN se sont rassemblés pour souligner leur travail, et surtout les apprentissages qu'ils ont effectués dans le cadre de leur implication au sein des équipes éditoriales au fil des ans.

Un des principaux objectifs du JIRIRI est de permettre aux étudiants de premier cycle de développer leur esprit critique afin de partager leurs idées innovatrices. Le JIRIRI souhaite, avant tout, diffuser de nouvelles idées et théories dans le domaine de la psychologie sociale dans le but de changer le monde. C'est en questionnant les théories enseignées dans le milieu académique qu'il sera possible d'en développer de nouvelles et de révolutionner, en quelque sorte, la psychologie. Nous souhaitons donc profondément que les idées élaborées dans les articles du présent volume sauront vous inspirer, vous aussi, à changer le monde.

Letter from the Senior Associate Editors

DIANA CÁRDENAS, PH. D.,[1] **SIMON COULOMBE PH. D.,**[2] **& ROXANE DE LA SABLONNIÈRE, PH. D.**[1]
Université de Montréal[1], Wilfrid Laurier University[2]
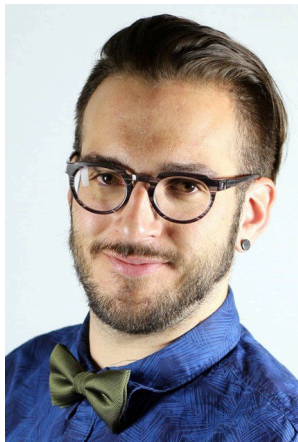
It is with great pride and excitement that we present the 11th volume of the *Journal of Interpersonal Relations, Intergroup Relations and Identity* (JIRIRI). Eleven years have passed since this student-led initiative began, which has allowed countless undergraduate psychology students to get involved in the entirety of the scientific publication process, from the moment the manuscript is received up until its publication. The JIRIRI has also been able to offer undergraduate students from all over the world the opportunity to occupy various roles associated with the publishing world, ranging from being Reviewers to being a member of the Editorial Team.

It is the uniqueness of this scientific journal which has inspired professors in neuropsychology at the Université de Montréal to embark on the adventure as well. In fact, the first volume of Applied and Clinical Neuropsychology/ Neuropsychologie Clinique et Appliquée (NCACN) was published last September. The NCACN used the JIRIRI's well-tested and well-seasoned review process as a basis for its own process, successfully adapting it to its own needs. The JIRIRI and the NCACN are now working together to ensure the quality and originality of their respective content. It is in this spirit of collaboration that, in January 2018, the first gala promoting the JIRIRI and the NCACN took place. This gala celebrated the two scientific journals born at the Université de Montréal, and exclusively created to offer undergraduate psychology students around the world their first experience with a scientific journal. During this celebration, students who took part in the publication of JIRIRI, from volume 1 to volume 11, and of the first volume of the NCACN gathered to highlight their work and the scientific skills they acquired through their involvement in the editorial teams.

One of the JIRIRI's main goals is to allow undergraduate students to develop their critical thinking skills and to share their innovative ideas. The JIRIRI's main mission is to share new ideas and theories in the field of social psychology, ideas that can change the world. It is through questioning the theories taught in university classes that such new ideas will develop, and hopefully revolutionize psychology. Therefore, our deepest hope is that the ideas developed in this volume will inspire you to change the world.

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

Processus de révision par les pairs

Le JIRIRI a mis au point un processus de révision par un comité de pairs adapté aux étudiants universitaires de premier cycle. Chaque membre de l'équipe éditoriale possède 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 en chef*, qui assure le bon déroulement du processus de révision et de publication tout en respectant l'échéancier. Les tâches du *Chef d'édition* consistent à organiser des ateliers de formation pour les évaluateurs, et à superviser la mise en page du JIRIRI. Le *Directeur des communications* est responsable de la promotion et la rédaction de demandes de bourses. *Le Coordonnateur des événements* et *le Trésorier* sont responsables du financement du JIRIRI. Finalement, le *Directeur des médias* coordonne les projets visant la visibilité du journal. *Les Rédacteurs adjoints* sont responsables du processus de révision et de publication d'une partie des manuscrits soumis.

Le processus d'évaluation des manuscrits se déroule en trois étapes. Le Rédacteur en chef amorce le processus en effectuant une sélection parmi les manuscrits soumis, puis envoie ces manuscrits aux Rédacteurs adjoints. Ceux-ci s'assurent que tous les manuscrits font d'abord l'objet d'une évaluation par cinq *évaluateurs*, quatre étudiants de premier cycle, et un *évaluateur invité*, étudiant aux cycles supérieurs. Suite à ces évaluations, un des membres du comité éditorial prend en charge l'intégration de l'ensemble des commentaires formulés afin de fournir à l'auteur une synthèse des commentaires par le biais d'une *lettre d'édition*. Ensuite, les *Éditeurs consultants*, des étudiants aux cycles supérieurs ou des étudiants 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 éditeurs. De plus, Diana Cárdenas, Ph. D., Simon Coulombe, Ph. D., et Roxane de la Sablonnière, Ph. D., agissent à titre de *Rédacteurs adjoints séniors* et supervisent tout le processus en collaboration avec le Rédacteur 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 tels 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 ces gens, 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 at developing 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 and submits grant applications that allow for the publication of the JIRIRI. The *Events Coordinator* and *Treasurer* find financing to the journal. The *Media Director* oversees projects 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's mission, and sends them to the Associate Editors. The Associate Editors ensure that all articles are reviewed by four 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*, Diana Cárdenas, Ph. D., Simon Coulombe, Ph. D., and Roxane de la Sablonnière, 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 has been able to reach its goals and mission.

The Effect of Disability Status on Ratings of Platonic Attraction

KATHERINE HILL, LOREN KEMPENICH, MELANIE KLEMOND, & ANA STAUBER
University of Minnesota

Past research has shown that people with disabilities (PWD) face high levels of social isolation, which contributes to several negative outcomes. We consider it is important to determine if bias against PWD contributes to social isolation. The purpose of this experiment was to determine if young adults consider PWD less desirable friends than able-bodied (AB) people. If PWD are seen as less desirable friends, it may be more difficult for them to form relationships with their peers and they may be more isolated. Participants were shown a profile of either a woman in a wheelchair or the same woman without a wheelchair and completed questions measuring their feelings about being friends with the woman. No significant differences were found between groups. Participants may have shown no explicit bias because of social desirability or because of the low level of commitment required by the experiment. Future research should examine implicit bias against PWD and bias in other types of interactions with PWD.

Keywords: disability, friendship, explicit bias, relationships, discrimination

Les études antérieures montrent que les personnes avec un handicap (PAH) font face à des niveaux élevés d'isolement social, contribuant à plusieurs conséquences négatives. Il est important de déterminer si les biais envers les PAH y contribuent. Le but de cette étude était d'investiguer si les jeunes adultes considèrent une PAH comme une amie moins désirable qu'une personne sans handicap. Si les PAH sont perçues comme des amies moins désirables, former des amitiés pourrait être plus difficile pour elles et elles seraient plus isolées. Le profil d'une femme soit sans ou avec un fauteuil roulant a été montré aux participants et un questionnaire mesurant leurs sentiments concernant l'entretient d'une amitié avec elle a été complété. Aucune différence significative n'a été trouvée entre les groupes. Les participants peuvent n'avoir montré aucun biais explicite en raison de la désirabilité sociale ou du faible niveau d'engagement relié à la tâche. Les études futures devraient examiner les biais implicites et les biais dans d'autres interactions avec les PAH.

Mots-clés : handicap, amitié, biais explicite, relations, discrimination

People with disabilities (PWD) are a minority group that faces bias and discrimination in the workplace, in the courtroom, and in other societal settings (Bruyère, 2000; Hahn, 1988; McConnell & Llewellyn, 2000). Bias may be especially present in the interpersonal relationships of PWD, including friendships. PWD consistently report high levels of loneliness. Studies on people with intellectual disabilities have found that they have few friends and experience high levels of isolation both in residential settings and in the community (Duvdevany & Arar, 2004; Rapley & Beyer, 1996). For example, Nosek, Hughes, Swedlund, Taylor, and Swank (2003) found that women with physical disabilities experience greater social isolation than women without disabilities. While the reasons for increased social isolation in PWD have not been extensively studied, one contributing factor could be discrimination by able-bodied (AB) people. If AB people are reluctant to form platonic relationships with PWD, then PWD may

have less access to friendships. Decreased access to friendships could in turn contribute to the social isolation that many PWD experience. The present study examined how bias affects friendships in PWD. More specifically, the study will focus on platonic attraction, which is the initial perception of someone as a desirable friend. The goal of this research is to determine whether AB people show bias in the form of decreased platonic attraction to PWD.

Discrimination Against People with Disabilities

The United States Government defines a person with a disability as "any person who has a physical or mental impairment that substantially limits one or more major life activities" (U.S. Department of Justice, 2009). This is a broad category that includes people with impaired physical functioning, mental illness, and developmental disabilities, although this study will focus primarily on the former.

Many researchers have hypothesized that PWD face both bias and discrimination from able-bodied people (Hahn, 1988; Hughes & Paterson, 1997). Bias is a belief or preference for or against something (Puhl & Brownell, 2001). For example, a person would be

biased if they believed that PWD are less capable than able-bodied people. There are two forms of bias: explicit and implicit. It is explicit if someone is conscious of holding the biased view (Rojahn, Komelasky, & Man, 2008). The person may be able to openly articulate "I think PWD are less capable". It is implicit if someone is not consciously aware of the bias (Rojahn et al., 2008). If a person tells themselves that they view PWD and AB people as equally capable, but unconsciously believes that someone at work is less capable because they have a disability, they are demonstrating implicit bias.

Understanding bias is important because it often leads to discrimination, which is when a person treats someone unfairly because of bias they hold toward that person (Puhl & Brownell, 2001). If a person acts on their belief that PWD are less capable, for example, by deciding not to hire someone who uses a wheelchair, then they are discriminating against the person in the wheelchair.

Studies have confirmed PWD face discrimination in many parts of their life (Ali et al., 2013; Bruyère, 2000; McConnell & Llewellyn, 2000). In particular, extensive research has been performed on PWD in the workplace. In a survey administered to a random sample of human resources and equal employment opportunity personnel, 23% of those surveyed in the private sector and 43% of those surveyed in the federal sector thought attitudes or stereotypes among co-workers or supervisors toward PWD were a major barrier for PWD in their own company (Bruyère, 2000). In another survey of almost 30,000 employees from 14 companies, Schur, Kruse, Blasi, and Blanck (2009) found that employees with disabilities had significantly lower pay, job security, and participation in decisions than did their AB coworkers.

There is also evidence that parents with intellectual disabilities are especially vulnerable to discrimination during child protection proceedings. A review paper by McConnell and Llewellyn (2000) showed that stereotypes that portray people with intellectual disabilities as inherently unfit or incompetent to raise children lead to the removal of many children from the care of their disabled parents, even in cases where there was little or no evidence of harm to the child. In a sample of 79 United States parents with intellectual disabilities, the State had removed 103 out of 226 children (45.5%). In some states, discrimination was actually codified into law through statutes that made it easier to terminate the parental rights of individuals with intellectual disabilities.

Bias Against PWD in the Formation of Interpersonal Relationships

Bias against PWD may also impact their ability to form interpersonal relationships. If AB people hold negative views about PWD, they may be less likely to want to form a relationship with PWD. Research on characteristics outside of disability status suggests that bias does have a strong impact on friendship formation. Marsden (1988) examined survey data on romantic and platonic relationships and found that people in close relationships show a high level of homogeneity in their race/ethnicity, religious group, age, and level of education. The authors suggested that this homogeneity reflected a larger preference for people who are perceived as similar to oneself, or as part of one's "in-group". It is possible that similar in-group preferences could lead AB people to rebuff potential relationships with PWD.

While Marsden (1988) examined fully-formed friendships, the initial desire to form a friendship may also be strongly shaped by the social perception of someone as a desirable friend. An experiment by Rothbart, Evans, and Fulero (1978) demonstrated that social perception can be strongly influenced by stereotypes when asking participants to recall facts that were given on a projector screen about a group of men. Participants who were led to believe that the men in the group were either friendlier or more intelligent than average had enhanced recall for facts confirming that perception. If adults are influenced by negative stereotypes about PWD, then they may be more cognizant of information that confirms those negative stereotypes when interacting with PWD and be less likely to pursue a platonic relationship with PWD.

Several studies have examined how bias against PWD might impact relationship formation in the context of adult romantic attraction. Romantic attraction is defined as someone's perceived desirability as a romantic partner (Campbell, 1999). Man, Rojhan, Chrosniak, and Sanford (2006) examined the effect that disability status had on explicit, or consciously held, appraisals of romantic desirability by showing college students photos and profiles of 16 young adults, half of whom were described as having a disability. Participants were asked to rate their romantic attraction to the person in each profile by completing Campbell's *Romantic Attraction Scale* (1999). Their research revealed that participants rated disabled and non-disabled peers as equally attractive.

The experiment was later repeated by Rojahn et al., (2008), but with a single alteration. In addition to the primary measures of the first experiment, participants completed a test of implicit bias against PWD, which

was designed to measure participants' unconscious biases rather than their self-reported beliefs. Once again, participants rated the disabled and non-disabled photos as equally attractive. However, the participants showed a clear implicit bias against PWD.

Rojahn and colleagues' (2008) results could indicate that explicit bias against PWD differs from implicit bias. The primary measure of the experiment was an explicit measure because participants were asked to make a conscious decision about their levels of romantic attraction to each profile. In contrast, implicit biases are outside of conscious awareness. The fact that the experimenters found significant results for the implicit but not the explicit bias measure could indicate that adults do hold biases against PWD, but that they are outside of their conscious awareness.

However, the discrepancy between the measures of explicit and implicit bias may also have been affected by the design of the experiment. Participants might have thought that researchers were unlikely to have included eight profiles of PWD simply by chance. The high number of PWD and the fact that participants were asked five explicit questions about their levels of attraction to each individual made it fairly obvious what the experiment was measuring, even if participants were not explicitly informed of its purpose. Participants may have discerned that the true purpose of the experiment was to measure bias against PWD. They could have been motivated by this knowledge and by the social undesirability of appearing prejudiced to conceal potential explicit bias they might have otherwise expressed. In other words, the participants may have had conscious biases against PWD that they were able to successfully hide from the researchers.

Bias Against PWD in Friendships

The same biases against PWD that were found in the formation of adult romantic relationships may also be present in relationships without a romantic component, or platonic relationships. Discrimination against PWD by AB people has also been well documented in the formation of childhood and adolescent friendships. Research performed by Weiserbs and Gottlieb (2000) showed that adolescents discriminated against peers who were perceived to have permanent physical disabilities. In their experiment, adolescents were told that a new student would be joining their class and that the student used a wheelchair either permanently or only temporarily. Students were more willing to befriend a classmate in a wheelchair due to a temporary injury than a classmate who was a permanent wheelchair user.

In another study, Nadeau and Tessier (2006) surveyed children with cerebral palsy and their classmates about who they considered a desirable playmate. Their research found that students with cerebral palsy, especially if they were female, had lower social status and fewer reciprocal friendships than did their non-disabled peers.

Although research in children has found clear evidence of bias and discrimination against PWD, little to no research has examined the impact of bias on friendship formation in adults with disabilities. If bias against PWD does exist, which would impact the formation of friendships, it could contribute to social isolation, or to a severe deficit in contact with other people and the outside world, which researchers have documented in many PWD (Nosek et al., 2003).

Social isolation and bias against PWD in adult friendships is important because platonic relationships are essential for mental and physical well-being. Studies that found high levels of social isolation in women with disabilities also revealed that social isolation can contribute to negative outcomes such as less intimacy and less health-promoting behaviors (Duvdevany & Arar, 2004; Nosek et al., 2003; Rapley & Beyer, 1996). Research on African Americans, another minority group that faces bias and discrimination, found that close and supportive friendship ties are associated with lower rates of depression (Taylor, Chae, Lincoln, & Chatters, 2015). One meta-analytic review even found that people with strong social relationships show significantly decreased risk of mortality (Holt-Lunstad, Smith, & Layton, 2010).

Despite the mental and physical importance of adult friendships, most research on adults with disabilities has focused on romantic relationships (Man et al., 2006; Rojahn et al., 2008). Past research suggests that friendship relationships differ from romantic relationships in both attachment style and the needs satisfied by the relationship (Overall, Fletcher, & Friesen, 2003). The differences between the two relationship types make it difficult or impossible to draw conclusions about one type based on research that has been performed on the other type.

Because of the differences between romantic and platonic relationships and because of the many benefits provided by friendships, it is important to perform research on platonic relationships and how they are affected by bias against PWD. Research on bias against PWD in platonic relationships could help researchers understand how bias differs between different types of relationships and how to design effective interventions that decrease bias and

discrimination by specifically targeting the unique characteristics of each type of relationships.

The Present Research

Whether AB people avoid forming potential platonic relationships with PWD is an important first step in determining if discrimination against PWD contributes to the increased level of social isolation experienced by PWD and potentially to finding avenues to decrease that isolation. The present research focused on the immediate perception of someone as a desirable friend, which is often the very first step in the friendship process. By studying the early steps of friendship formation, it may be possible to understand the factors that push AB people toward or away from forming friendships with PWD. This could lead to the development of interventions that could potentially stop discrimination before it ever begins.

This initial step in friendship formation will be studied using platonic attraction, which is defined as the perception of someone as a desirable friend. If Person One strongly believes that they would like to be friends with Person Two because of Person Two's appearance, hobbies, personal characteristics, or any other combination of factors, then Person One has a high level of platonic attraction toward Person Two. If Person One believes strongly that they would not like to be friends with Person Two, then Person One has a low level of platonic attraction toward Person Two. Platonic attraction is similar to the concept of romantic attraction, which has been extensively studied by researchers interested in romantic and sexual relationships (Campbell, 1999; Feingold, 1990; Fisher, Aron, Mashek, Li, & Brown, 2002; Russell, Franz, & Driscoll, 2001).

A person's initial platonic attraction toward someone is likely an important factor in whether they become friends. Research has shown that people make judgments about characteristics like attractiveness, likeability, and trustworthiness after being exposed to an unfamiliar face for only 100 milliseconds (Willis & Todorov, 2006). If a person's initial impression of a new acquaintance is negative, they are unlikely to pursue a friendship with that person. In other words, if an individual has a low level of platonic attraction to someone, they will less likely become friends.

This initial impression may also be where PWD face the most bias and are the most disadvantaged in forming new friendships. Hahn (1988) identified the importance of personal autonomy and physical attractiveness in western society. Individuals living in westernized nations internalize autonomy and physical attractiveness ideals to the extent that violations of these norms cause Westerners to experience discomfort. Hahn theorized that PWD, by violating both these norms, cause an instantaneous sense of anxiety, or negative "gut reaction" in AB people who encounter them. In the first encounter, the most salient feature of a PWD according to AB people is often their disability status, especially if the disability involves the person's physical appearance. During the first encounter, AB people have no previous personal experience or familiarity with the person with a disability, their personality, their interests, or any other factors that could counteract initial anxiety based on the physical appearance of the PWD. Their negative gut reaction could therefore play an outsized role in their initial platonic attraction to PWD and reduce the possibility that PWD will be viewed as valuable platonic partners. We hypothesized that AB young adults would give a higher rating of platonic attraction, or someone's perceived desirability as a friend, to other AB people than to PWD.

Method

Participants

The participants were 96 young adults enrolled through convenience sampling. Participants were recruited from an introductory psychology class at a large Midwestern University and through social media. Participants did not receive compensation for completing the experiment. The mean age of the participants was 23 ($SD = 3.23$), and all participants were between the ages of 18 and 30. Seventy-seven participants (80%) identified as female and nineteen participants (20%) identified as male. The majority of the participants identified as Caucasian (82%; $n = 79$), Asian and Caucasian (5%; $n = 5$), or Hispanic (4%; $n = 4$). In addition, three participants identified as Asian (3%), two participants identified as Black (2%), one participant identified as Middle Eastern (1%), and two participants preferred not to respond (2%).

Materials

The experiment was completed using an online Qualtrics survey that participants could access using a computer or smart phone. The survey included the profile of five college students. Each profile included a photograph of the student and a short paragraph about them. The profiles were adapted from Rojahn and colleagues (2008).

Participants answered five questions that were slightly rephrased about their platonic attraction to the person in each profile on a seven-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). The five rating scales were adapted from the *Romantic Attraction Scale* (RAS) developed by Campbell (1999) and used by Man and colleagues (2006) and Rojahn and colleagues (2008). The scales were altered

by changing the term "dating partner" to "friend" and the term "date" to "be friends". For example, the question "*How desirable would you find this person as a dating partner?*" was changed to "*Louise would be a desirable friend.*" The other questions, including "*I would feel good about myself if I was friends with Louise*" and "*My friends would approve of me if I was friends with Louise*", were also designed to measure aspects of platonic attraction. Chronbach's alpha for this scale was .86.

Considering one of the goals of this study was to determine why previous studies had not detected explicit bias against PWD (i.e., because of study design or because they were examining romantic, rather than platonic attraction), an explicit measure of discrimination was chosen. In addition, previous experiments on romantic attraction toward PWD used the RAS. Because this study was designed in part to determine whether a more rigorous design would lead to different results, it was decided to hew as closely as possible to the materials that previous studies used as their dependent variable.

Procedure

Participants were randomly assigned to the control or the experimental group. All participants viewed the profiles of five college students that included a picture of the student and a short description about them. The five profiles presented three women and two men of different races. It was expected that the relatively large number of distractor items and that the profiled people varied across several different demographic factors would make it more difficult for participants to ascertain the purpose of the experiment. Therefore, it would minimize demand characteristics. The profiles were shown in a random order to prevent order effects. Four of the profiles that the participants viewed were identical across both conditions and were used as distractor items. For the fifth profile, participants in the experimental group were shown a photograph of a woman in a wheelchair and participants in the control group were shown a photograph of the same woman without a wheelchair. The profile included the same description about the woman, but did not mention a disability.

Immediately after viewing each profile, participants completed five rating scale questions about how they would feel about being friends with the college student in the profile. This experiment was designed to examine participants' first impressions about PWD when considering forming a potential friendship. Therefore, the rating scales were on a separate screen from the profiles in order to prevent participants from over-analyzing their responses.

After completing the experiment, participants were shown a debriefing form that explained the purpose of the experiment and gave them the option of having their data discarded. No participant chose to have their data removed from the experiment. The experiment was conducted ethically and followed all institutional guidelines for research with human participants.

Results

Our hypothesis was that participants would express lower levels of platonic attraction to a person with a disability than to an AB person. To test our hypothesis, the scores from the five rating scale questions for the wheelchair/no wheelchair profile were averaged to create a platonic attraction score (PAS) for each participant. An independent samples *t*-test was performed to compare the PAS of the experimental and control groups. If participants exhibited disability prejudice, then the PAS of the experimental group should have been lower than the PAS of the control group. The independent samples *t*-test showed no significant differences, $t(94) = .32$, $p = .746$, between the group that saw the profile with the wheelchair ($M = 5.38$, $SD = 0.72$) and the group that saw the profile without the wheelchair ($M = 5.42$, $SD = 0.65$).

An exploratory analysis was performed to determine whether there were any differences between the different "aspects" of platonic attraction, as measured by the five different rating scale questions. A multivariate analysis of variance (MANOVA) was used to compare the experimental and control groups for each of the rating scale questions. If participants exhibited disability prejudice on any individual question, then the average score given for that question should have been lower for the wheelchair group than for the no wheelchair group. There was no significant differences, $F(5, 90) = 1.71$, $p = .141$; Pillai's Trace = .09, partial $\eta2$ = .09, between the group that saw the profile with the wheelchair and the group that saw the profile without the wheelchair. See Table 1 for the complete results and descriptive statistics.

It is possible that the condition (i.e., experimental or control) that each participant was assigned to affected their rating of platonic attraction for the control profiles as well as the wheelchair/no wheelchair profile. For example, it is possible that participants in both conditions rated the wheelchair/no wheelchair profile similarly but participants in the wheelchair condition rated the control profiles more highly than participants in the no wheelchair condition. If this were the case, it would support the hypothesis that participants exhibited lower levels of platonic attraction toward disabled than non-disabled profiles.

Table 1

Results of Multivariate Analysis of Variance (MANOVA): Comparing Ratings of Platonic Attraction for the Wheelchair and No Wheelchair Conditions

Question	Condition	*M*	*SD*	*n*	M^2	*F*	*p*
I find Louise attractive	No wheelchair	5.09	0.92	43			
	Wheelchair	4.66	1.09	53	4.44	4.28	.041
	Total	4.85	1.04	96			
Louise would be a desirable friend	No wheelchair	5.60	0.88	43			
	Wheelchair	5.70	0.87	53	0.21	0.27	.603
	Total	5.66	0.87	96			
I would actually like to be friends with Louise	No wheelchair	5.30	1.10	43			
	Wheelchair	5.45	0.93	53	0.54	0.53	.470
	Total	5.39	1.01	96			
I would feel good about myself if I was friends with Louise	No wheelchair	5.47	1.01	43			
	Wheelchair	5.36	0.92	53	0.27	0.29	.590
	Total	5.41	0.96	96			
My friends would approve of me if I was friends with Louise	No wheelchair	5.65	0.87	43			
	Wheelchair	5.72	0.99	53	0.10	0.18	.733
	Total	5.69	0.93	96			

Note. M^2 is the pooled mean.

To test for this possibility, the scores for all the rating scales from the four profiles that remained constant across groups were averaged to create a PAS pertaining to the control profiles for each participant. A 2 (control/experimental condition) X 2 (control profiles/target profile) mixed analysis of variance (ANOVA) test was performed. The within-subject variable of the ANOVA was the PAS (i.e., we compared each participant's PAS pertaining to the wheelchair/no wheelchair profile with their PAS pertaining to the control profiles). The between subject variable of the ANOVA was the experimental condition (i.e., compared the PAS pertaining to the wheelchair/no wheelchair profile for the wheelchair and no wheelchair conditions). No statistically significant interaction was found, $F(1, 94) = .78$, $p = .381$. Simple main effects analysis showed that participants had a significantly higher PAS pertaining

to the control profiles than PAS pertaining to the wheelchair/no wheelchair profile ($p < .001$), but there was no difference in PAS pertaining to the wheelchair/no wheelchair profile between the wheelchair and no wheelchair groups ($p = .348$). See Table 2 for descriptive statistics.

Discussion

Research has shown that PWD suffer from high levels of social isolation, which in turn leads to negative health outcomes such as less health-promoting behaviors. One factor contributing to social isolation experienced by PWD could be bias by AB people. If AB people are biased against PWD, then they may be less likely to form platonic relationships with PWD, leaving PWD with fewer friends and a smaller social support network. The goal of this study

Table 2

Mixed Analysis of Variance (ANOVA) Comparing Platonic Attraction Score (PAS) of Wheelchair vs. No Wheelchair Conditions and PAS Pertaining to the Wheelchair/No Wheelchair Profile vs. PAS Pertaining to the Control Profiles

	Condition		
	No wheelchair[a]	Wheelchair[b]	Total
	M (*SD*)	*M* (*SD*)	*M* (*SD*)
Wheelchair vs. No wheelchair PAS	5.42 (0.65)	5.38 (0.72)	5.40 (0.69)
Wheelchair/No wheelchair vs. Control PAS	5.09 (0.82)	4.89 (0.88)	4.98 (0.86)

Note. [a]$n = 43$, [b]$n = 53$. There was no statistically significant interaction, $F(1, 94) = 0.78$, $p = .381$; PAS pertaining to the control profiles was significantly greater than PAS pertaining to the wheelchair/no wheelchair profile, $p < .001$; There was no difference in PAS pertaining to the wheelchair/no wheelchair profile between the wheelchair and no wheelchair groups ($p = .348$).

was to determine whether bias against PWD exists during friendship formation. We hypothesized that young adults would report lower levels of platonic attraction to a woman in a wheelchair (i.e., rate her as a less desirable friend) than to the same woman without a wheelchair. The hypothesis was not supported by the experimental results. No significant differences were found between the control and experimental groups. The experiment did show a significant difference between the participants' PAS pertaining to the experimental profile and participants' PAS pertaining to the control profiles. Specifically, participants in both conditions gave a higher average rating of platonic attraction to the control profiles than to the wheelchair/no wheelchair profile.

The results were consistent with the findings of Man and colleagues (2006) and Rojahn and colleagues (2008) that young adults do not show an explicit bias against potential romantic relationships with PWD. Although the results of the experiment are in line with Rojahn and colleagues' findings, they contradict Hahn's theory (1988) that bias against PWD is based on a negative gut reaction. Because the present study examined platonic attraction, which is based on an individual's very first impressions about the desirability of friendship, any bias due to a negative gut reaction should have been maximized. No bias was found whatsoever. The results of this experiment also differ from those of other studies that have found that AB people do discriminate against PWD in interpersonal relationships (Nadeau & Tessier, 2006; Weiserbs & Gottlieb, 2000). Discrimination, by definition, is a prejudicial action that is taken because of bias (Puhl & Brownell, 2001). Therefore, findings that show discrimination but not bias appear to create a contradiction.

One explanation for this apparent contradiction could be the social undesirability of most forms of bias. Because most types of bias are considered socially undesirable, people may attempt to maintain a positive self-image by consciously rejecting the possibility that they are biased against someone. A conscious rejection of bias has been supported by research on other marginalized groups. Research on women and people of color has found that people often are not consciously aware of being biased. Instead, they justify potentially discriminatory actions as being based on something other than bias (Barreto & Ellemers, 2005; Gaertner & Dovidio, 1986).

These results could also apply to bias against PWD. In the case of disability, people may consciously believe that they view and treat PWD and AB people equally. Even if people do not hold explicit biases against PWD, they may still discriminate against PWD and simply self-justify their actions as

being based on something other than bias. For example, someone might think, "I do not like to spend time with Suzie because we have different hobbies. Not because she has a disability". If most people are not consciously aware of holding biases against PWD, it would explain why the current study found no bias against PWD. Because the present study only measured explicit bias, only participants' conscious belief that they were not biased against PWD would have been measured. The study did not measure any biases held unconsciously by participants nor if participants discriminated against PWD because both of these measures fall outside the construct of explicit bias.

Strengths of the Present Research

The greatest contribution of the present study was its introduction of the concept of platonic attraction. Romantic attraction has been extensively studied and has been useful in examining a wide variety of subjects including narcissism and bias against PWD (Campbell, 1999; Man et al., 2006; Rojahn et al., 2008). However, no previous research has been done on the parallel concept of platonic attraction. Platonic relationships, like romantic relationships, are an important part of most people's social support networks. By providing a fuller social support network, friendships can reduce social isolation and prevent many of the negative health consequences that social isolation causes. The concept of platonic attraction provides an additional avenue for researchers to study these important yet often overlooked relationships.

Another strength of the present research was its experimental design. The experiment was designed to minimize demand characteristics, which have created problems in previous experiments on bias against PWD in interpersonal relationships. Demand characteristics occur when participants consciously or unconsciously change their behavior to match what they believe the experiment wants them to do. In the case of the present research, participants who guessed that the experiment was designed to examine attitudes toward PWD might attempt to hide any bias toward PWD because bias is generally considered undesirable. It was therefore necessary to obscure the true purpose of the experiment. In post-experiment interviews with several of the participants, most said they had believed that the independent variable was race or physical attractiveness. Therefore, the design seems to have been effective, which would most likely decrease the social pressure that participants felt to rate the woman in the wheelchair condition as a desirable friend.

Limitations of the Present Research

Even though the present study was designed to minimize demand characteristics, it is still possible that participants' responses were affected by social desirability bias. Most types of discrimination are considered socially undesirable, which may have caused participants to alter their responses. Although the anonymous nature of the experiment should have minimized social desirability bias, it may still have been present to some extent.

In addition, despite having successfully obscured the experiment purpose, the study design may also have introduced some uncontrolled bias. In order to hide the focus of the study, only one experimental profile and four control profiles were used. The use of only one experimental profile could have introduce bias because there were differences in the pictures and descriptions of the experimental and control profiles that were not controlled for. The importance of these uncontrolled biases is made clear by only significant results of the study; in both the wheelchair and no wheelchair conditions, the experimental profile had a significantly lower platonic attraction rating than the four control profiles. Because no interaction was found, this difference was most likely due to differences in how the students in the different profiles were described, such as their appearance, hobbies and personalities, and was not related to disability status.

These uncontrolled differences in appearance and personality could have obscured any significant differences that were caused by bias against PWD. Future studies should use a slightly altered design in order to eliminate uncontrolled differences. Studies should continue to use only one experimental profile in order to guard against demand characteristics. However, each picture should have a wheelchair counterpart. Participants would be randomly assigned to a condition in which one of the profiles is the experimental profile (i.e., each profile would be the "disabled" profile for a different group of participants). Because every participant would still see only one picture of a PWD, participants would remain unaware of the study's real goal and the differences between the pictures and descriptions would be controlled.

Uncontrolled differences between the experimental and control profiles were the experiment's most important, but not only limitation. The experiment may also have been limited by ceiling effects. While there was some variation in the responses, both groups rated the person in the wheelchair/no wheelchair profile as an overall desirable friend and responses clustered toward the high end of the seven-point scale ($M = 5.42$, $SD = 0.68$). It is possible that a halo effect caused by the profile's other desirable characteristics may have eclipsed any effect caused by disability status.

Despite these caveats, it is likely that no significant effect was found because no explicit bias existed in the specific situation the experiment was designed to measure. The sample means for the two groups were almost identical and, because of the relatively large sample size, the similarity most likely was not caused by random error. In addition, results of the study were consistent with other similar studies on explicit bias when rating profiles of college students (Man et al., 2006; Rojahn et al., 2008).

Future Directions

While it is possible that bias against PWD does not exist, it is more likely that the type and amount of bias people show vary within different circumstances. The lack of bias found in this experiment could be a result of the relatively low level of commitment required from participants. Rating someone as a desirable friend is much different than agreeing to actually befriend that person. If participants were asked to make a larger commitment, such as going on a trip or sharing an apartment with PWD, participants might have shown more bias. This would be consistent with the findings of Weiserbs and Gottlieb (2000) that adolescents were reluctant to befriend a disabled peer. More research is needed to determine whether a similar effect exists in adults. Research could also examine whether people's explicit statements about befriending PWD differ from their actual behaviors and whether people demonstrate different amounts of bias or discrimination based on the level or type of commitment that they are asked to make.

It is also possible that, although the study did not find explicit bias against PWD, implicit bias against PWD does exist. This experiment confirmed previous studies that did not observe an explicit bias against PWD on rating of relationship desirability and extended their findings to include platonic relationships. This study suggests that, at the very least, most people are cognizant that they should not express feelings of bias against PWD. However, it remains to be seen if the absence of explicit bias corresponds to an absence of implicit bias. The correlation between measures of explicit and implicit bias is often low, so the fact that this experiment did not find any explicit bias does not preclude the influence of implicit bias (Hofmann, Gawronski, Gschwendner, Le, & Schmitt, 2005).

In contrast to explicit bias, implicit bias is outside of conscious awareness. Even though people are not aware of having implicit biases, they may still act on those biases by performing a discriminatory action. In fact, implicit bias has been shown to reliably predict

behavior (Hoffman et al., 2005; Dovidio, Kawakami, C. Johnson, B. Johnson, & Howard, 1997). For example, Dovidio and colleagues (1997) performed a series of experiments that showed that, while there was little association between Caucasians' explicit and implicit racist beliefs toward Black people, implicit beliefs predicted performance on spontaneous race-related tasks (e.g., completing word stems after a racial prime) and non-verbal behaviors (e.g., blinking and maintaining eye contact) while interacting with a black person. Implicit bias may also predict behavior in the context of friendship. According to Towles-Schwen and Fazio (2003), implicit attitudes toward African Americans predicted white participants' comfort and willingness to interact with African Americans in unscripted settings. Because the majority of platonic interactions occur in unscripted settings, implicit attitudes could impact someone's willingness to repeatedly interact with and/or become friends with African Americans and other marginalized groups such as PWD.

Implicit bias has primarily been studied in the context of marginalized groups such as people of color and women, but it may also affect behavior toward PWD. Tentative support for the existence of implicit bias against PWD comes from Rojahn and colleagues (2008). They did not find explicit bias against PWD in romantic relationships, but did found that college students show an implicit bias against PWD. This implicit bias could impact whether AB people see PWD as desirable friends. For example, someone may tell themselves that they do not spend time with a person with a disability because they have different interests, while in reality it is because the person's disability makes them uncomfortable. The presence of implicit bias could explain why studies have shown discrimination against PWD in interpersonal relationships, but no explicit bias against PWD.

Because studies have now failed to detect explicit bias in several different relationship contexts, it is likely that any potential avoidance of relationships with PWD is largely the result of implicit biases, rather than conscious or expressed beliefs. Future studies should focus on determining whether people do exhibit implicit bias against PWD in the context of platonic relationships and, if so, how implicit bias affects behaviors such as friendship formation. If implicit bias is shown to impact friendship behaviors, research and social interventions should focus primarily on decreasing implicit bias and specific discriminatory actions against PWD, such as exclusion from social activities or other opportunities, rather than on explicit bias.

Conclusion

The purpose of the present research was to examine bias against PWD by AB people. This experiment, which used stricter methodologies than previous studies, was able to replicate the results of experiments finding no explicit bias against PWD in ratings of romantic attraction and expand them to include platonic attraction. This could suggest that implicit biases may play a larger role in discrimination against PWD than do explicit attitudes. For this reason, bias may only become clear when people are asked to make an actual commitment to spend time with PWD, rather than when participants are asked hypothetical questions about whether they would enjoy spending time with PWD. Future research should focus on the use of implicit and behavioral measurements to detect bias, rather than explicit measures. Social interventions should also focus on altering implicit beliefs and on concrete behavioral results, such as increased social time spent with PWD, rather than on people's reported attitudes toward PWD.

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Testing the Dyadic-Withdrawal Hypothesis in College Students

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The dyadic-withdrawal hypothesis (DWH) posits that the attention given by emerging adults to their friendships and romantic relationships are in competition. In samples of college students (nearly 90% female) who were single ($n = 220$) or romantically involved ($n = 227$), we examined the importance of friendship attachment and identity support during emerging adulthood. For all students, life satisfaction was negatively related to anxious and avoidant attachment to friends and positively related to friendship satisfaction and self-identity support. Relationship satisfaction and self-identity support from a romantic partner also predicted life satisfaction for romantically involved students. Although romantically involved students reported greater life satisfaction on average, single students reported greater friendship satisfaction and identity support from friends. Life satisfaction was highest among romantically involved students who reported greater friendship satisfaction and self-identity support. Our results suggest that the psychological benefits associated with friendships remain important even when romantically involved.

Keywords: dyadic-withdrawal hypothesis, friendship, romantic relationships, life satisfaction, attachment style

L'hypothèse du retrait dyadique (HRD) postule que l'attention accordée aux amis et aux relations amoureuses des jeunes adultes se font compétition. L'importance de l'attachement dans la relation d'amitié et le soutien à l'identité personnelle (SIP) pendant l'émergence de l'âge adulte ont été examinés auprès d'étudiants universitaires (environ 90% étant des femmes) célibataires ($n = 200$) ou en relation ($n = 227$). Chez tous, la satisfaction de vie était négativement corrélée aux styles d'attachement évitant et anxieux dans les relations amicales, mais était positivement corrélée à la satisfaction de l'amitié et au SIP. La satisfaction conjugale et le SIP d'un partenaire amoureux prédisaient également la satisfaction de vie chez ceux en relation. Malgré qu'en moyenne, ceux en relation rapportaient une plus grande satisfaction de vie, les célibataires rapportaient une plus grande satisfaction et de soutien à l'identité des amitiés. La satisfaction de vie était plus importante chez les étudiants en relation rapportant une plus grande satisfaction de l'amitié et de SIP. Nos résultats suggèrent que les bienfaits psychologiques associés à l'amitié demeurent importants même lorsqu'en relation.

Mots-clés : hypothèse du retrait dyadique, amitié, relations amoureuses, satisfaction de vie, style d'attachement.

Developmentally, college students are at the beginning of a phase called "emerging adulthood", a phase of life characterized by identity exploration and confirmation. Friendships and romantic relationships are extremely important and contribute substantially to identity development and well-being during this time (Arnett, 2000; Chickering & Reisser, 1993; Diener & Seligman, 2002; Gustavson, Røysamb, Borren, Torvik, & Karevold, 2016; Hartup & Stevens, 1997; Rubin, Bukowski, & Parker, 2007). Researchers have often focused on how being involved in a romantic relationship may change how much friendships contribute to well-being (Levitt, Weber, & Clark, 1986). The dyadic-withdrawal hypothesis (DWH) is a good example of this emphasis. The DWH assumes a

zero-sum view of social involvement; that is, this theory is predicated on the idea that an individual's emotional, mental, and physical resources are limited. When a young adult becomes involved in a romantic relationship, the amount of time and energy they put into their friendships may diminish (Johnson & Leslie, 1982; Rawlins, 2000). Several studies have demonstrated that involvement in a romantic relationship negatively impacts the perceived importance of friendships (Carbery & Buhrmester, 1998; Clark & Graham, 2005; Collins & van Dulmen, 2006; Demir, 2010; Levitt et al., 1986). For example, when college students become involved in a romantic relationship, they spend fewer hours with their friends (Fischer, Sollie, Sorell, & Green, 1989; Johnson & Leslie 1982; Rosenfeld & Thomas, 2012), have smaller friendship networks (Kalmijn, 2003; Milardo, 1982), and, in some cases, friends become a less important predictor of happiness (Demir, 2010). Johnson and Leslie (1982) showed that some psychosocial factors of friendship (e.g., importance of

friends' opinions and quantity of intimate disclosure) decrease when a romantic relationship begins to develop.

It may be premature to conclude that the benefits of friendships become less important when emerging adults become romantically involved. Very few studies have examined whether romantic involvement diminishes the psychosocial impacts of friendships on well-being. Friends provide important support for social identity, self-concept, as well as self-worth (Anthony & McCabe, 2015; Arnett, 2000; Lipka & Brinthaupt, 1992) and fulfill emotional needs for connectedness and sense of belonging (Baumeister & Leary, 1995). Even if friends are not able to spend as much time with each other when romantically involved, friendships may still have a positive and important impact on young adults' self-identity and perceptions of worthiness, impacts that are not necessarily dependent of structural indicators of friendship. In our study, two psychosocial benefits that friends can provide were investigated: secure attachment and self-identity support, which are important for well-being. It has been found to be positively associated with having a secure attachment to one's friends (Daley & Hammen, 2002). Friends also provide an important source of information and support for identity exploration and formation during late adolescence (Chickering & Reisser, 1993). In the upcoming paragraphs, these two important resources that friends can provide are described in more details. Life satisfaction is considered by the vast majority of college students to be extremely important and has been demonstrated as a stable component of well-being (Diener, Suh, Lucas, & Smith, 1999). Thus, this study aims to examine whether these psychosocial benefits of friendships are differentially related to life satisfaction in single and romantically involved young adults.

Attachment Style to Friends

The well-known literature on attachment style suggests that early and ongoing relationships with important people impact a person's view of themselves and others (Bowlby, 1969). Attachment styles were originally based on infants' reactions to separation and reunion with their mother (Ainsworth, Blehar, Waters, & Wall, 1978). Based on these interactions, a child comes to have working models of themselves and others. These views of self and others are important because they are believed to influence friendships, romantic relationships, and parenting styles (Bartholomew, 1993; Simpson, 1990). Views of self and others are combined to form three basic attachment styles: securely attached individuals feel valued and worthy of others' concern, support and affection; anxiously attached individuals have

negative self-views combined with a perception that others are undependable, and unwilling or unable to commit to long-term, intimate relationships; those with an avoidant attachment style have positive self-views but negative views of others (Collins & Feeney, 2000; Hazan & Shaver, 1987). Although attachment style is often measured in the context of romantic relationships (Trinke & Bartholomew, 1997), it can also be measured in the context of other relationships (Baldwin & Fehr, 1995; Cozzarelli, Hoekstra, & Bylsma, 2000; Kobak, 1994; Lewis, 1994; Ross & Spinner, 2001), including friendships (Caron, Lafontaine, Bureau, Levesque, & Johnson, 2012; Furman, Simon, Shaffer, & Bouchey, 2002; Schneider, Atkinson, & Tardif, 2001; Shaver, Belsky, & Brennan, 2000). The benefits of attachment security are considered fundamental to well-being, not only in late adolescence, but throughout the life span (Mikulincer & Florian, 1998). Consequently, it is important to investigate whether romantic involvement adversely impacts global attachment to friends.

Self-Identity Support

Friendships provide important psychological needs related to self-identity development (Brooks, 2007), such as autonomy (i.e., sense of agency and purpose), competence (i.e., feelings of efficacy and self-confidence) and relatedness (i.e., feeling connected and cared for; Deci & Ryan, 1985). Weisz and Wood (2005), followed a group of college students from freshman through senior year and found that even after controlling for closeness, contact, and supportiveness of their friends, self-identity support was the most important predictor of well-being. For romantically involved students, self-identity support may be supplied by both friends and a romantic partner (LaGuardia, Ryan, Couchman, & Deci, 2000). Self-expansion theory (A. Aron, E. N. Aron, & Smollan, 1992) posits that romantic partners tend, over time, to incorporate (i.e., support) important aspects of the partner's identities, resources, and perspectives into his or her own self-concept (A. Aron, Lewandowski, Mashek, & E. N. Aron, 2013). Self-identity support from a romantic partner, as operationalized by self-expansion theory, is related to life satisfaction (A. Aron et al., 1992). However, to date, no study has examined the effect of romantic involvement on self-identity support and relationship satisfaction; operationalized in this study as FSSIS for friendships and RSSIS for romantic relationships.

Study Goals, Research Questions, and Hypotheses

Our review of the literature suggested that although friendships can provide important psychosocial factors of well-being in young adults, such as attachment

security and self-identity support, no research has examined whether these resources are negatively impacted when a college student becomes romantically involved. This study sought to answer the following questions: does a young adult who is romantically involved still feel valued and supported by his or her friends? Do their friendships continue to provide satisfaction? If so, are these friendships benefits associated with life satisfaction? Or, do these types of psychological benefits also diminish in importance when romantically involved? Our goal was to examine whether two important psychosocial benefits of friendship (i.e., secure attachment to friends and friendship self-identity support) are differentially related to life satisfaction depending on whether one is romantically involved or not. Our hypotheses were as follow:

H1. We expected that for both single and romantically involved college students, anxious and avoidant attachment to friends would be negatively related to life satisfaction and that friendship satisfaction and self-identity support (FSSIS) would be positively related to life satisfaction.

H2A. In line with the dyadic-withdrawal hypothesis, we expected that single students would report higher levels of FSSIS than romantically involved college students.

H2B. Anxious and avoidant attachment to friends and FSSIS would be more strongly correlated with life satisfaction for single college students than for romantically involved college students.

H3. We expected that romantic satisfaction and self-identity support (RSSIS) would be positively related to life satisfaction for romantically involved college students.

H4. In line with the dyadic-withdrawal hypothesis, we expected that RSSIS would be more strongly correlated with life satisfaction than FSSIS or anxious and avoidant attachment in romantically involved students.

We also examined some exploratory research questions. The first concerns the level of life satisfaction among single and romantically involved students. Given the emphasis in the literature about the importance of romantic relationships for emerging adults, it could be that students who are romantically involved report greater life satisfaction. However, many have argued that the decision of being single is a legitimate choice (DePaulo & Morris, 2005). Roughly one quarter to one half of emerging adults are single, and the number continues to increase in the United States (DePaulo & Morris, 2005; Doherty & Feeney, 2004). Therefore, we decided to examine whether

relationship status is related to life satisfaction. Additionally, gender differences between how men and women experience friendships have been reported in previous research (Bank & Hansford, 2000). Therefore, we also examined whether there were any gender differences on all study variables in both of our samples of college students.

Method

Participants and Procedures

The questionnaire used in the study consisted of some standardized measures and some items that were created by members of the course with faculty supervision. Study methodology was approved by the university's institutional review board prior to data collection. Data were collected from college students participating in the introduction to psychology participant pool. After granting consent, participants completed an online survey for course credit. Participants ($N = 459$; 87.7% female, 12.1% male) were between 18-22 years of age ($M = 19$, $SD = 1.98$).

Materials

Demographic information. The questionnaire inquired about participants gender, age and relationship status. Participants could indicate their relationship status as single (1), single and dating (2), in a relationship (3), or engaged or married (4). Participants were stratified by their response to the relationship status question. "Single" and "single and dating" participants were considered "single", while participants who identified as "in a relationship" or "engaged or married" were considered to be "romantically involved." About half of the participants were considered single ($n = 227$) and half were considered romantically involved ($n = 232$).

Attachment to friends. Attachment to friends was assessed with the *Revised Adult Attachment Scale* (RAAS; Collins & Read, 1990). This 18-item scale was modified by using the words "friends" or "friend" instead of the word "others" or "another person." The 18 items were scored on a 5-point scale ranging from 1 (*not at all characteristic of me*) to 5 (*very characteristic of me*). Two attachment dimensions were created: anxious attachment to friends (model of self) and avoidant attachment to friends (model of others). Secure attachment reflects low anxious attachment and low avoidant attachment. Cronbach's alpha for anxiety attachment and avoidant attachment were .71 and .85, respectively.

Friendship satisfaction and self-identity support (FSSIS). This construct was assessed with five items. Two items ("*My social relationships are supportive and rewarding*" and "*I actively contribute to the*

happiness and well-being of others") were taken from the *Flourishing Scale* (Diener et al., 2009). Each item was rated on a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Three items were created for this study. The items asked respondents to assess how important friends were to his or her self-identity (1 = *not very important*; 7 = *very important*), how meaningful to his or her self-identity (1 = *not very meaningful*; 7 = *very meaningful*), and the extent to which one could be happy without his or her friends (1 = *could not be happy without*; 5 = *could be very happy without;* reversed). Given that the items were measured on different scales, the items were standardized and then summed to create a measure of friendship support for self-identity. Cronbach's alpha for this measure was .71. Higher scores on this measure reflected the perception of friends being important and meaningful for one's self-identity.

Romantic satisfaction and self-identity support (RSSIS). We assessed this construct by combining two scales. The *Relationship Assessment Scale* (RAS; Hendrick, 1988), is a 6-item scale that measures the perceived fulfillment in a romantic relationship. Each item was rated on a 5-point scale (1 = *low satisfaction*; 5 = *highly satisfied*). Sample items include "*In general, how satisfied are you with your relationship?*" and "*How much do you love your partner?*". Cronbach's alpha for this scale was .88. To measure self-identity support provided by a romantic partner, the *Inclusion of Other in Self Scale* (IOS; A. Aron et al., 1992) was used. We chose this measure because of its unique format for participants to estimate the extent to which they perceived self-identity overlap with a romantic partner's (Gächter, Starmer, & Tufano, 2015). Respondents viewed a visual representation of various overlapping circles, ranging from separate circles to almost completely integrated circles, and rated which set of circles best represents their relationship with their romantic

partner (1 = *low inclusion of self*; 7 = *high inclusion of self*). Previous research has found a moderately high correlation between the IOS and romantic relationship satisfaction (Aron et al., 2013). These two measures were correlated in our sample ($r = .64$, $p < .001$) and were standardized and summed to create our variable of romantic satisfaction and self-identity support.

Life satisfaction (LS). We used the five-item *Satisfaction with Life Scale* (SWLS; Diener, Emmons, Larsen, & Griffin, 1985). Sample items include "*I am satisfied with life*" and "*The conditions of my life are excellent*". Each item was rated on a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Cronbach's alpha for this scale was .89.

Results

Preliminary Analyses

Prior to our analyses of interest, study variables were examined for deviation from normality. All variables were found to be normal. To detect sample and gender differences, a MANOVA was performed to check for sample and gender differences and for differences on study variables. Results are presented in Table 1. The main effect for gender was significant. Univariate test shows women rated FSSIS more highly than men, $F(1, 444) = 12.46$, $p < .001$. This result was qualified by a significant relationship status by gender interaction, $F(4, 222) = 6.74$, $p < .001$. Inspection of univariate ANOVAs revealed that there were no gender differences for any of the study variables in romantically involved students. Single female college students reported higher anxious attachment to friends, higher FSSIS, and greater LS. Given these gender differences, we conducted a multivariate analysis with gender as a covariate (MANCOVA). Romantically involved students reported greater LS, $F(1, 451) = 11.63$, $p < .001$. Single students reported higher scores on FSSIS, $F(1, 451) = 4.13$, $p = .033$, supporting H2A.

Table 1

Study Variables in Samples of Single and Romantically Involved College Students

	Romantically involved				Single			
	Male		Female		Male		Female	
	($n = 23$)		($n = 209$)		($n = 37$)		($n = 190$)	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Avoidant attachment to friends	2.08	0.84	2.17	0.64	2.25	0.52	2.16	0.65
Anxious attachment to friends	2.29	0.73	2.41	0.78	2.24	0.61	2.47	0.74
FSSIS	5.39	0.87	5.63	0.73	5.26	0.68	5.79	0.71
Relationship satisfaction	4.04	0.94	4.15	0.83	-	-	-	-
IOS (self-expansion)	4.35	1.60	4.48	1.50	-	-	-	-
Life satisfaction	5.16	1.00	5.38	1.10	4.52	1.40	5.00	1.30

Note. FSSIS: Friendship satisfaction and self-identity support.

Table 2

Study Variables in Samples of Single and Romantically Involved College Students

	Romantically involved ($n = 232$)		Single ($n = 227$)		
	M	*SD*	*M*	*SD*	*F*(1, 450)
Avoidance attachment to friends	2.16	0.66	2.16	0.62	0.00
Anxious attachment to friends	2.41	0.77	2.45	0.73	3.15
FSSIS	5.59	0.75	5.73	0.71	4.59*
Life satisfaction	5.34	1.13	4.96	1.29	10.93***

Note. FSSIS: Friendship satisfaction and self-identity support; Omnibus $F(4, 441) = 5.82$, $p < .001$; * $p < .05$. *** $p < .001$.

There were no relationship status differences on anxious attachment to friends, $F(1, 452) = .38$, $p = .537$, or avoidant attachment to friends, $F(1, 452) = .01$, $p = .920$. In support of DWH, single college students reported more FSSIS than romantically involved students. However, romantically involved students reported having a higher LS than single students. Results are presented in Table 2.

Correlation Results

Zero-order correlations were computed among our studied variables in both student samples (see Table 3 and 4). In romantically involved and single students, anxious and avoidant attachment to friends were positively correlated to each other and they were both negatively related to LS. FSSIS was positively correlated with LS in both samples. For romantically involved students, RSSIS was positively associated with LS.

Dyadic-Withdrawal Hypothesis

The DWH posits that friendships become less central or less important when young adults become romantically involved. Accordingly, we expected that LS would be negatively related to anxious attachment and avoidant attachment to friends and positively related to FSSIS for all students (H1); but that the associations between attachment style and LS, as well as between FSSIS and LS would be stronger in single college students than for romantically involved students (H2B).

To test these hypotheses, we conducted a moderated hierarchical regression analysis. LS was regressed onto relationship status (single vs. romantically involved) at step one, anxious attachment to friends, avoidant attachment to friends, and FSSIS at step two. Step three consisted of three interaction terms to test whether sample moderated the step two

Table 3

Correlations Among Study Variables for Single Students

	1	2	3	4
1. Avoidant attachment to friends	-			
2. Anxious attachment to friends	.48***	-		
3. FSSIS	-.58***	-.18***	-	
4. LS	-.57***	-.31***	.45***	-

Note. FSSIS: Friendship satisfaction and self-identify support; LS: Life satisfaction; *** $p < .001$.

Table 4

Correlations Among Study Variables for Romantically Involved Students

	1	2	3	4	5
1. Avoidant attachment to friends	-				
2. Anxious attachment to friends	.45***	-			
3. FSSIS	-.58***	-.17*	-		
4. RSSIS	-.19**	-.13*	.08	-	
5. LS	-.37***	-.24***	.26***	.30***	-

Note. FSSIS: Friendship satisfaction and self-identify support; RSSIS: Relationship satisfaction and self-identity support; LS: Life satisfaction; * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 5

Moderated Hierarchical Regression Results for Life Satisfaction

	B	SE	β	t	df
Step 1[a]					
Constant	4.56	0.18		25.08	445
Relationship status	0.39	0.12	.16***	3.43	445
Step 2[b]					
Constant	4.51	0.16		27.74	442
Relationship status	0.42	0.10	.17***	4.11	442
Avoidant attachment to friends	-0.33	0.07	-.27***	-4.74	442
Anxious attachment to friends	-0.15	0.06	-.12**	-2.55	442
FSSIS	0.22	0.06	.18***	3.44	442
Step 3[c]					
Constant	4.48	0.16		27.76	439
Relationship status	0.43	0.10	.18***	4.23	439
Avoidant attachment to friends	-0.34	0.07	-.27***	-4.82	439
Anxious attachment to friends	-0.15	0.06	-.12**	-2.54	439
FSSIS	0.23	0.06	.18***	3.59	439
Avoidant x relationship status	0.04	0.07	.03	0.51	439
Anxious x relationship status	0.03	0.06	.02	0.45	439
FSSIS x relationship status	-0.13	0.06	-.11*	-2.08	439

Note. [a]$F(1, 446) = 11.80$, $p < .001$, $R^2_{adj} = .03$, $\Delta R^2 = .03$, $t = 11.80$, $p < .001$; [b]$F(3, 443) = 34.33$, $p < .001$, $R^2_{adj} = .24$, $\Delta R^2 = .21$, $t = 40.79$, $p < .001$; [c]$F(7, 440) = 21.40$, $p < .000$. $\Delta R^2 = .02$, $t = 3.42$, $p < .05$; $p < .05$. ** $p < .01$. *** $p < .001$.

variables (relationship status x avoidant attachment to friends, relationship status x anxious attachment to friends, and relationship status x FSSIS). The overall model was significant, $F(4, 440) = 21.40$, $p < .001$, $R^2_{adj} = .25$ (see Table 5 for details). LS was higher for romantically involved students, ß = .18, $p < .001$. Avoidant and anxious attachment to friends were both negatively associated with life satisfaction (ß = -.27, $p < .001$ and ß = -.13, $p < .01$, respectively), and neither variable was moderated by relationship status. There was a main effect for FSSIS (ß = .18, $p = .038$), but the interaction term was also significant, indicating that the relationship between FSSIS and LS was moderated by relationship status (ß = -.11, $p < .05$). This interaction is depicted in Figure 1: LS was highest for the romantically involved students who reported higher levels of FSSIS. This interaction suggests that the ability of FSSIS to predict LS is stronger in single students. Taken together, these results support H1 and partially support H2B.

Our last predictions ventured that for romantically involved students, RSSIS would be related to LS (H3) and would be more strongly related to LS than FSSIS (H4). We regressed LS onto avoidant attachment to friends, anxious attachment to friends, and FSSIS at step one. At step two we regressed RSSIS. The overall model was significant, $F(5, 226) = 12.05$, $p < .001$,

$R^2_{adj} = .19$. As in our previous regression results, avoidant attachment to friends was negatively related to LS (ß = -.27, $p < .000$). RSSIS was positively related to LS (ß = .24, $p = .078$), and the relationship between FSSIS and LS was positive but not significant (ß = .10). We tested H4 by statistically comparing the beta estimates for FSSIS and RSSIS. We computed 95% confidence intervals and inspection revealed that both coefficients (β = .10 and β = .24) had overlapping confidence intervals and were not significantly different. Our results suggest that for romantically involved students, RSSIS, secure attachment to friends, and FSSIS may all be important for life satisfaction; but RSSIS is not more important for life satisfaction than FSSIS. Results are presented in Table 6.

Discussion

Our study results extend prior research on the dyadic-withdrawal hypothesis (DWH) by examining two psychosocial benefits of friendship in samples of single and romantically involved college students. We ventured three hypotheses regarding the relationships between the psychosocial benefits of friendship and life satisfaction. H1: Anxious and avoidant attachment to friends, in general, would have a negative relation to life satisfaction and that FSSIS would have a

Table 6

Hierarchical Regression Results for Romantically Involved Students (n = 229)

	B	SE	β	[95% CI]	t	df
Step 1[a]						
Constant	5.94	0.83		-	7.13	224
Avoidant attachment to friends	-0.46	0.14	-.27*	[-0.54, -0.00]	-3.14	224
Anxious Attachment to friends	-0.15	0.10	-.10	[-0.30, 0.10]	-1.51	224
FSSIS	0.14	0.12	.09	[-0.15, 0.33]	1.27	224
Step 2[b]						
Constant	4.62	0.88		-	5.27	223
Avoidant attachment to friends	-0.39	0.14	-.23*	[-0.50, 0.04]	-2.76	223
Anxious attachment to friends	-0.13	0.10	-.09	[-0.29, 0.11]	-1.35	223
FSSIS	0.15	0.11	.10	[-0.12, 0.32]	1.33	223
RSSIS	0.25	0.06	.24**	[0.12, 0.36]	3.88	223

Note. FSSIS: Friendship satisfaction and self-identity support; RSSIS: Relationship satisfaction and self-identity support; [a]$F_{(3, 225)} = 13.10$, $p < .001$, $R^2 = .15$, $R^2_{adj} = .14$, $\Delta R^2 = .15$, $t = 13.10$, $p < .001$; [b]$F_{(4, 224)} = 14.21$, $p < .001$, $R^2 = .20$, $R^2_{adj} = .19$, $\Delta R^2 = .05$, $t = 15.06$, $p < .001$; * $p < .01$. ** $p < .001$.

positive relation to life satisfaction. H2A: Single students would report higher levels of FSSIS than romantically involved college students. H2B: Anxious and avoidant attachment to friends and FSSIS would be more strongly correlated with life satisfaction for single college students than for romantically involved college students. We also created two hypotheses regarding how these resources may be less important for romantically involved students. H3: RSSIS would be positively related to life satisfaction for romantically involved college students. H4: RSSIS would be more strongly correlated with life satisfaction than FSSIS or anxious and avoidant attachment in romantically involved students.

We found that secure attachment to friends and FSSIS is associated with life satisfaction for both single and romantically involved students, supporting H1. Although single students reported, on average, having higher FSSIS, supporting H2A, we found that life satisfaction was highest for romantically involved students who reported high levels of FSSIS. H3 was supported, RSSIS was positively related to life satisfaction. Interestingly however, H4 was not supported; RSSIS did not predict life satisfaction more than FSSIS for those in romantic relationships. Thus, we found evidence to suggest the primacy of the friendship relationships in determining life satisfaction for both single and romantically involved students.

Our results underscore the importance of friendship attachment and identity support during emerging adulthood (Arnett, 2000) and offers additional support for these variables in the context of DWH research.
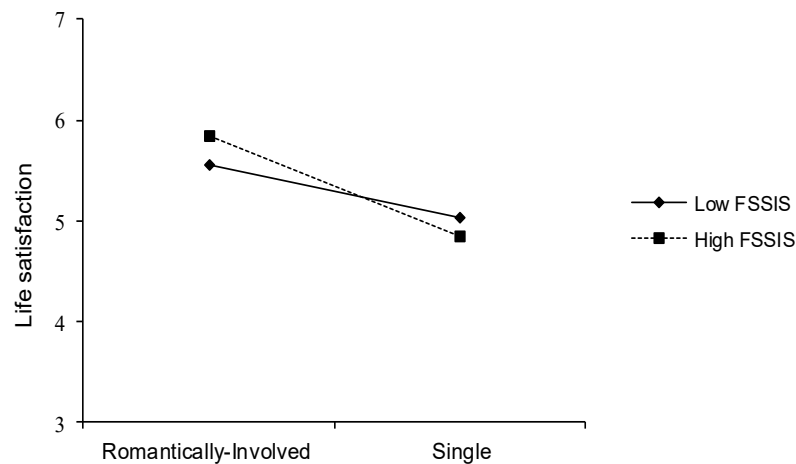
Figure 1. Life Satisfaction, FSSIS and Relationship status interaction.

Previous research on the DWH has examined the impact of romantic relationships largely using structural aspects of friendship (e.g., friendship network size, time spent with friends; Johnson & Leslie, 1982). By examining psychosocial benefits of friendships for self-identity support, our results suggest that this form of psychosocial support for self-identity and its importance in life satisfaction may not be adversely affected by involvement in a romantic relationship.

Our results also replicate earlier research on attachment style with our findings that an important positive benefit of friendships is the perception of being valued by them and the belief that one's friends are trustworthy (e.g., secure attachment to friends) and these perceptions are positively associated with life satisfaction (Daley & Hammen, 2002; LaGuardia et al., 2000). Our results add to the literature on attachment style and well-being by examining the relationship between attachment style and life satisfaction in both single and romantically involved young adults as part of examining the usefulness of the DWH in understanding if romantic involvement impacts the importance of friendship on well-being. Our results suggest that friends remain important to well-being, even when romantically involved (LaGuardia et al., 2000; Rawlins, 1994, 2000). Although longitudinal researches have documented that friendship networks become smaller over the life course and may change when people begin to date, cohabitate, or marry (Hartup & Stevens, 1997; Kalmijn, 2003; Milardo, 1982; Milardo, Johnson, & Huston, 1983; Stadtfeld & Pentland, 2015), studies successively find that across the lifespan, friendship is important for happiness and well-being (Argyle, 2013; Demir & Weitekamp, 2007; Diener & Seligman, 2002; Lucas & Dyrenforth, 2006). Accordingly, an important contribution of our study is that when considering how friendship dynamics may change in the context of a romantic relationship, researchers might benefit from considering friendship factors that are less dependent on network size or time investment. Furthermore, an investigation of the benefits of remaining psychologically attached to one's friends should also be explored. During emerging adulthood, romantic relationships may end, and the perception of secure attachment to friends is a significant resource for life satisfaction (Moller, Fouladi, McCarthy, & Hatch, 2003).

Limitations

The goal of this research was to examine how friendships play a meaningful role in college students' lives (Berger & Kellner, 1970). Our research project depended on collecting information from college students via a psychology undergraduate subject pool.

A notable criticism is that our sample is not representative of college students and included relatively few men. This limitation is likely to impact our understanding about the importance of friendship self-identity support. For example, female participants, regardless of relationship status, reported higher levels of friendship self-identity support, replicating previous research by Bank and Hansford (2000). Future studies would benefit from samples with a more balanced gender representation, in addition to assessing same-sex romantic relationships.

Another limitation to our study is that three of the five items used to measure friendship support for self-identity were created for the present study and not validated. Although the items that we used have good face validity regarding identity support and satisfaction, future research would benefit from using validated measures of friendship identity support. In addition to using other measures of identity support, improvements to future research endeavors could include other types of psychosocial benefits of friendship, such as different types of social support that friends and romantic others might provide.

Furthermore, one other limitation of our study is that we did not gather any information about other important variables that might affect DWH, such as length and quality of romantic relationships. These variables might provide important clues as to when the DWH may be more or less applicable. For example, friends may remain more psychologically important in the presence of a casual romantic relationship compared to a more serious, long-term relationship. Another unexplored issue in our study is the explanation as to why college students were not dating. Given our unexpected finding that romantically involved students reported higher life satisfaction, it may be important to distinguish between single students who are not dating but wish they were, compared to single students who choose not to become romantically involved.

An additional criticism of our study is that we relied on a self-report survey that was administered early in the semester, primarily with first-year college students. Perceptions may change over the course of time. Other types of methodological approaches, such as a longitudinal study, may help us better understand the dynamics of how the impact of friendships on well-being may change over time once involved in a romantic relationship. For example, a very recent study examined how attachment preferences in young adults change over time (Umemura, Lacinova, Macek, & Kunnen, 2017). These authors studied a sample of Czech adults over two summers and found that romantic relationships impact attachment preferences for friends, but not for other important attachment

figures such as parents or family. We should also inquire about how friends and romantic partners interact online and face-to-face. This kind of information may be especially important in the context of rapidly changing technologies that allow college students to stay in touch with their friends over time, regardless of distance, as well as vicariously engage in social events and celebrate important social occasions. Thus, the impact of romantic involvement may have less of an effect on structural aspects of friendship in today's college students (Rosenfeld & Thomas, 2012).

Conclusion

Our study results provide preliminary support for the idea that the importance of friendships for life satisfaction may not be reduced in the context of romantic involvement. We found that secure attachment to friends and FSSIS was related to life satisfaction, regardless of whether they were romantically involved or not. Additionally, RSSIS was related to life satisfaction for romantically involved students; however, this effect did not supersede the importance of FSSIS to life satisfaction for those students. In the context of the DWH, individuals in romantic relationships invest more energy in their romantic partner, rather than their friends. Therefore, although inconsistent with the tendencies described by DWH, our results agree with a large literature showing that engaging and cultivating friendships, perhaps more so than romantic partnerships, is fundamentally important to life satisfaction (Baumeister & Leary, 1995), especially in college-aged adults (Brooks, 2007). We hope our study results might encourage others to think more broadly about the meaning of friendship in the lives of emerging adults, regardless of their relationship status.

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The Impact of Attachment Style Pairings on Romantic Relationship Satisfaction

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This study investigated whether couples' attachment styles pairing was associated with their romantic relationship satisfaction. In addition, this study investigated the association between self-disclosure and relationship satisfaction and between an individual's attachment style and relationship satisfaction. We sampled 295 undergraduate students who completed the *Relationship Questionnaire*, the *Self-Disclosure Index*, and the *Relationship Assessment Scale*. We found that self-disclosure was positively associated with relationship satisfaction. We also found differences in relationship satisfaction based on an individual's attachment style and differences in relationship satisfaction based on the participants' perception of their partner's attachment style. However, we found no significant difference in relationship satisfaction based on couples' attachment style pairings, beyond the impact of self-disclosure and each individual's attachment style. These results provided evidence for the benefit of understanding the perception of couple's attachment styles in relationship satisfaction.

Keywords: attachment style, relationship satisfaction, self-disclosure, security, social psychology

Cette étude investiguait si l'appariement des styles d'attachement des couples était associé à la satisfaction conjugale. De plus, cette étude investiguait le lien entre l'auto-divulgation et la satisfaction conjugale, ainsi que le lien entre le style d'attachement des individus et leur satisfaction conjugale. Le *Questionnaire relationnel*, l'*Index d'auto-divulgation* et l'*Échelle d'évaluation de relation* ont été complétés par 295 étudiants de premier cycle. L'étude montre que l'auto-divulgation était associée positivement à la satisfaction conjugale. L'étude montre également des différences dans la satisfaction conjugale en fonction du style d'attachement d'un individu et en fonction de la perception qu'ont les participants du style d'attachement de leur partenaire. Cependant, il n'y a aucune différence significative dans la satisfaction conjugale basée sur l'appariement des styles d'attachement des couples, au-delà de l'impact de l'auto-divulgation et du style d'attachement personnel. Ces résultats montrent les bienfaits de comprendre la perception des styles d'attachement des couples dans la satisfaction conjugale.

Mots-clés : style d'attachement, satisfaction conjugale, auto-divulgation, sécurité, psychologie sociale

Close relationships, especially romantic relationships, play a key role in college students' social and emotional development (Furman, Brown, & Feiring, 1999). Erik Erikson's (1950) psychosocial theory of development states that the conflict of young adulthood is between intimacy and isolation. Resolution of the conflict (i.e., successful completion of the stage) indicates that an individual is able to connect and form a secure attachment to others, whereas unsuccessful completion of this stage results in fear of intimacy and commitment (Erikson, 1950). For example, individuals who successfully resolve this conflict may find it easy to commit themselves to a relationship and find others to be trustworthy. If Erikson's work was translated into attachment theory, then these individuals might be classified as having a secure attachment style (Franz & White, 1985). Individuals who did not successfully resolve this conflict may face difficulties in making commitments to others, whether by avoiding intimacy with another individual or by inducing anxiety over the unwanted results of commitment (Cann, Norman, Welbourne, & Calhoun, 2008). Attachment theory might classify these individuals as having one of the three insecure attachment styles (e.g., preoccupied, fearful, or dismissive). These attachment styles may impact an individual's relationships by creating a constant need for approval and reassurance, drawing attention to either the self's or the partner's flaws, and focusing on unrealistic expectations from the partner.

Based on previous research, not only can the individual's attachment style affect their relationships (Kirkpatrick & Davis, 1994; Miller, 2014), but other factors can affect relationships as well (Cann et al., 2008; Laurenceau, Barrett, & Pietromonaco, 1998;

Sprecher & Hendrick, 2004). These factors can include an individual's overall well-being, and importantly in our case, self-disclosure. Self-disclosure is a form of communication where individuals convey personal thoughts, feelings, and beliefs to another person, as communication has been indicated as a crucial aspect of maintaining relationship satisfaction (Sprecher & Hendrick, 2004). In a study done by Byers and Demmons (1999), it was found that when both partners perceived the relationship as positive and self-disclosed about themselves to their partner, they both felt open to self-disclosing sexual likes and dislikes to each other. Individual characteristics (e.g., number of past sexual partners, gender) had a minimal effect in self-disclosure. Although there is no clear causal claim of self-disclosure leading to relationship satisfaction, overall, there is a clear link between the importance of self-disclosure, both sexual and nonsexual, and building relationship satisfaction.

However, previous studies have not investigated the relation between a couple's attachment styles pairing and relationship satisfaction. For the purpose of the study, we will look at the combination of one's own attachment style and their partner's attachment style. We will refer to this as attachment style pairing throughout the study. For example, one partner may try to avoid intimate situations because this person has an avoidant attachment style, while the other partner may demonstrate anxiety over future consequences of the relationship because this individual has an anxious attachment style. The difference in the attachment styles of the two partners may lead to conflict in the couple unit, which would affect the overall satisfaction within the relationship. Therefore, in the present study, we replicated and extended previous findings on the relation between individual's attachment style, self-disclosure, and relationship satisfaction (Holland, Fraley, & Roisman, 2012; Moore & Leung, 2002; Strauss, Morry, & Kito, 2012). More specifically, we extended these findings by investigating if couples' attachment styles pairing had an impact on their romantic relationship satisfaction. These findings may provide new insight in studying attachment style when looking at relationships.

Self-Disclosure, Attachment Styles and Relationship Satisfaction

Self-disclosure can be defined as "an act of intimacy [that] serves as a maintenance strategy" (Sprecher & Hendrick, 2004, p. 857). An example of self-disclosure could be sharing details about one's past relationships or discussing one's fears. Self-disclosure has been shown to strongly correlate with marital satisfaction, and is a variable most commonly assessed when measuring relationship

satisfaction (Hendrick, 1981; Keelan, K. K. Dion, & K. L. Dion, 1998; Sprecher & Hendrick, 2004). Previous research showed that self-disclosure can provide a prediction of the couple's cohesion and satisfaction, validate the individual's self-worth in the relationship, and confirm the type of relationship an individual has with their partner (Greene, Derlega, & Mathews, 2006; Sprecher & Hendrick, 2004). That is why it is an important variable to include when assessing relationship satisfaction.

Along with assessing self-disclosure in a romantic relationship, attachment style is a variable that strongly correlates with relationship satisfaction (Hammond & Fletcher, 1991). Through relational experiences with others, attachment style governs people's outlook on romantic relationships. The work of Hazan and Shaver (1987) helped develop a more comprehensive evaluation of attachment styles. The authors applied Bowlby's (1958, 1969) and Ainsworth and Wittig's (1969) work on an attachment model for infants to classify adult attachment styles and conceptualize romantic involvement. Individuals were categorized in a three-category model as either secure, anxious/ambivalent, or avoidant depending on their answers to a self-report survey. A limitation of the three categories was that there was no differentiation in the avoidant category for those who need and those who do not need others' acceptance, even though they both tend to avoid intimacy. Bartholomew and Horowitz's (1991) new model of attachment styles, which is used in this study, divides the avoidant category of Hazan and Shaver's (1987) model into two different attachment styles: fearful and dismissive, and extends the three-category model into four categories. According to Bartholomew and Horowitz (1991), the four adult attachment styles are secure, preoccupied, fearful, and dismissive. The preoccupied, fearful, and dismissive styles can be grouped to form the insecure category.

A secure attachment style defines a person as comfortable with closeness and independence, thus making the person more positive and less needy (Moore & Leung, 2002). Whitson and Mattingly (2010) summarized secure individuals as having "a sense of worthiness and an expectation that others are accepting and responsive". They tend to feel high levels of self-worth and have a positive perception of others (Moore & Leung, 2002).

The three insecure attachment styles (e.g., preoccupied, fearful, dismissive) hold some characteristics that put people at a disadvantage when forming and maintaining an intimate relationship, whether because of their anxiety of being abandoned by a partner or their avoidance of intimacy in the relationship (Cann et al., 2008). An individual with a

preoccupied attachment style has a negative perception of himself or herself but a positive perception of others (Moore & Leung, 2002). Out of the four attachment styles, preoccupied people tend to experience the most anxiety (Guerrero, Farinelli, & McEwan, 2009), and it is most likely caused by their constant need for acceptance from their partner (Miller, 2014). The last two types of attachment styles are similar since they were the result of dividing the avoidant category. Those with a fearful attachment style feel unworthy and see others as untrustworthy (Bartholomew & Horowitz, 1991). They are categorized with social insecurity, high defensiveness, and lack of assertiveness (Keelan et al., 1998). Those with a dismissive attachment style are usually uninterested in intimacy and feel self-sufficient (Miller, 2014). It is the only group out of the four that is comfortable without close relationships.

Attachment style not only affects the individual's perception of himself or herself, but it also may affect satisfaction levels within the couple unit. There are three hypotheses (i.e., similarity, complementary, and security) that help explaining the satisfaction levels in regards to different couple pairings (Klohnen & Luo, 2003). The similarity hypothesis states that individuals will demonstrate higher levels of satisfaction with someone who has the same attachment style as them (Strauss et al., 2012). Therefore, a secure person may be more satisfied with a secure partner because of similar aspects in their attachment style. Individuals also have a preexisting preference set by past experiences and introspection. According to Miller, Perlman, and Brehm (2007), the similarities that a couple shared on their outlook of life were related to an increase in fondness for each other and a stronger connection between partners. Evidence was also found that insecure individuals may prefer a partner who has the same insecure attachment style (e.g., fearful-fearful). This commonality may be a source of satisfaction for these couples (Strauss et al., 2012). The complementary hypothesis states that an individual would be more satisfied with a partner of a different attachment style, which would enhance the individual's perspective on their romantic relationship. For example, a preoccupied individual and a dismissive individual may have a continuing relationship because the dismissive partner, who has a negative view of others, would validate the preoccupied partner's negative self-views (e.g., consider oneself as unworthy; Strauss et al., 2012). People may find the complementary style more appealing because their partner will confirm their perceptions of the world, even if their perceptions are negative ones. There is not much support for this hypothesis due to contradictory findings. For example, preoccupied and dismissive individuals may have a relationship that only benefits one partner. While the dismissive partner may exhibit behaviors that confirm a preoccupied individual's perspective, a preoccupied partner would want to show intimacy and affection to their dismissive partner, who would generally avoid it (Klohnen & Luo, 2003).

Contrary to the similarity and complementary hypotheses, the security hypothesis says that no matter what attachment style an individual has, an individual would be most satisfied with a secure partner (Strauss et al., 2012). Forming a bond with a secure person results in a faster forming and emotionally closer bond than with insecure people (Holmes & Johnson, 2009). Although findings have been somewhat inconsistent, there is a greater amount of evidence for the similarity hypothesis and more theoretical support due to the idea of parents shaping their children to respond and comply with their own attachment style (Klohnen & Luo, 2003). Parents tend to interact with their children in accordance with their attachment style. Children then grow accustomed to their parents' behaviors, and adopt their attachment style (Klohnen & Luo, 2003).

Previous studies have only investigated the relationship between an individual's attachment style and romantic relationship satisfaction (Holmes & Johnson, 2009; Strauss et al., 2012) and have generally ignored whether the partners' attachment styles can also impact relationship satisfaction. By only observing the attachment style of the individual and disregarding aspects of the entire couple unit, research may be missing a variable that could affect relationship satisfaction. In other words, current research is lacking the impact that the particular pairing of the couple's attachment styles has on the relationship. Certain pairings may demonstrate higher levels of relationship satisfaction compared to others. In this way, we may be able to recommend the ideal partner's attachment style depending on the individual's own attachment style.

Present Study

The current study aims to investigate the relationship between couples' attachment styles pairing and romantic relationship satisfaction, as well as to replicate previous studies that focused on the relation between self-disclosure, individual's attachment style and relationship satisfaction. Using a self-report relationship questionnaire, we identified individual's and their partner's attachment styles based on the individual's self-report of their own attachment style as well as their perception of their partner's attachment style. The hypotheses are as follows:

H1: There will be a positive correlation between self-disclosure to the partner and relationship

satisfaction, replicating previous results (Hendrick, 1981; Keelan et al., 1998).

H2: Individuals who have a secure attachment style would have the highest levels of relationship satisfaction out of the four attachment styles, replicating previous results (Bartholomew & Horowitz, 1991; Couperthwaite, 2014; Holland et al., 2012; Holmes & Johnson, 2009).

H3A: Based on the similarity hypothesis, couples with similar attachment styles (e.g., secure-secure, insecure-insecure) would have higher levels of relationship satisfaction than couples with dissimilar attachment styles, beyond the impact of self-disclosure and each individual's attachment style (Klohnen & Luo, 2003).

H3B: Based on the complementary hypothesis, couples with opposed attachment styles (e.g., secure-insecure, insecure-secure) would have higher levels of relationship satisfaction than couples with similar attachment styles, beyond the impact of self-disclosure and each individual's attachment style (Klohnen & Luo, 2003).

H3C: Based on the security hypothesis, couples with at least one secure partner (e.g., secure-secure, secure-insecure, insecure-secure) would have higher levels of relationship satisfaction than couples with insecure-insecure attachment styles, beyond the impact of self-disclosure and each individual's attachment style (Klohnen & Luo, 2003).

Method

Participants and Procedure

Before conducting the study, approval was given by Alvernia University's Institutional Review Board. Around 3,000 students at the university received an email regarding the survey. This email included a brief description of the project. Undergraduates who were at least 18 years old and currently in a romantic relationship for at least three months were asked to follow a link included in the email to take the survey (there was no incentive to take this survey). The survey took about 5 to 10 minutes to complete. Survey order was randomized to minimize order effects; however, each respondent initially completed the demographic survey. A total of 340 undergraduate students (11.3% of the student body population; 22.6% of the undergraduate population) responded. Of the 340 respondents, 295 (251 women; 44 men) students' survey were kept for the study, and the remaining 45 respondents were excluded from analysis because they did not complete the demographic page of the survey.

Materials

A demographic questionnaire, the *Relationship Questionnaire*, the *Self-Disclosure Index* and the *Relationship Assessment Scale* were distributed through the survey program SurveyMonkey. The following are brief descriptions of each measure.

For our demographics, we asked participants to indicate their gender, their partner's gender, and the duration they have been in the relationship.

Attachment style. The *Relationship Questionnaire* (Bartholomew & Horowitz, 1991) is adapted from Hazan and Shaver (1987) and measures the four attachment styles. Participants read four short paragraphs and chose the one that best matched their attachment style, as well as the paragraph that best fits their partner's attachment style. Although shorter than the *Revised Experiences in Close Relationships* measure (ECR-R), the *Relationship Questionnaire* has a comparable reliability of about .90, and shows evidence for the convergent validity with the ECR-R (Sibley, Fischer, & Liu, 2005). Using the *Relationship Questionnaire* provides a more perception-based answer so participants can judge how they see their partner and themselves.

Self-disclosure. The *Self-Disclosure Index* (Miller, Berg, & Archer, 1983) measures how comfortable individuals would be disclosing certain personal information to their partner. This section consists of 10 questions, such as "*What I like and dislike about myself*" and "*My closest relationships with other people*". Self-disclosure is a good indicator of relationship satisfaction; those who disclose more to their partner should demonstrate higher levels of satisfaction (Miller et al., 1983). This survey was on a 5-point Likert scale, ranging from 1 to 5. The *Self-Disclosure Index* has a Cronbach's alpha of .88 (.90 for the current study) when thinking about a romantic partner, and has significant positive correlations with a measure of passionate love (Derlaga & Berg, 2013).

Relationship satisfaction. The *Relationship Assessment Scale* (S. S. Hendrick, Dicke, & C. Hendrick, 1998) is a global measure of relationship satisfaction that has been shown to be reliable and valid (Cann et al., 2008). It contains seven items, each on a 5-point scale ranging from 1 to 5. The higher the score (ranging from 7 to 35), the greater the participant feels satisfaction from the relationship. Participants answered this section based on their current relationship. The *Relationship Assessment Scale* has a Cronbach's alpha of .86 (same for the current study; Vaughn & Baier, 1999). To measure satisfaction, it was compared to the valid measurement of the *Dyadic Adjustment Scale* and had a correlation

of .80, showing convergent validity (Hendrick et al., 1998).

Results

Using SPSS for our analysis, there were varying lengths of relationships (Table 1). The mean length of time was 2 years, ranging from 0.25 to 5 years. About one-third of the participants considered themselves to have a secure attachment style (Table 2). More than 50% of the participants perceived their partner as insecure, especially those who were insecure themselves (Table 3).

To test H1, we ran a bivariate correlation test and found a strong positive correlation between relationship satisfaction and self-disclosure, $r = .45$, $p < .001$. These results supported our first hypothesis that more self-disclosure was associated with a higher sense of satisfaction within a relationship.

To investigate the relation between individuals' four-category attachment styles (independent variable) and relationship satisfaction (dependent variable), we conducted a one-way analysis of variance (ANOVA) and found significant differences on relationship satisfaction, $F(3, 259) = 9.02$, $p < .001$, $\eta^2 = .09$. Follow-up tests were conducted to evaluate differences among the means (Table 4), and it was found that secure individuals ($M = 31.03$, $SD = 3.46$) experiend higher levels of satisfaction within their relationship than fearful individuals ($M = 27.53$, $SD = 5.86$), $d = 0.76$, $p < .001$, and dismissive individuals ($M = 28.83$, $SD = 4.59$), $d = 0.57$, $p = .006$, but there was no statistically significant difference between secure and preoccupied individuals ($M = 30.13$, $SD = 3.86$), $p = .256$. Preoccupied

Table 1

Duration of Participants' Current Relationship

Time frames	n	%
3-5 Months	33	11.2
6-8 Months	29	9.8
9-11 Months	23	7.8
1 Year	23	7.8
1.5 Years	24	8.1
2 Years	20	6.8
2.5 Years	23	7.8
3 Years	23	7.8
3.5 Years	17	5.8
4 Years	13	4.4
4.5 Years	12	4.1
5+ Years	53	18.0
Missing	2	0.7

Note. N = 295.

Table 2

Participants' Attachment Style as Measured by the Relationship Questionnaire

Attachment Styles	n	%
Secure	105	35.6
Preoccupied	74	25.1
Fearful	48	16.3
Dismissive	50	16.9
Missing	18	6.1

Note. N = 295.

Table 3

Paired Responses of Participants and Their Partner's Perceived Attachment Style as Measured by the Relationship Questionnaire

Attachment Style Pairings	n	%
Secure-Secure	65	22.0
Secure-Insecure	40	13.6
Insecure-Secure	58	19.7
Insecure-Insecure	144	38.6
Missing	18	6.1

Note. N = 295.

individuals reported more satisfaction than fearful individuals, $d = 0.50$, $p = .002$, but there was no statistically significant difference between preoccupied and dismissive individuals, $p = .161$. In addition, there was no statistically significant difference between fearful and dismissive individuals, $p = .125$. The results partially supported our second hypothesis (H2) that secure individuals would be more likely to be satisfied within their relationship. Unlike hypothesized, secure and preoccupied individuals did not have a statistically significant difference in their reported relationship satisfaction.

To investigate if the couple's attachment styles pairing impacted relationship satisfaction beyond self-disclosure and each individual's attachment style, we conducted an analysis of covariance (ANCOVA). The two independent variables were participants' self-reported attachment style (e.g., secure/insecure) and

Table 4

Means of Relationship Satisfaction as Measured by the Relationship Assessment Scale (RAS)

Attachment Styles	n	M	SD
Secure	99	31.03	3.46
Preoccupied	47	30.13	3.86
Fearful	70	27.53	5.86
Dismissive	47	28.83	4.59

participants' perception of their partner's attachment style (e.g., secure/insecure); the control variable was self-disclosure and the dependent variable was relationship satisfaction. Based on the analysis, we found significant difference on relationship satisfaction based on the participant's attachment style, $F(1, 257) = 11.70$, $p < .001$, $\eta^2 = .04$, and there was significant difference on relationship satisfaction based on the participant's perception of their partner's attachment style, $F(1, 257) = 7.66$, $p = .006$, $\eta^2 = .03$ (secure: $M = 30.58$; insecure: $M = 29.11$). However, there was no significant interaction between participant's attachment style and their perception of their partner's attachment style, $F(1, 257) = 0.09$, $p = .771$. The results failed to support our hypotheses (H3A, H3B, and H3C) due to the lack of interaction between participants' attachment style and their perception of their partner's attachment style.

Discussion

The goal of this study was to examine the association between relationship satisfaction and couple's attachment styles pairing. It also aimed to assess the association between self-disclosure and relationship satisfaction, as well as the association between individual's attachment style and relationship satisfaction. We hypothesized that secure individuals would demonstrate the greatest relationship satisfaction. Although significant differences exist regarding dismissive and fearful individuals, we found a non-significant difference between secure and preoccupied individuals in terms of their relationship satisfaction. Hazan and Shaver (1987) concluded that there is a positive correlation between individuals' anxiety levels and how supportive they are towards their partner in a romantic relationship. Preoccupied individuals may make their partners feel more validated and appreciated in the relationship, as would secure individuals (Strauss et al., 2012). Making their partner feel good may contribute to their own well-being because their presence is being appreciated through the satisfaction of their partner. Preoccupied attachment is associated with stronger feelings during romantic relationships (Couperthwaite, 2014). The love that a preoccupied individual feels may be more intimate and passionate than what is truly being portrayed. The constant need of acceptance and approval may motivate these individuals to comply with the wishes of their partner (Holmes & Johnson, 2009). Consistent with findings from previous research, we found that the more the self-disclosure, the more satisfied individuals are in the relationship; we also found that secure individuals rated their relationship satisfaction levels higher than dismissive and fearful individuals. These findings are consistent with results from previous research, which reported that dismissive and fearful individuals might have the

greatest relationship dissatisfaction (Molero, Shaver, Fernández, Alonso-Arbiol, & Recio, 2016).

More importantly, the current research examined the relationship between couples' attachment styles pairing (one partner self-rated their own attachment style and reported their partner's attachment style based on their perception) and romantic relationship satisfaction, beyond the impact of self-disclosure and each individual's attachment style. Even though there were significant differences in relationship satisfaction based on the participant's attachment style as well as their perception of their partner's attachment style, there was no significant difference in the relationship satisfaction based on the couple's attachment styles pairing, beyond the impact of self-disclosure and each individual's attachment style.

According to the similarity hypothesis (Strauss et al., 2012), insecure-insecure couples would report higher levels of satisfaction than mixed attachment styles couples (e.g., secure-insecure, insecure-secure). Having a partner who has the same thought pattern and same attachment style seemed to be a good mental match. However, we found that a good mental match (e.g., insecure-insecure) did not seem to contribute to relationship satisfaction. According to the complementary hypothesis (Strauss et al., 2012), secure-insecure or insecure-secure couples would report more satisfaction than similar attachment style couples (e.g., secure-secure, insecure-insecure). However, the results failed to support this hypothesis. According to the security hypothesis (Strauss et al., 2012), couples with at least one secure partner (e.g., secure-secure, secure-insecure, insecure-secure) would have higher levels of relationship satisfaction than couples with insecure-insecure attachment styles. Secure individuals take more of a communal approach to their relationship, worrying less about the possible problems that could be encountered in the relationship and focusing more on supporting and monitoring the needs of their partner (Couperthwaite, 2014; Holmes & Johnson, 2009).

The results of our study show that a secure individual that has a partner who is also secure, meaning that the partner would also be supporting and encouraging, promoted satisfaction (Couperthwaite, 2014). One interpretation of these results is that there are fewer reasons to be worried about the problems that could be encountered in the relationship when both partners are focused on the positives. With a secure partner, there is more stability in the relationship due to lower levels of anxiety and avoidance compared with an insecure partner (Holmes & Johnson, 2009). This would promote a greater focus on how the relationship is progressing rather than on flaws and detriments in the relationship. A second

interpretation is that the way a partner is perceived is mainly a projection of themselves (Strauss et al., 2012). Secure individuals who reported their partner as insecure may not see their partner as a severely insecure individual due to their positive outlook on others. Insecure individuals may have someone to lean on when they feel that their relationship is in distress, while the secure partner may have a more level head to support the insecure individual. Even though the insecure-insecure couple had the lowest mean in this study, it did not achieve statistical significance.

Strengths & Limitations

For the current study, we collected data from one person out of the couple unit. Although this may seem a limitation because we do not know the partner's self-rating of their own attachment style nor their satisfaction levels within the relationship, perception is a strong tool when looking at romantic relationship satisfaction. In many cases, perception is very accurate to the actual dynamic of the relationship (Kenny & Acitelli, 2001; Molero et al., 2016). On the other hand, individuals may perceive their partner to be similar to themselves, which provided only the perceived attachment style, and not the partner's actual attachment style (Strauss et al., 2012). The *Relationship Questionnaire* (Hendrick et al., 1998) is a common scale used to measure relationship satisfaction. However, this scale has some limitations. For example, participants selected the attachment style based on how they see themselves. Participants were not able to indicate how much they identify with a certain attachment style. In other words, there may be different degrees of attachment styles. One secure person may not be as secure as someone else due to differences in levels of anxiety or avoidance. Using a Likert scale for future studies may be beneficial so participants can rate their anxious/avoidant tendencies. This would provide a more accurate assessment of the degree of their attachment style, compared to only selecting which paragraph best fits.

A large majority of participants in this study were women, which limits the generalization to the general public. At the university, a majority of undergraduate students are women, which is representative of the population of the campus (60%). Gender may play a role in perceived relationship satisfaction in interaction with other variables, which can be assessed in future studies.

When studying individuals and couples, both subjective feelings and objective behaviors can be used to assess relationship satisfaction. What is important to realize though, according to S. S. Hendrick and C. Hendrick (1998), is that adjustment to a relationship and relationship satisfaction are not the same thing (as cited in Couperthwaite, 2014).

Couples may be able to adjust to their current relationship and function well, but their subjective feelings may not reflect how the relationship appears to be. Individuals could experience dissatisfaction and regret from being in their relationship. Therefore, it might be beneficial to measure subjective feelings of how individuals perceive their relationship to function rather than rely solely on objective behaviors of how they function in a relationship. Behaviors may express how individuals perceive their relationship, but it would be equally important to assess their thought processes. Although relationships are dynamic, satisfaction has the greatest impact on well-being (Couperthwaite, 2014).

Future Research

This project has mainly focused on the association between the relationship satisfaction and the couple's attachment styles pairing. We only used self-disclosure as an indicator of emotional communication to assess relationship satisfaction. Other factors such as trust, commitment, and intimacy can be paired with attachment style to better assess relationship satisfaction in future research. Looking at past relationships may also provide more insight in terms of current relationship satisfaction. In addition, surveying participants in terms of what kind of attachment style they prefer their partner possess may provide additional evidence for the similarity, complementary and security hypotheses. If a participant's relationship satisfaction improves with another partner with a different attachment style, there will be more evidence to support one of those hypotheses. Although previous research has not found much difference in relationship satisfaction experienced by heterosexual couples compared to same sex couples, this may be another question to consider when assessing relationship satisfaction.

It may also be beneficial to compare participants' perception of their partner's attachment style to their partner's actual attachment style. Learning what the partner's attachment style would be, compared to their original perception, may change the way the individual perceives his or her relationship. For example, participants seemed to be most satisfied with secure individuals. If they realize that their partner perceived himself or herself to be secure, they may sense more satisfaction in the relationship than actually exists. Researching relationship satisfaction in this way may provide a unique view of how an individual sees a relationship, as well as reinforce the powerful impact that perception has on a relationship.

Studying romantic relationships is important to understand the social and emotional aspects of human behavior. As social creatures, people are constantly motivated to create bond with others to improve

physical and mental well-being. We can expect more information about how to create and maintain well-being by continuing research on close relationships.

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Prévenir l'épuisement professionnel : la contribution des pratiques de leadership habilitant

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Compte tenu de la théorie de la conservation des ressources (Hobfoll, 1989), l'objectif de cette étude était de mieux comprendre les relations entre les pratiques de leadership habilitant des gestionnaires et l'épuisement professionnel de leurs employés. Deux-cent-douze travailleurs canadiens ont répondu à un questionnaire sur leur épuisement professionnel et les pratiques d'habilitation de leur gestionnaire. Les résultats révèlent que la délégation prédit une diminution significative de l'épuisement professionnel. La délégation correspond au fait de léguer davantage d'autorité et d'autonomie à l'employé dans la réalisation de ses tâches. Les interactions doubles et triples entre les dimensions du leadership habilitant sont infirmées. L'utilisation combinée des pratiques d'habilitation ne permet donc pas de maximiser l'effet apporté par la délégation. Ces résultats nuancent les propos d'études antérieures et soutiennent, pour la première fois, que la simple utilisation de la délégation contribue à prévenir l'épuisement professionnel.

Mots-clés : pratiques managériales, habilitation, détresse psychologique, santé psychologique au travail, théorie de la conservation des ressources

In light of the conservation of resources theory (Hobfoll, 1989), the purpose of this study was to better understand the relationships between managers' practice of empowering leadership and burnout of their employees. Two hundred and twelve Canadian workers responded to a questionnaire on their burnout and their manager's empowering leadership practices. The results reveal that delegation predicts a significant decrease in burnout. Delegation means giving more authority and autonomy to the employee in carrying out their duties. Double and triple interactions between empowering leadership dimensions are overturned. The combined use of empowering practices therefore does not maximize the effect of delegation. These results bring a nuance to previous studies and support, for the first time, that the mere use of delegation helps to prevent burnout.

Keywords: managerial practices, empowerment, psychological distress, psychological health at work, conservation of resources theory

Depuis plusieurs décennies, l'augmentation de l'intensité du travail, les exigences croissantes des employeurs et la détérioration des conditions de travail imposées aux employés ont contribué à la hausse de troubles psychologiques tels que l'épuisement professionnel (EP; Legault & Belarbi-Basbous, 2006). L'EP est considéré comme une réaction au stress continu (Maslach & Jackson, 1981; Shirom, 2003) et 62% des Canadiens rapportant être stressés indiquent que leur travail en est la cause (Statistique Canada, 2011). La Commission de la santé mentale du Canada (2013) estime que les troubles psychologiques comme l'EP ont coûté plus de six milliards de dollars en perte de productivité aux entreprises en 2011 et que ce chiffre doublera d'ici 2041. L'EP est également associé à diverses conséquences sur la santé mentale et physique des travailleurs, telles que l'anxiété, les symptômes dépressifs, les maladies cardio-vasculaires, le diabète, les perturbations du sommeil et l'affaiblissement du système immunitaire (Shirom, Melamed, Toker, Berliner, & Shapira, 2005). Par conséquent, il est important de comprendre les conditions organisationnelles menant à l'EP, mais aussi celles pouvant le diminuer.

La qualité des relations hiérarchiques dans les entreprises et les organisations est reconnue comme ayant un impact sur la santé psychologique des employés (Brunet et al., 2015; Samson et al., 2015). En effet, les pratiques adoptées par les superviseurs envers leurs subordonnés ont des répercussions considérables sur l'EP de ces derniers (Mullen & Kelloway, 2011). Ces relations sont surtout étudiées au regard des comportements et des attitudes de leadership des gestionnaires. Depuis les trente dernières années, le leadership habilitant (LH) est devenu une solution de rechange populaire aux pratiques de gestion traditionnelles pour remédier aux enjeux du monde du travail, notamment pour améliorer la qualité de vie et la productivité des employés au travail ainsi que pour diminuer le taux de

roulement du personnel (Spreitzer, 2008). Le LH correspond à l'ensemble des pratiques adoptées par le superviseur afin d'augmenter le pouvoir d'agir de ses employés et de leur offrir les ressources nécessaires pour les soutenir à travers leurs nouvelles responsabilités (Boudrias & Bérard, 2016). Ces pratiques peuvent être regroupées sous trois dimensions spécifiques, soit le coaching, la délégation et la reconnaissance (Sinclair, Boudrias, & Lapointe, 2014).

Le LH a surtout été étudié en lien avec des composantes du bien-être psychologique, par exemple, la vitalité, l'absorption et l'engagement (Sharma & Kirkman, 2015). Cependant, certaines études menées auprès d'infirmiers ont trouvé un effet du LH sur l'atténuation de l'EP (Bobbio, Bellan, & Manganelli, 2012; Bobbio, Rattazzi, & Muraro, 2007; Greco, Laschinger, & Wong, 2006). La présente étude vise donc à évaluer l'effet du LH sur l'EP dans un échantillon varié de travailleurs afin de vérifier si cette tendance s'observe également dans une population de divers milieux.

De plus, des chercheurs ont démontré des effets d'interaction entre les trois dimensions du LH dans la prédiction de l'habilitation comportementale des employés (Sinclair et al., 2014). Toutefois, les études actuelles portant sur le LH et l'EP n'ont pas pris en considération ces possibles interactions. Afin de déterminer si l'utilisation des trois dimensions du LH de façon concomitante permettrait de maximiser la contribution des pratiques d'habilitation dans la prévention de l'EP, un de nos objectifs de recherche était d'évaluer les interactions entre les dimensions du LH dans leur relation avec l'EP.

Le leadership habilitant

Le LH est défini comme un style comportemental de leadership utilisé par des gestionnaires pour rehausser le développement des capacités d'autogestion de leurs subordonnés (Pearce & Sims, 2002). Le LH est étudié depuis les années 1960 à l'aide des bases théoriques de la gestion comportementale de soi (Thorenson & Mahoney, 1974), de la modification comportementale cognitive (Meichenbaum, 1977), du processus participatif de la fixation des objectifs (Locke & Latham, 1990) et du pouvoir organisationnel (Kanter, 1993).

Amundsen et Martinsen (2014) ainsi que Boudrias et Bérard (2016) indiquent que la majorité des études depuis les années 2000 considèrent que le LH est composé de trois dimensions : le soutien au développement des compétences, le partage du pouvoir et le soutien à la motivation pour le travail autonome. Même s'il n'existe aucun consensus sur la spécificité des pratiques sous chaque dimension,

plusieurs études conceptualisent le soutien au développement comme le coaching, le partage du pouvoir comme la délégation et le soutien à la motivation comme la reconnaissance (Boudrias, 2004; Migneault, 2006). Sinclair, Boudrias et Lapointe (2014) ont opérationnalisé les trois pratiques identifiées dans une conceptualisation fondée sur les résultats d'études menées depuis les années 2000 qui permet de bien examiner chaque dimension du LH.

Le coaching. Cette première dimension est un synonyme du terme « facilitation de l'apprentissage » (Ellinger, 1997) et est associée aux comportements des gestionnaires qui visent à développer les capacités des employés dans la réalisation de leur travail (Lapointe & Boudrias, 2013). Ainsi, le gestionnaire qui fait du coaching offre de la rétroaction, des conseils, de l'encouragement et du soutien à ses employés, tout en formulant des recommandations spécifiques pour améliorer leur performance (Arnold, Arad, Rhoades, & Drasgow, 2000; Redshaw, 2000).

La délégation. Cette seconde dimension est une stratégie de partage du pouvoir (Chen, Zhang, & Wang, 2014). Elle représente le fait de léguer l'autorité nécessaire à l'employé pour qu'il prenne des décisions quant à la réalisation de ses tâches afin d'augmenter sa performance (Leana, 1987; Sinclair et al., 2014; Yukl & Fu, 1999). Ceci lui permet d'avoir les ressources nécessaires afin d'être responsable de certaines activités (Chen & Aryee, 2007) et d'augmenter l'utilisation de ses capacités personnelles et son autonomie (Hollander & Offermann, 1990).

La reconnaissance. Cette dernière dimension représente la capacité d'un supérieur à reconnaître et à valoriser la performance d'un subalterne pour les efforts qu'il a mobilisés lors de la réalisation d'une tâche (Fall, 2015). L'employé peut percevoir cette capacité comme étant liée à des résultats prometteurs dans l'organisation lorsqu'il croit en l'honnêteté et la sincérité du comportement de son supérieur (Stajkovic & Luthans, 2001). Ainsi, la reconnaissance motive l'employé à reproduire les efforts déployés et les résultats auxquels il est arrivé dans le passé (Boudrias & Bérard, 2016).

Comme le mentionnent Boudrias et Bérard (2016), la majorité des études n'a pas considéré les scores des trois dimensions indépendamment et il est possible que chacune d'entre elles ait un effet distinct sur l'EP.

L'épuisement professionnel

Selon Shirom (2003), l'EP est défini comme une perte d'énergie physique, cognitive et émotionnelle vécue par l'individu suite à des conditions de travail difficiles ou à une surcharge de travail. Parmi les modèles fréquemment utilisés pour conceptualiser

l'EP, on retrouve celui de Maslach (Maslach & Jackson, 1981) et, plus récemment, celui de Shirom et Melamed (2006; Grossi, Perski, Osika, & Savic, 2015). Maslach définit l'EP comme un syndrome tridimensionnel caractérisé par l'épuisement émotionnel, la dépersonnalisation et une perte du sentiment d'accomplissement personnel (Maslach, Jackson, & Leiter, 1997). Cependant, les dimensions de la dépersonnalisation et de la perte du sentiment d'accomplissement personnel ne font pas consensus parmi la communauté scientifique (Lourel & Gueguen, 2007; Shirom, 2005). Par ailleurs, cette conceptualisation regroupe trois dimensions indépendantes et sans lien étiologique et ne contribue donc pas à faire avancer de manière optimale les connaissances sur l'EP (Shirom, 2003).

Contrairement au modèle de Maslach (Maslach & Jackson, 1981), les dimensions du construit de Shirom et Melamed (2006) sont liées entre elles par un cadre théorique unique, soit celui de la théorie de la conservation des ressources (Hobfoll, 1989). Ainsi, ce modèle est plus cohérent et permet le calcul d'un score global, car il représente la somme des pertes énergétiques à trois niveaux : physique, cognitif et émotionnel (Shirom et al., 2005).

L'épuisement professionnel selon Shirom et Melamed. Selon le modèle de Shirom et Melamed (2006), l'EP est organisé en trois dimensions : la fatigue physique, la lassitude cognitive et l'épuisement émotionnel (Shirom, 2003). Concrètement, la fatigue physique réfère à une fatigue généralisée et au manque d'énergie nécessaire pour accomplir les tâches quotidiennes au travail. La lassitude cognitive renvoie à la difficulté à réfléchir efficacement et l'épuisement émotionnel, au fait de se sentir trop faible pour démontrer de l'empathie envers autrui et investir dans ses relations personnelles au sein de l'organisation (Shirom et al., 2005).

Shirom et Melamed (2006) se sont appuyés sur la théorie de la conservation des ressources (Hobfoll, 1989) pour conceptualiser l'EP. Cette théorie stipule que l'être humain cherche à préserver, protéger et cultiver ses ressources et que toute perte, même potentielle, est vécue comme une menace. Hobfoll (1998) a recensé 74 ressources ayant de la valeur pour une personne. On retrouve, par exemple, le sentiment d'être autonome, la motivation à effectuer les tâches, la reconnaissance de ses réalisations et la compréhension de la part de son superviseur. Selon Hobfoll (1989), lorsqu'un individu subit une perte de ses ressources, il réagit afin de limiter cette perte et de maximiser l'acquisition de nouvelles ressources. Cependant, il doit utiliser d'autres ressources afin de réaliser ce processus de conservation d'énergie. Lorsque les circonstances font en sorte que la

personne ne peut conserver ses ressources, celle-ci ressent alors du stress. La personne se sent en EP lorsqu'elle perçoit une perte continuelle au travail (Shirom, 2003). Ce déséquilibre peut affecter la capacité d'adaptation de l'individu à long terme (Freedy & Hobfoll, 1994) et engendrer des symptômes dépressifs ainsi que du cynisme envers autrui (Shirom, 2003).

Liens entre le leadership habilitant et l'épuisement professionnel

Relativement à la théorie de la conservation des ressources (Hobfoll, 1989), il est postulé que le LH sera négativement lié à l'EP, c'est-à-dire qu'un environnement où les dimensions du LH sont plus présentes sera associé à moins d'EP chez les travailleurs. Chacune des pratiques managériales inclut un ensemble de comportements particuliers. Le superviseur habilitant qui met en application les trois dimensions du LH procure au travailleur plusieurs ressources spécifiques relevées par Hobfoll (1998). Or, ces ressources ont pour effet de limiter le processus de conservation d'énergie et constituent donc un frein à l'apparition de l'EP (Shirom, 2003).

Tout d'abord, le coaching, par les comportements qui en découlent, procure les ressources suivantes à l'employé : le sentiment d'avoir les outils nécessaires pour faire son travail, la compréhension de la part de son superviseur, la progression dans la formation professionnelle et des personnes-ressources desquelles il peut apprendre (Hobfoll, 1998). Ensuite, la délégation, par les pratiques qui y sont rattachées, apporte les ressources suivantes au travailleur : le sentiment d'avoir le contrôle sur sa vie, la capacité à organiser les tâches et le sentiment d'être autonome (Hobfoll, 1998). Finalement, la reconnaissance, à travers les comportements qui y sont liés, fournit les ressources suivantes : le sentiment d'avoir du succès, le sentiment d'être utile pour les autres, le sentiment de fierté, la motivation à effectuer les tâches et la reconnaissance de ses propres réalisations (Hobfoll, 1998).

Les recherches empiriques actuelles portant sur le LH et l'EP sont peu nombreuses, mais les principales études évaluant la relation entre ces deux variables ont fait ressortir des corrélations négatives de taille moyenne entre les dimensions du LH et l'EP (Bobbio et al., 2007, 2012). Cependant, l'EP peut être considéré comme un construit socialement sensible, car il va à l'encontre de l'idéal professionnel (Maslach & Jackson, 1981). Les participants souhaitant montrer une image favorable d'eux-mêmes pourraient donc avoir tendance à sous-rapporter leur niveau réel d'EP afin de préserver leur image. Cette tendance à rapporter la mauvaise information est conceptualisée

par la désirabilité sociale. La littérature portant sur le sujet invite les chercheurs à contrôler pour ce facteur afin de prévenir les potentiels biais qu'il pourrait induire (voir van de Mortel, 2008 pour une revue de la littérature). Or, jusqu'ici, les recherches portant sur le LH et l'EP n'ont pas pris en considération la désirabilité sociale. C'est pourquoi notre étude utilisera un questionnaire afin d'évaluer le niveau de désirabilité sociale des participants dans l'optique de contrôler pour le biais qui pourrait être induit par cette tendance lors de la mesure de l'EP.

D'une autre façon, les études de Bobbio et ses collaborateurs (2007, 2012) ne se sont pas penchées sur les effets de modération potentiels entre les dimensions du LH. Ces études ont fait ressortir des effets directs et indirects négatifs sur l'EP pour les dimensions du soutien au développement des compétences et du soutien à la motivation pour le travail autonome. Par contre, il est possible que la dimension du LH n'ayant pas eu d'effet sur l'EP, soit la dimension du partage du pouvoir, puisse tout de même avoir de l'importance dans la prévention de l'EP. Elle pourrait ainsi y contribuer indirectement en modérant positivement la relation entre les autres dimensions et l'EP. Dans un contexte où la recherche souhaite promouvoir la mise en œuvre du LH dans les organisations afin de contribuer à la réduction de l'EP, il est d'autant plus important de bien comprendre comment ces pratiques de gestion, lorsqu'appliquées conjointement, pourraient avoir un plus grand impact sur la diminution de l'EP.

Les interactions entre les dimensions du leadership habilitant. Certains chercheurs avancent que des effets de modération auraient lieu si les dimensions étaient déployées en combinaison (Heller, 2003; Lawler, 1986, 1992). Ces interactions pourraient également jouer un rôle dans la diminution de l'EP. En effet, selon la théorie de la conservation des ressources, la présence simultanée de plusieurs dimensions implique une plus grande quantité de ressources disponibles pour le travailleur et cela pourrait limiter davantage le processus de conservation d'énergie précurseur de l'EP (Hobfoll, 1989; Shirom, 2003). Selon cette perspective d'interaction, plus l'employé aura accès à des ressources, plus il lui sera facile d'en acquérir de nouvelles (Hobfoll, 1998). Autrement dit, chaque pratique managériale d'habilitation maximiserait l'acquisition des ressources apportées par les deux autres pratiques concomitantes. Ceci est en accord avec la proposition d'Heller (2003) qui considère que les comportements managériaux devraient être mis de l'avant simultanément pour qu'on puisse bénéficier pleinement de leurs bienfaits individuels. Par conséquent, il serait pertinent de prendre en compte ces modérations afin de mieux comprendre comment

les différentes dimensions du LH interagissent entre elles et de déterminer la nature de leurs influences avec l'EP. Sinclair et ses collaborateurs (2014) soulignent qu'il y a une interaction entre les dimensions du LH et leur relation avec trois dimensions de l'habilitation comportementale, c'est-à-dire, les comportements adoptés par les employés responsabilisés en réponse aux pratiques managériales d'habilitation de leur supérieur (Boudrias, 2004). Les résultats de Sinclair et de ses collaborateurs démontrent un effet modérateur positif de la reconnaissance sur les effets de la délégation et du coaching ainsi qu'une modération positive du coaching sur les effets de la délégation.

Objectifs de l'étude

L'objectif de la présente étude est d'abord de mieux comprendre les liens entre les pratiques managériales du LH et l'EP. L'étude vise également à enrichir les connaissances sur les interactions entre les dimensions du LH en étudiant leurs conséquences sur l'EP. Puisque ce thème a gagné en popularité, plusieurs gestionnaires ont tenté d'appliquer cette formule de leadership rapidement, sans comprendre les dimensions sous-jacentes au LH, ce qui a souvent mené au gaspillage des ressources et à des résultats décevants (Blanchard, Carlos, & Randolph, 2001). Cette étude permettra d'éclairer les superviseurs à propos de l'impact de leurs pratiques managériales sur le niveau d'EP de leurs employés.

Nous anticipons que les dimensions du LH seront individuellement liées à l'EP et qu'un effet d'interaction entre les différentes dimensions pourra être observé lors de la prédiction de l'EP. Trois hypothèses de recherche sont proposées, la première étant divisée en trois sous-hypothèses. Premièrement, nous nous attendons à ce que les trois dimensions du LH soient négativement liées à l'EP. Nous prévoyons que l'effet sur l'EP de la combinaison des dimensions du LH, prises deux par deux ou toutes ensemble, sera plus grand que la somme de leur effet individuel.

Hypothèse 1a : le coaching sera négativement lié à l'EP.

Hypothèse 1b : la délégation sera négativement liée à l'EP.

Hypothèse 1c: la reconnaissance sera négativement liée à l'EP.

Hypothèse 2 : il y aura une interaction double entre toutes les dimensions du LH prises deux par deux dans leur relation avec l'EP.

Hypothèse 3 : il y aura une interaction triple entre les dimensions du LH dans leur relation avec l'EP.

Méthodologie

Devis de recherche

Un devis transversal a été utilisé dans la présente étude. La collecte de données a eu lieu durant le mois de février 2017. Les étudiants d'un cours d'introduction à la recherche en psychologie ont préalablement approché des travailleurs de leur entourage pour les inviter à participer à l'étude. Après avoir accepté de participer et fourni leurs coordonnées, les participants ont reçu un courriel contenant les directives menant au questionnaire électronique. Ils ont eu un mois pour remplir le questionnaire, au cours duquel ils ont reçu deux rappels de participation par courriel.

Participants

L'échantillon de convenance était composé de travailleurs occupant un emploi principalement dans les régions de Montréal (63,2%), de la Montérégie (16,3%) et de Laval (7,7%), dans la province de Québec au Canada. Tous les travailleurs de l'échantillon avaient un emploi rémunéré au Canada. Les participants provenaient majoritairement d'organisations publiques (34,0%), de grandes entreprises privées (28,8%) et de petites ou moyennes entreprises privées (26,9%). Les critères d'inclusion étaient les suivants : la personne devait occuper un emploi rémunéré, travailler un minimum de 25 heures par semaine, être en poste dans son organisation depuis au moins trois mois, être âgée d'au moins 18 ans, posséder une adresse courriel et avoir une bonne compréhension du français. Les chercheurs ont envoyé l'invitation à répondre au questionnaire électronique à 387 participants, desquels 274 participants ont répondu au questionnaire, soit un taux de participation de 70,8%. Trente-huit participants ont été retirés de l'échantillon, car ils ne satisfaisaient pas aux critères d'inclusion ou n'avaient pas répondu correctement aux questions contrôlant pour les patrons de réponses. Deux-cent-douze participants ($N = 212$) ont rempli le questionnaire dans son intégralité (59,9% de femmes). La moyenne d'âge de l'échantillon était de 39.0 ans ($É.-T. = 12.8$ ans). Les participants étaient originaires en majeure partie du Canada (93,4%) et ils consacraient en moyenne 40.5 heures ($É.-T. = 7.8$ heures) à leur emploi par semaine. La plupart des répondants avaient complété un diplôme universitaire de 1er cycle (46,2%).

Mesures

Pratiques managériales d'habilitation. L'instrument utilisé pour mesurer les trois pratiques managériales de LH a été construit par Sinclair et ses collaborateurs (2014) à partir des mesures préexistantes provenant des questionnaires d'Arnold et ses collaborateurs (2000), Konczak, Stelly et Trusty (2000) et Migneault, Rousseau et Boudrias (2009). Celui-ci comporte 16 items répartis en trois dimensions, soit (a) le coaching (quatre items), (b) la délégation (six items) et (c) la reconnaissance (six items). L'instrument mesure la perception des employés par rapport aux pratiques managériales de LH de leurs supérieurs sur une échelle de Likert à 5 ancres, allant d'une fréquence de « *jamais* » (1) à « *toujours* » (5). L'énoncé pour chaque question commençait par « *Mon supérieur immédiat…* » et des exemples d'items inclus mesurant chacune des dimensions sont « *… m'aide à reconnaître mes besoins de formation* » (coaching), « *… me donne les pouvoirs d'agir qui correspondent à mes responsabilités* » (délégation), et « *… témoigne son appréciation pour mes contributions* » (reconnaissance). L'alpha de Cronbach dans la présente étude étaient de .88 pour le coaching, .92 pour la délégation, .96 pour la reconnaissance et .96 pour le construit global.

Épuisement professionnel. L'instrument utilisé pour mesurer le niveau d'EP est la version française du *Shirom-Melamed Burnout Measure*, développé originalement par Shirom et Melamed (2006), traduit et validé par Sassi et Neveu (2010). Il comporte un total de 14 items répartis sous trois dimensions, soit la fatigue physique représentée par six items, la lassitude cognitive avec cinq items et l'épuisement émotionnel avec trois items. Le score global de l'EP est mesuré en calculant la moyenne pour les 14 items. L'instrument comporte une échelle de type Likert à 7 ancres, allant de « *jamais* » (1) à « *toujours* » (7). L'énoncé pour chaque question commençait par « *Depuis les derniers six mois de travail…* » et des exemples d'items sont « *… je me sens fatigué(e)* » (fatigue physique), « *… je peine à réfléchir rapidement* » (lassitude cognitive) et « *… je me sens incapable de ressentir les besoins de mes collègues et/ou des clients* » (épuisement émotionnel). La validité de construit a été confirmée par des analyses factorielles exploratoires et confirmatoires (Sassi & Neveu, 2010). Dans la présente étude, l'alpha de Cronbach était de .94 pour le score global de l'EP.

Désirabilité sociale. La désirabilité sociale est utilisée comme variable contrôle dans cette étude afin de contrôler pour le biais qu'une telle tendance pourrait potentiellement induire dans les résultats EP (voir van de Mortel, 2008 pour une revue de la littérature). L'instrument choisi est la version française et abrégée du *Marlowe-Crowne Social Desirability Scale* qui a été originalement conçu par Reynolds (1982) et traduit par Valla et ses collaborateurs (1997). L'instrument comporte 13 items portant sur la désirabilité sociale avec un choix de réponse « *vrai* » ou « *faux* », par exemple « *Je n'ai jamais été contrarié*

lorsque les gens exprimaient des idées très différentes des miennes ». Le score global est calculé à partir de la moyenne de tous les items et sa valeur est comprise entre 1 et 2, où 2 représente une plus grande tendance à la désirabilité sociale. Dans la présente étude, le KR-20, un indice de consistance interne pour des variables dichotomiques, était de .64.

Résultats

Analyses préliminaires

On observe dans le tableau 1 des moyennes et écarts-types comparables aux études initiales pour les dimensions du LH (Arnold et al., 2000; Konczak et al., 2000) et le score global de l'EP (Sassi & Neveu, 2010). Les variables répondent aux critères d'une distribution normale, la voussure et l'asymétrie se situant entre -1 et 1 (Muthén & Kaplan, 1985). La distance de Mahalanobis et le seuil de signification de .001 (Tabachnick & Fidell, 2007) ont été utilisés afin de détecter toutes valeurs extrêmes multivariées qui pourraient fausser les résultats subséquents et aucune valeur extrême n'est ressortie de ces analyses. De plus, les facteurs d'inflation de la variance des trois dimensions du LH ($2.0 \leq$ FIV ≤ 3.5) indiquent qu'il pourrait y avoir de la multicolinéarité entre les variables, mais pas à un niveau assez important pour être problématique (Ethington, Thomas, & Pike, 2002).

Analyses factorielles confirmatoires. L'analyse des corrélations entre les dimensions révèle un lien fort et positif entre le coaching et la reconnaissance ($r = .80$, p < .001). Cette corrélation indique que la capacité à discriminer ces deux dimensions peut être problématique. Malgré tout, cela est en accord avec les résultats relevés pour d'autres outils mesurant le LH, ne compromettant toutefois pas leur capacité à discriminer les dimensions (Arnold et al., 2000; Bobbio et al., 2007, 2012). Néanmoins, afin de vérifier la structure de l'instrument mesurant le LH de Sinclair et al. (2014) et s'assurer de la validité des résultats obtenus, nous avons conduit des analyses factorielles confirmatoires.

Nous avons procédé à une première analyse factorielle confirmatoire comportant tous les items mesurant les trois dimensions, soit le coaching, la délégation et la reconnaissance. Les indices du modèle à trois facteurs indiquent une adéquation marginale du modèle, χ^2/df = 3.56; CFI = .93; TLI = .91; RMSEA = .11, IC 90% [0.10, 0.12]; SRMR = .063, selon les normes retenues par Hoe (2008), soit qu'un modèle acceptable doit suivre les indices suivants : χ^2/df < 3, CFI > .90, TLI > .90, RMSEA < .08 et finalement, selon Hu et Bentler (1999), un SRMR < .08. Selon les indices de modification du modèle à trois facteurs, deux items saturent sur des dimensions auxquelles ils n'appartiennent pas, tous deux faisant initialement partie de la dimension de la délégation. Ainsi, une deuxième analyse factorielle confirmatoire a été conduite, où nous avons retiré ces deux items. Les indices d'adéquation du modèle sont acceptables et meilleurs que ceux du modèle original, χ^2/df = 2.53; CFI = .96; TLI = .95; RMSEA = .085, IC 90% [0.07, 0.10]; SRMR = .038. Les deux items problématiques de la dimension de la délégation ont donc été retirés pour les analyses principales. Par ailleurs, après observation des résultats du modèle à trois facteurs, nous avons conduit une troisième analyse factorielle confirmatoire avec seulement un facteur pour nous assurer que le modèle ne soit pas mieux expliqué de cette façon. Les indices du modèle à un facteur indiquent une moins bonne adéquation que celle du premier modèle à trois facteurs, χ^2/df = 6.66; CFI = .83; TLI = .81; RMSEA = .16, IC 90% [0.15, 0.18]; SRMR = .83; TLI = .81; RMSEA = .16, IC 90% [0.15, 0.18]; SRMR = .074. Il en ressort donc que le modèle à trois facteurs est plus adéquat que celui à un seul facteur.

Analyses principales

Les hypothèses 1a, 1b et 1c voulant que le coaching, la délégation ainsi que la reconnaissance soient négativement liés à l'EP sont appuyées par les analyses corrélationnelles. Effectivement, les résultats présentés dans le tableau 1 indiquent que les dimensions de la délégation et de la reconnaissance sont chacune négativement et moyennement corrélées à l'EP (respectivement, $r = -.46$; $r = -.34$, *ps* < .001).

Tableau 1

Résumé des moyennes, écart-types et corrélations des variables

	M	*É.-T.*	1	2	3	4	5
1. LH Coaching	3.23	1.00	(.88)				
2. LH Délégation	3.83	0.90	.61**	(.92)			
3. LH Reconnaissance	3.56	1.03	.80**	.71**	(.96)		
4. EP	2.84	1.01	-.29**	-.46**	-.34**	(.94)	
5. Désirabilité sociale	1.72	0.18	.02	-.14*	.02	-.37**	(.64)

Note. La diagonale principale présente les alphas de Cronbach; La diagonale de la désirabilité sociale est un KR-20; * *p* < .05. ** *p* < .01.

Tableau 2

Résumé des analyses de régressions hiérarchiques pour l'EP

Prédicteurs	B	ES (B)	β	R^2	ΔR^2
Étape 1				.14*	
Désirabilité sociale	-2.08	0.36	-.37*		
Étape 2				.31*	.17*
Désirabilité sociale	-1.79	0.33	-.32*		
LH Coaching	0.00	1.00	.00		
LH Délégation	-0.41	0.10	-.36*		
LH Reconnaissance	-0.09	0.11	-.08		

Note. * *p* < .001.

Quant à la dimension coaching du LH, elle négativement et faiblement corrélée à l'EP, *r* = -.29, *p* < .001. De plus, comme présumé, la désirabilité sociale est moyennement et négativement corrélée à l'EP, *r* = -.37, *p* < .001. Cette variable contrôle sera donc utilisée dans les analyses subséquentes.

Afin de contrôler pour la désirabilité sociale et de contraster l'effet de chacune des dimensions du LH pour prédire l'EP, nous avons procédé à une régression hiérarchique. Les résultats du tableau 2 révèlent que la désirabilité sociale prédit significativement l'EP (*p* < .001) et explique 13.6% de sa variance. Le modèle contenant les trois pratiques managériales prédit tout de même 17.1% de la variance de l'EP, et ce, au-delà de la prédiction de la désirabilité sociale, *p* < .001. Les dimensions du coaching, β = .001, *p* = .99, et de la reconnaissance, β = -.08, *p* = .44, ne prédisent pas de variance unique de l'EP. Cependant, la dimension de la délégation prédit significativement une variance unique de l'EP, β = -.36, *p* < .001. Cela signifie qu'un environnement où la délégation est plus présente est associé à moins d'EP.

Seulement l'hypothèse 1b est confirmée par les résultats de la régression hiérarchique. De cette façon, la présence de la délégation comme pratique managériale d'habilitation prédit effectivement un niveau plus bas d'EP chez les subordonnés, mais il n'est pas possible d'arriver à la même conclusion pour les dimensions du coaching et de la reconnaissance prises individuellement.

Afin d'évaluer l'interaction entre les dimensions du LH pour prédire l'EP, nous avons fait des analyses de modération avec la macro PROCESS pour SPSS (Hayes, 2013) en utilisant un ré-échantillonnage de 5000 et en contrôlant statistiquement pour la désirabilité sociale. Les résultats sont présentés dans le tableau 3. Les modèles d'interaction à deux dimensions expliquent entre 25% et 31% de la variance de l'EP (*p*s < .001), mais la variable d'interaction ne la prédit pas significativement (*p*s > .10). Ainsi, l'hypothèse 2 est infirmée, car aucune

des variables d'interaction double ne prédit significativement l'EP.

Finalement, nous avons poursuivi les analyses de modération afin de vérifier la présence possible d'une interaction triple entre les dimensions du LH pour prédire l'EP. Le modèle total des interactions est significatif, *p* < .001, et permet de prédire 30.8% de la variance de l'EP. Malgré cela, la variable d'interaction triple entre ces dimensions ne prédit pas l'EP, *p* = .946, infirmant l'hypothèse 3. Ainsi, les effets combinés des trois pratiques managériales de LH par les gestionnaires ne semblent pas faire diminuer davantage l'EP pour les travailleurs que l'addition de l'effet indépendant de chacune des pratiques.

Discussion

L'objectif de la présente étude était de mieux comprendre les liens directs entre les dimensions du LH et l'EP, puis d'approfondir la nature des interactions entre ces pratiques dans leur prédiction de l'EP. D'abord, les résultats supportent l'hypothèse 1b et indiquent que la délégation est négativement liée à l'EP et en prédit significativement la diminution. La pratique de la délégation par les gestionnaires pourrait donc permettre de faire diminuer le niveau d'EP de leurs employés. Ensuite, les hypothèses 1a et 1c ne sont que partiellement confirmées. Le coaching et la reconnaissance sont négativement corrélés à l'EP, mais suite au contrôle pour la désirabilité sociale et lorsque considérées ensemble avec la délégation, ces deux dimensions ne sont plus des prédicteurs significatifs de l'EP. Ainsi, il n'est pas possible de conclure que le coaching et la reconnaissance permettent de faire diminuer l'EP. Finalement, les deuxième et troisième hypothèses sont infirmées. En effet, aucune interaction entre les dimensions n'a eu un effet significatif sur la diminution du niveau d'EP comparativement à l'addition du niveau de chacune des dimensions. De ce fait, l'ajout d'une ou de plusieurs pratiques managériales d'habilitation ne viendrait pas maximiser l'effet de la première pratique sur la diminution de l'EP chez les travailleurs.

Tableau 3

Résumé des interactions provenant des analyses de modération

Prédicteurs	B	ES (B)	R^2	ΔR^2
Modèle 1			.31**	
Coaching	-0.05	0.07		
Délégation	-0.44**	0.10		
Désirabilité sociale	-1.78**	0.33		
C × D	0.02	0.07		.00
Modèle 2			.25**	
Coaching	-0.04	0.11		
Reconnaissance	-0.28*	0.11		
Désirabilité sociale	-2.06**	0.34		
C × R	0.05	0.06		.00
Modèle 3			.31**	
Délégation	-0.41**	0.12		
Reconnaissance	-0.08	0.08		
Désirabilité sociale	-1.79**	0.33		
R × D	0.01	0.07		.00
Modèle 4			.31**	
Coaching	0.00	0.12		
Délégation	-0.42*	0.13		
Reconnaissance	-0.08	0.13		
Désirabilité sociale	-1.81**	0.34		
C × D	0.03	0.18		
C × R	0.02	0.10		
D × R	0.00	0.14		
C × D × R	0.00	0.06		.00

Note. C : Coaching; D : Délégation; R : Reconnaissance; * $p < .01$. ** $p < .001$.

Les résultats pour l'hypothèse 1b nuancent ceux de Bobbio ses collaborateurs (2007, 2012). En effet, ces chercheurs n'ont rapporté aucun effet significatif sur l'EP pour la dimension du partage du pouvoir. Cependant, ils n'ont pas utilisé l'instrument de Sinclair et ses collaborateurs (2014), mais plutôt celui d'Arnold et ses collaborateurs (2000). Ce dernier conceptualise le partage du pouvoir par la prise de décision participative et non par la délégation. La prise de décision participative est définie comme une pratique qui encourage les employés à exprimer leurs idées afin de prendre en compte leurs opinions et leurs suggestions dans le processus de décision des superviseurs (Arnold et al., 2000). Cette définition diffère de la délégation et peut ainsi expliquer les résultats divergents par rapport à la délégation. En effet, la délégation donne à l'employé l'autorité et la responsabilité nécessaires afin de prendre des décisions. La délégation est ainsi considérée comme une pratique plus habilitante (Yukl & Fu, 1999). De ce

fait, cette autorité et cette responsabilité procurent un contrôle supplémentaire au travailleur (Boudrias & Bérard, 2016). Or, les employés ayant un plus grand sentiment de contrôle ont tendance à faire une meilleure utilisation de leurs ressources et à aller chercher le soutien de leurs pairs lorsque nécessaire, favorisant une diminution de l'EP (Shirom, 2003).

Les résultats pour les hypothèses 1a et 1c contredisent ceux de Bobbio et ses collaborateurs (2007, 2012). Les études antérieures ont démontré un effet pour le coaching (Bobbio et al., 2007) et un effet pour la reconnaissance médié par la confiance envers le superviseur (Bobbio et al., 2012). L'échantillon utilisé dans notre étude pourrait expliquer les résultats contradictoires pour ces deux autres dimensions. Effectivement, le présent échantillon était composé de travailleurs canadiens provenant d'organisations diverses, alors que les recherches précédentes ont été effectuées dans des hôpitaux italiens majoritairement

auprès d'infirmières. Cet écart est important. Or, il existe peut-être des différences culturelles et organisationnelles qui amèneraient ces résultats. En effet, la population infirmière fait face à des défis et à une conjoncture particulière. C'est la profession qui comptabilise le plus haut taux d'absence du travail pour cause de maladies, dû en grande partie à la grande quantité d'heures supplémentaires et à un environnement de travail constamment en changement et particulièrement stressant (Greco et al., 2006).

Une explication alternative pour ces résultats provient du fait que la délégation pourrait avoir une importance pratique différente du coaching et de la reconnaissance afin de diminuer l'EP des employés. Il est possible que les pratiques de délégation des gestionnaires, telles que le transfert de responsabilités envers certaines activités et l'autonomie qui en découle, aient un impact plus spécifique et immédiat sur la diminution de l'EP des employés que les comportements rattachés à ces deux autres dimensions. Effectivement, selon la théorie de la conservation des ressources (Hobfoll, 1989), le travailleur en situation d'EP subit une perte de ressources énergétiques et tente de la limiter (Shirom, 2003). Minimiser ce déficit devient plus important que le simple fait d'acquérir de nouvelles ressources. Cependant, pour limiter la perte énergétique, il doit investir d'autres ressources. Or, la délégation fournit les ressources suivantes : le sentiment d'autonomie, le sentiment de contrôle et la capacité d'organiser les tâches (Hobfoll, 1998). L'employé pourrait donc utiliser son autonomie, son contrôle et sa capacité à organiser les tâches, fournis par la délégation, pour apporter des modifications à son emploi et ainsi limiter les pertes d'énergies physiques, cognitives et émotionnelles reliées à son occupation. À l'opposé, le coaching et la reconnaissance pourraient faciliter l'apparition de nouvelles demandes et ainsi requérir le déploiement de ressources que l'employé en EP ne possède pas. En effet, le coaching est axé sur le développement de nouvelles compétences (Lapointe & Boudrias, 2013) et la reconnaissance motive l'employé à reproduire les efforts dont il a fait preuve dans le passé (Boudrias & Bérard, 2016).

Les résultats pour les hypothèses 2 et 3 nuancent également les propos de Heller (2003), de Lawler (1986, 1992) et de Sinclair et ses collaborateurs (2014). Selon ceux-ci, l'utilisation de plus d'une pratique d'habilitation serait préférable puisque l'ensemble des pratiques de gestion déployées serait supérieur à l'addition de leur effet individuel. Sinclair et ses collaborateurs soutiennent aussi que l'emploi de la délégation en l'absence des autres pratiques managériales serait inefficace pour permettre l'habilitation comportementale des travailleurs. Cependant, nos résultats soulignent que ce phénomène ne semble pas s'appliquer pour l'EP. Ceci pourrait s'expliquer par le fait que Sinclair et ses collaborateurs ont simplement considéré l'habilitation comportementale des travailleurs et n'ont pas examiné l'effet du LH sur l'EP.

Il existe peut-être également un processus distinctif au niveau des ressources qui expliquerait la nuance de ces résultats. Ce processus prendrait la forme de deux étapes. Premièrement, la délégation freinerait la perte énergétique et diminuerait, voire neutraliserait l'EP. Deuxièmement, lorsque le déficit est stabilisé, le coaching et la reconnaissance pourraient fournir des ressources complémentaires permettant un nouveau gain des énergies et permettant de maximiser l'effet apporté par la délégation en contribuant à la croissance personnelle et au bien-être psychologique. Selon Hobfoll (1989), lorsqu'une personne est en état d'équilibre, elle va chercher à maximiser ses ressources. Ainsi, dans une perspective d'interactions, il se pourrait que le coaching et la reconnaissance permettent davantage le gain de ressources lors de la deuxième étape, interagissant donc plus pour promouvoir le bien-être psychologique du travailleur que pour réduire sa détresse psychologique.

Cette étude apporte plusieurs contributions à la littérature actuelle. Elle soutient pour la première fois que la dimension de la délégation permette de prédire une diminution de l'EP. Ces travaux se sont concentrés uniquement sur les liens unissant les dimensions du LH et l'EP et les résultats renforcent la pertinence de mesurer les dimensions du LH afin de mieux comprendre l'importance de chacune des dimensions dans leur relation avec l'EP. En outre, les résultats pour la désirabilité sociale permettent de valider l'importance de ce biais sur la mesure de l'EP et indiquent qu'il est primordial pour les recherches futures dans ce domaine de continuer à contrôler pour la désirabilité sociale.

Cette étude se voulait exploratoire au niveau des interactions possibles entre les dimensions du LH et leur effet sur le niveau d'EP. Les résultats nuancent les propos d'études antérieures en avançant qu'aucune interaction n'est significative entre les trois dimensions du LH dans la prédiction du niveau d'EP. Cette étude montre ainsi qu'il ne faut pas tenir pour acquise la présence d'interactions entre les dimensions du LH et qu'il est important de prendre en compte le contexte dans lequel les pratiques managériales d'habilitation sont mises de l'avant. Puisque les interactions entre les dimensions du LH ont été démontrées sur l'habilitation comportementale (Sinclair et al., 2014), les résultats de cette étude suggèrent une différence dans le processus de diminution de l'EP par le LH comparativement au processus d'habilitation. Il est possible que l'effet apporté par les pratiques managériales d'habilitation

sur l'EP ne passe pas par l'habilitation comportementale de l'employé, mais plutôt directement par l'environnement et les conditions de travail que le LH procure, c'est-à-dire l'autonomie et la liberté de choix apportées par la délégation. Dans le contexte de l'EP, ces apports semblent être utilisés par l'employé dans un rôle plus personnel afin d'utiliser plus judicieusement ses ressources (Shirom, 2003) et non pas pour contribuer activement à l'organisation tel que l'habilitation comportementale le suggère (Sinclair et al., 2014).

Implications pratiques

D'une part, l'étude révèle que la pratique de la délégation semble être la plus efficace pour réduire le niveau d'EP. La délégation serait efficace même en l'absence des autres dimensions du LH. Les gestionnaires devraient ainsi faire appel aux comportements rattachés à cette pratique pour diminuer ou prévenir l'EP de leurs employés. Il s'agit de favoriser le partage du pouvoir vers les travailleurs. Ces comportements se rattachent tous au fait de léguer l'autorité nécessaire au subalterne afin qu'il puisse prendre des décisions quant à la réalisation de ses tâches pour devenir plus autonome et favoriser l'utilisation de ses capacités personnelles (Hollander & Offermann, 1990; Leana, 1987; Sinclair et al., 2014; Yukl & Fu, 1999). D'autre part, la présente étude ne permet pas d'affirmer que l'utilisation du coaching ou de la reconnaissance comme seule pratique managériale serait efficace pour réduire l'EP.

La désirabilité sociale a aussi un effet significatif sur la mesure du niveau d'EP. En effet, celle-ci prédisait une part non négligeable de la variance de l'EP. Ce résultat peut dénoter une réticence des employés à rapporter leur EP en général et spécialement envers leurs supérieurs, puisque cette condition a des conséquences indésirables (Shirom, 2003), entre autres, au niveau des coûts engendrés en perte de productivité (Commission de la santé mentale du Canada, 2013). Hewlin (2009) a montré que le fait de créer une façade de conformité est lié au fait de souffrir d'épuisement émotionnel, une dimension de l'EP. Par ailleurs, l'une des composantes de la désirabilité sociale est la gestion d'impression, soit une adhésion élevée aux normes morales et sociétales et un grand rejet de ce qui dévie de la norme (Paulhus & John, 1998). À cet égard, la création d'une façade de conformité peut être vue comme une forme de gestion d'impression. Les résultats de Hewlin sont donc intéressants et montrent que les travailleurs témoignant d'un haut niveau de désirabilité sociale, particulièrement de gestion d'impression, sont aussi plus à risque d'avoir un haut niveau d'EP. De plus, la stigmatisation a une grande influence négative sur les comportements de recherche d'aide et la stigmatisation entourant la santé mentale est d'autant plus grande par rapport aux autres formes de problèmes de santé (Bharadwaj, Pai, & Suziedelyte, 2017). Par conséquent, il devient important pour les gestionnaires d'être sensibilisés et de faire la promotion d'une culture organisationnelle ouverte face à la problématique de l'EP afin de réduire la stigmatisation et permettre aux travailleurs de recevoir de l'aide psychologique plus facilement.

Limites et recherches futures

Premièrement, nous avons utilisé un devis transversal et il ne permet pas d'inférer un lien de causalité entre le LH et l'EP. Malgré les limites du devis, les résultats vont dans la même direction que ce qui a été découvert précédemment dans les autres études portant sur le sujet, soit allant du LH vers l'EP, ce qui a été soutenu à maintes reprises par des analyses des pistes causales (*path analysis*; p. ex., Bobbio et al., 2012; Greco et al., 2006). Il est donc plus plausible d'un point de vue théorique que l'utilisation de pratiques managériales d'habilitation chez les gestionnaires influence négativement l'EP de leurs employés plutôt que le cas inverse où la présence d'EP chez les employés influence négativement l'usage de ces pratiques par leurs gestionnaires. Toutefois, un devis quasi expérimental serait plutôt de mise afin de confirmer la direction des effets.

Par ailleurs, en raison du devis transversal, cette étude a permis d'observer l'effet des différentes pratiques du LH à un moment précis mesuré lors du complètement des questionnaires. Afin d'expliquer les résultats, cette étude a proposé que la délégation puisse être prioritaire dans le processus de diminution de l'EP dans un premier temps et que le coaching et la reconnaissance puissent plutôt être bénéfiques par la suite afin d'améliorer le bien-être psychologique des employés. Ces hypothèses pourraient être explorées dans le contexte d'une recherche longitudinale. Les gestionnaires pourraient par exemple être soumis à des formations pouvant améliorer leurs pratiques managériales correspondant aux dimensions du LH et les travailleurs pourraient être soumis à plusieurs reprises aux questionnaires utilisés dans la présente étude ainsi qu'à celui mesurant leur bien-être psychologique. Il serait alors possible de mesurer les changements dans les niveaux des dimensions du LH avant la formation et après la formation et de comparer son effet dans les relations avec l'EP et le bien-être psychologique.

Deuxièmement, l'étude n'évalue pas l'EP auprès d'employés en congé de maladie puisque les données ont été récoltées auprès de travailleurs actifs. Une solution pertinente serait donc de mesurer la perception du niveau de LH de travailleurs en congé de maladie en raison de l'EP, afin d'évaluer si leur gestionnaire démontrait peu de comportements de LH.

Troisièmement, la perception des employés vis-à-vis de leur gestionnaire a pu également être polarisée et exagérée par un effet de halo (Nisbett & Wilson, 1977). Ce biais potentiel aurait amené les participants à répondre de manière exagérée lors de la passation du questionnaire, ce qui aurait réduit la possibilité d'obtenir des résultats nuancés sur les scores au niveau des dimensions du LH.

Finalement, le recours unique à des données autorapportées pourrait avoir induit un biais de variance commune dû à la méthode (P. Podsakoff, MacKenzie, Lee, & N. Podsakoff, 2003). Malgré tout, l'EP reste un phénomène vécu de façon subjective et donc mieux capté par la personne elle-même. L'utilisation de données provenant d'un évaluateur externe ou l'agrégation des réponses de plusieurs employés concernant un superviseur pourraient tout de même réduire ce risque lors de recherches futures.

Conclusion

Cette étude a introduit pour la première fois le concept de désirabilité sociale dans la recherche portant sur le LH et l'EP et les résultats montrent la nécessité de contrôler pour le biais apporté par la désirabilité sociale dans la mesure de l'EP. De plus, l'étude révèle que l'usage de la délégation permettrait de prévenir l'EP alors que les pratiques managériales du coaching et de la reconnaissance n'auraient aucun effet significatif. De même, contrairement à nos prédictions, l'utilisation combinée des dimensions du LH ne viendrait pas maximiser l'effet apporté par la délégation sur l'EP. Afin de contribuer à la prévention de l'EP, il serait donc important pour les superviseurs d'encourager le partage de pouvoir vers leurs employés, c'est-à-dire de leur léguer davantage d'autorité et d'autonomie dans la réalisation de leurs tâches. Finalement, la théorie de la conservation des ressources (Hobfoll, 1989) apporte une explication alternative aux résultats obtenus en faisant la distinction entre les processus de diminution de l'EP et de croissance du bien-être psychologique.

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The Relationship Between Perfectionism and Nonsuicidal Self-Injury in a Student Sample of Young Adults

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Emerging research continues to underline the high prevalence of nonsuicidal self-injury (NSSI) and its negative outcomes among adolescents and young adults. To better understand the correlates of NSSI thoughts and behaviors, academic and health professionals have studied its risk factors. This study investigated whether traits of perfectionism (i.e., concern over mistakes, personal standards, parental expectations, parental criticism, doubts about actions, and organization) were associated with an increased tendency to engage in NSSI thoughts and behaviors according to gender. Using a cross-sectional study design, perfectionism and NSSI thoughts and behaviors were examined among a sample of 1,500 university students between 17 and 25 years old. Results revealed that perfectionism was a significant predictor of both NSSI thoughts and behaviors. Differential results were obtained according to gender and type of NSSI. These findings suggest that perfectionism may be a risk factor for NSSI and play unique roles in predicting NSSI among males and females.

Keywords: gender differences, nonsuicidal self-injury, perfectionism, personality, young adults

De nouvelles recherches continuent de souligner la forte prévalence de l'automutilation non-suicidaire (AMNS) et de ses conséquences négatives auprès des adolescents et des jeunes adultes. Pour mieux comprendre les corrélats des pensées et comportements liés au phénomène d'AMNS, les chercheurs et les professionnels de la santé ont étudié ses facteurs de risque. Cette étude investiguait si les traits liés au perfectionnisme (p. ex., les inquiétudes par rapport aux erreurs, les normes personnelles, les attentes parentales, la critique parentale, les doutes sur les actions et l'organisation) étaient associés à une tendance accrue aux pensées et comportements d'AMNS selon le genre. Cette étude transversale examinait le perfectionnisme et les pensées et comportements d'AMNS chez 1 500 étudiants universitaires âgés entre 17 et 25 ans. Les résultats révèlent que le perfectionnisme est un prédicteur des pensées et des comportements d'AMNS. Des résultats différentiels sont obtenus selon le sexe et le type d'AMNS. Ces résultats suggèrent que le perfectionnisme peut être un facteur de risque pour l'AMNS et qu'il pourrait jouer un rôle unique dans la prédiction de l'AMNS chez les hommes et les femmes.

Mots-clés : différences entre genres, auto-mutilation non-suicidaire, perfectionnisme, personnalité, jeunes adultes

Nonsuicidal self-injury (NSSI), which can occur in the form of thoughts and behaviors, is an important public health issue that has received increasing attention by researchers in the last 10 to 15 years (Klonsky, Victor, & Saffer, 2014). NSSI behaviors refer to the deliberate, self-inflicted destruction of body tissue in the absence of suicidal intent and for reasons that are not socially-sanctioned (Favazza, 1998; Nock & Favazza, 2009). Examples of such behaviors include cutting, carving, burning, self-hitting, and scratching (Heath & Nixon, 2009). Indeed, NSSI behaviors are associated with concerning consequences such as an increased risk for suicide attempts (Joiner, Ribeiro, & Silva, 2012; Whitlock et al., 2013) and performance anxiety (Kiekens et al., 2015). Research has suggested that NSSI behaviors are most prevalent among adolescent and young adult populations (Swannell, Martin, Page, Hasking, & St John, 2014). In fact, pooled NSSI prevalence has been estimated at 17.2% among adolescents, 13.4% among young adults, and 5.5% among adults (Swannell et al., 2014). However, while NSSI behaviors are a well-known phenomenon, this is not the case for NSSI thoughts.

Arguably, the more subtle manifestation of NSSI appears in the form of thoughts. NSSI thoughts refer to rumination about self-inflicted harm and the urge to engage in NSSI behaviors (Nock, 2010). For instance, this can manifest as one thinking about any self-mutilation behaviors, such as the act of cutting

oneself. Although the prevalence of NSSI thoughts has not been researched extensively, existing prevalence estimates indicate that approximately 7.8% to 14% of community-based young adults engage in NSSI thoughts (Caron, Lafontaine, & Bureau, 2016a; Levesque, Lafontaine, Bureau, Cloutier, & Dandurand, 2010; Martin, Bureau, Cloutier, & Lafontaine, 2011). While thoughts of NSSI may be more difficult to identify than behaviors, they are of equal public health concern as they can lead to NSSI behaviors (Nock, Prinstein, & Sterba, 2009). As a result, NSSI thoughts could be used as a screening test and clinical assessment tool for young adults at risk. In this context, it is important to identify risk factors that could be independently linked to NSSI behaviors and thoughts.

Theoretical Links Between Perfectionism and NSSI

Research examining intrapersonal risk factors for NSSI have typically focused on identifying under-regulated personality features, such as mood dysregulation, high aversive affect, and impulsiveness (e.g., Claes, Klonsky, Muehlenkamp, Kuppens, & Vandereycken, 2010; Favaro & Santonastaso, 2000). However, very little attention has been paid to evaluating over-regulated and restrictive features, such as perfectionism. In this context, the main goal of this study was to examine the links between various dimensions of perfectionism and NSSI thoughts and behaviors. Perfectionism is characterized by one striving to maintain unrealistically high standards in various areas of their life (Hoff & Muehlenkamp, 2009). It is conceptualized as a multidimensional construct that includes both perfectionism directed towards the self (self-oriented perfectionism; i.e., personal standards, doubts about actions, concern over mistakes, and organization) and the perceived presence of high standards and demands from others (socially-prescribed perfectionism; i.e., parental expectations and parental criticism; Frost, Marten, Lahart, & Rosenblate, 1990).

Nock and Prinstein's (Nock, 2009, 2010; Nock & Prinstein, 2004) four-function model of NSSI can be used as an explanatory framework of the relationship between restrictive features of personality, such as perfectionism, and NSSI. Automatic-negative reinforcement is the first and most often performed function of this model (Heath & Nixon, 2009). It can be defined as engaging in NSSI behaviors to remove or escape from an undesirable cognitive or emotional state (Nock & Prinstein, 2004), such as critical thoughts of personal failures, and feelings of sadness, guilt or anger (Heath & Nixon, 2009). As perfectionism is strongly related to these negative affects (Klibert, Lamis, Naufel, Yancey, & Lohr, 2015; Mandel, Dunkley, & Moroz, 2015), one can

hypothesize that individuals engaging in automatic-negative reinforcement may be more likely to engage in NSSI behaviors to alleviate such negative emotions (Claes, Soenens, Vansteenkiste, & Vandereycken, 2012).

Further, the automatic-positive reinforcement function refers to using NSSI as a way to generate some desired internal state. For instance, many individuals report NSSI behaviors as a mean to generate feelings of aliveness or to inflict feelings of self-punishment (Nock & Prinstein, 2004). Perfectionism sometimes encompasses a harsh and critical view of self, which may lead to feelings of worthlessness (Claes et al., 2012). In other words, if individuals with perfectionistic traits fail to live up to the high expectations they hold for themselves, they may experience self-loathing, and thus be more prone to engage in NSSI behaviors as a way to derogate or express anger towards themselves (Claes et al., 2012).

The third function, social-negative reinforcement, provides an additional impetus for engaging in NSSI, as it may be performed to remove some interpersonal demands (Nock & Prinstein, 2004). For example, certain individuals report that engaging in NSSI may allow them to get out of school or get their parents to stop fighting (Heath & Nixon, 2009). Nock and Prinstein (2005) found a positive association between socially-prescribed perfectionism (which includes a perception of high parental criticism and high parental expectations) and both social reinforcement functions of NSSI behaviors among adolescent psychiatric inpatients.

Finally, social-positive reinforcement refers to using NSSI behaviors as a tool to garner attention from others (Nock & Prinstein, 2004). Although this function of NSSI behaviors exists, to our knowledge, it has not been used in previous studies to explain the relationship between NSSI behaviors and perfectionism. This framework provides a better understanding of the functions of NSSI behaviors and how they can be associated with intrapersonal risk factors such as perfectionism.

NSSI Behaviors, Perfectionism and Gender

A number of studies have found that perfectionism was associated with NSSI behaviors in both community and clinical samples (Claes et al., 2012; Flett, Goldstein, Hewitt, & Wekerle, 2012; Hoff & Muehlenkamp, 2009; Luyckx, Gandhi, Bijttebier, & Claes, 2015). In fact, a study using a community sample of undergraduate students found that those who endorsed a history of NSSI behaviors scored significantly higher than individuals without a history of NSSI behaviors on certain measures of perfectionism related to self-criticism (Hoff &

Muehlenkamp, 2009). However, they scored significantly lower on personal organization, in which a high score on that subscale significantly predicted the absence of NSSI behaviors. Interestingly, this finding suggests that perfectionism related to organization might buffer against NSSI behaviors. Further, NSSI behaviors were positively related to perfectionism across samples of female psychiatric inpatients and female high school students (Luyckx et al., 2015). Moreover, within a clinical population of female patients diagnosed with eating disorders, self-injuring participants reported significantly higher levels of perfectionism (both directed toward the self and from parental criticism) than participants without a history of NSSI behaviors (Claes et al., 2012). These findings suggest that higher levels of perfectionism may play a role in engaging in NSSI behaviors.

When studied as individual concepts, both NSSI behaviors and perfectionism have been reported differently across gender (Bresin & Schoenleber, 2015; Flett et al., 2012). For instance, Bresin and Schoenleber (2015) reported that women were slightly more likely to engage in NSSI behaviors than men, which could be largely due to social expectations regarding emotion regulation strategies according to gender. Further, these differences were apparent in Flett and colleagues' study (2012) where they assessed the relationship between NSSI behaviors and perfectionism according to gender in a sample of both female and male university students. Using the self-punitiveness model, they found that criticism from parents and socially-prescribed perfectionism were positively associated with NSSI behaviors in females, while other-oriented perfectionism was negatively associated to NSSI behaviors in males. The authors suggested that these results, between perfectionism and NSSI behaviors in men, could stem from their ability to redirect self-focused attention outward (i.e., toward others) instead of directing it toward the self.

Some studies using clinical samples (Claes et al., 2012; Luyckx et al., 2015) have highlighted an association between perfectionism and NSSI behaviors, while other studies using community samples (Flett et al., 2012; Hoff & Muehlenkamp, 2009) have elucidated how certain traits of perfectionism are more likely to be related to NSSI behaviors than others. However, as studying both NSSI thoughts and behaviors is fairly new, no study has yet assessed the links between NSSI thoughts and personality features, such as perfectionism. In this light, it becomes vital to evaluate whether NSSI thoughts and behaviors are related to certain traits of perfectionism from a gender perspective.

Goals and Hypotheses

Given previous findings, the present study's aim is twofold: first, it seeks to explore the links between different subscales of perfectionism and NSSI thoughts and behaviors separately, and second it aims to verify whether these relationships vary according to gender. We expect an association between NSSI thoughts and behaviors and perfectionism subscales. The direction of that association may differ according to the nature of each subscale. As reported by previous empirical work (Flett et al., 2012), it is plausible to anticipate that perfectionism may play a different role in the use of NSSI thoughts and behaviors according to gender, and thus we tested males and females separately. However, given that little data is available on the subject of gender and NSSI, a limited number of gender-specific hypotheses were defined a priori. We tested the following hypotheses regarding each subscale of perfectionism measured:

H1. For both males and females, a higher score on concern over mistakes will be associated with an increased tendency to engage in NSSI thoughts and behaviors.

H2. For both males and females, a higher score on personal standards will be associated with an increased tendency to engage in NSSI thoughts and behaviors.

H3. For both males and females, a higher score on doubts about actions will be associated with an increased tendency to engage in NSSI thoughts and behaviors.

H4. For females only, a higher score on parental expectations will be associated with an increased tendency to engage in NSSI thoughts and behaviors.

H5. For females only, a higher score on parental criticism will be associated with an increased tendency to engage in NSSI thoughts and behaviors.

H6. For males and females, a higher score on organization will be associated with a decreased tendency to engage in NSSI thoughts and behaviors.

Method

Participants

A total of 1,664 participants were recruited for this study; however, 164 participants were excluded from the initial sample due to missing responses. Therefore, the final sample was composed of 1,500 young adults enrolled in introductory psychology courses at an

eastern Canadian university. Eligibility criteria included (a) being between the ages of 17 and 25, (b) being involved in a romantic relationship at the time of participation, and (c) having a good knowledge of English. This sample included 1,240 females (82.7%) and 260 males (17.3%), which reflects usual gender representation of first year introductory psychology courses. The average age of participants was 20.28 years (*SD* = 3.97) for women and 20.46 years (*SD* = 3.06) for men. Participants were either Anglophone (74%) or Francophone (26%). With regard to participants' ethnic or racial background, 76.4% of participants self-identified as a person of European descent, 6.9% as Black, 6.3% as Asian, 1.3% as Hispanic, and 9.1% as a person of another ethnic or racial background. As compensation for their participation, participants were allotted two credit points towards their final course grade. The institution's Research Ethics Board approved all procedures, and the participants were treated within the guidelines outlined by national and institutional ethical standards for human experimentation.

Procedure

Participants were recruited between 2011 and 2015 through an online program offering psychology students the opportunity to partake in research being conducted at their university. The present data was collected in a larger study that sought participants who were in a romantic relationship. It was advertised as investigating the influences of romantic relationships in predicting different coping strategies in young adults. Interested participants were provided with access to the questionnaire package through Survey Monkey, a secure and encrypted website designed for online studies. An introductory detailed letter outlined the voluntary nature of the study and the participants' right to withdraw from the study at any time without penalty. Participants were allowed to not respond to any questions they were not comfortable to answer. It was clearly written that by beginning the questionnaire package, their consent was implied. Anonymity was ensured with the use of an identification code provided by the computerized system. The questionnaire package took an average of 120 minutes to complete, and progress could be resumed at a later time. Questionnaires addressed topics such as caregiving behaviors in romantic relationships, relationship satisfaction, romantic attachment, childhood experiences and emotion regulation. Once participants completed the questionnaire package, they were provided with a list of psychological resources available to use at their own discretion.

Materials

Sociodemographic questionnaire. This questionnaire was used to gather personal demographic information about participants (e.g., age, gender, and ethnicity/racial background).

Nonsuicidal self-injury. In the current study, two items from the *Ottawa Self-Injury Inventory* (OSI; Cloutier & Nixon, 2003) were used: a first item was used to assess the experience of NSSI thoughts over the last six months (e.g., "*How often in the last six months have you thought about injuring yourself without the intention to kill yourself?*"). A second item measured the presence or absence of participants' engagement in NSSI behaviors over the past six months (e.g., "*How often in the last six months have you actually injured yourself without the intention to kill yourself?*"). Although these questions clearly pertain to NSSI thoughts and behaviors, it is worth mentioning that they did not mention the deliberate nature of the act, nor its social aspect, as per its definition. A five-point Likert-type response format indicated the frequency of occurrences of self-injurious thoughts and behaviors: i.e., 1 (*not at all*), 2 (*1-5 times*), 3 (*monthly*), 4 (*weekly*), and 5 (*daily*). Response categories were coded with the scores "0, 1, 2, 3 and 4" respectively and were then collapsed dichotomously as 0 and 1 to represent the absence (i.e., 0; *no self-injury*) and the presence of self-injurious thoughts and behaviors (i.e., 1; *at least one incident of self-injury during the past six months*). In the present study, engagement in self-injurious behaviors and thoughts was analysed separately in order to individually examine these two phenomena. For more information on the psychometric properties of the full questionnaire, please refer to Martin and colleagues (2013) and Cloutier and Nixon (2003).

Perfectionism. The *Frost Multidimensional Perfectionism Scale* (FMPS; Frost et al., 1990) is a 35-item measure designed to assess six components of perfectionism. Concern over mistakes is defined as a negative reaction to mistakes and the tendency to perceive mistakes as failures (9 items, e.g., "*If I do not do well all the time, people will not respect me*"). High personal standards refer to setting very high standards for oneself and placing great importance on these standards for self-evaluation (7 items, e.g., "*I expect higher performance in my daily tasks than most people*"). Doubts about actions encompasses a constant feeling of uncertainty about one's actions or beliefs (4 items, e.g., "*I tend to get behind in my work because I repeat things over and over*"). Organization is characterized as one's preference for order and neatness (6 items, e.g., "*I am a neat person*"). Lastly, the subscales of parental expectations and parental criticism include the tendency to believe that one's parents or caregivers set very high goals (5 items, e.g., "*My parents wanted me to be the best at everything*") and are overcritical (4 items, e.g., "*As a child, I was punished for doing things less than perfect*"),

respectively. Each item is rated on a 5-point Likert response scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Higher scores on all subscales indicate a greater degree of perfectionism. Subscale scores were obtained by summing the scores of the items in each respective subscale. In past research, the FMPS has demonstrated adequate to excellent internal reliability with Cronbach's alpha coefficients ranging from .77 to .93 (Frost et al., 1990). Furthermore, various studies demonstrated good convergent and concurrent validity of the FMPS (Burns, 1980; Garner, Olmstead, & Polivy, 1983; Hewitt & Flett, 2004). In the present study, the Cronbach's alpha coefficients were as follows: .90 for concern over mistakes, .84 for high personal standards, .87 for parental expectations, .85 for parental criticism, .79 for doubts about actions, and .92 for organization.

Results

Preliminary Analysis

All statistical analyses were conducted with SPSS version 18.0. Analyses revealed there were no multivariate outliers in the data set. An evaluation of missing data using Little's MCAR test (Little, 1988) revealed that the data may be assumed missing completely at random, $\chi^2(14) = 15.28$, $p > .05$. Moreover, to optimize the sample size, missing values were estimated using expectation maximization. In large samples, when the variables have less than 5% missing data and are missing at random, this option is deemed appropriate for use (Tabachnick & Fidell, 2007). In the present study, none of the variables had more than 1% missing data.

Descriptive Statistics

Initial coding allowed for separate analyses of participants with NSSI thoughts and NSSI behaviors. From the final sample of 1,500 participants included

in the analyses, 12.5% (*n* = 188) reported having experienced NSSI thoughts without having engaged in NSSI behaviors at least once in the past six months. Of these participants, 85.6% (*n* = 161) were female and 14.4% (*n* = 27) were male. Moreover, 8.7% (*n* = 131) of participants reported having engaged in NSSI behaviors at least once in the past six months. Of this number, 85.5% (*n* = 112) were female and 14.5% (*n* = 19) were male.

Please note that when analysing NSSI thoughts, participants who engaged in NSSI behaviors were removed from further statistical analysis to only include participants who had thoughts but no behaviors. However, the whole sample was used when exploring NSSI behaviors. We found no significant gender differences for NSSI thoughts, χ^2 (1, $N = 1,369$) = .21, $p = .209$, and NSSI behaviors, χ^2 (1, $N = 1,500$) = .80, $p = .370$.

In Tables 1 and 2, the means and standard deviations for the independent variables (i.e., concern over mistakes, high personal standards, parental expectations, parental criticism, doubts about actions, and organization) are presented according to gender. Table 1 compares the presence and absence of NSSI thoughts, while Table 2 compares the presence and absence of NSSI behaviors. When only NSSI thoughts were present, the analysis revealed that females scored significantly higher on the doubts about actions, $F(1, 186) = 4.75$, $p = .031$, and organization, $F(1, 186) = 7.85$, $p = .006$, subscales. In addition, the results for the absence of NSSI thoughts indicated that males scored significantly higher for high personal standards, $F(1, 1179) = 4.78$, $p = .029$, and parental criticism, $F(1, 1179) = 6.48$, $p = .011$, while females scored higher on organization, $F(1, 1179) = 29.72$, $p = .001$. In respect to the presence of NSSI behaviors, results on all perfectionism subscales were not significantly different between males and females.

Table 1

Means and Standard Deviations for Perfectionism and NSSI Thoughts and Differences Across Gender

| | NSSI Thought Absent | | | | | NSSI Thought Present | | | | |
| | Female | | Male | | | Female | | Male | | |
Variable	M	SD	M	SD	F	M	SD	M	SD	F
Concern over mistakes	21.69	7.02	22.62	7.46	3.02	26.11	7.99	26.25	7.89	0.01
Personal standards	22.78	5.23	23.65	5.44	4.78*	23.09	5.81	22.74	5.89	0.08
Parental expectations	13.65	4.39	14.25	4.51	3.17	15.77	5.23	15.56	4.57	0.04
Parental criticism	8.36	3.46	9.02	3.56	6.48*	10.67	4.09	10.78	3.95	0.02
Doubts about actions	10.51	3.31	10.43	3.31	0.10	12.42	3.11	11.03	2.75	4.75*
Organization	23.55	4.52	21.67	4.78	29.72***	22.54	4.64	19.67	6.40	7.85**
n	967		214			161		27		

Note. $N = 1369$; When analysing NSSI thoughts, participants who engaged in NSSI behaviors were removed from the statistical analysis; * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 2

Means and Standard Deviations for Perfectionism and NSSI Behaviors and Differences Across Gender

| | NSSI Behaviors Absent | | | | | NSSI Behaviors Present | | | | |
| | Female | | Male | | | Female | | Male | | |
Variable	M	SD	M	SD	F	M	SD	M	SD	F
Concern over mistakes	22.32	7.33	23.03	7.58	1.83	26.50	7.80	27.69	6.72	0.39
Personal standards	22.83	5.32	23.55	5.49	3.64	24.12	5.65	24.34	5.23	0.03
Parental expectations	13.96	4.58	14.39	4.52	1.84	15.46	5.04	16.59	4.93	0.83
Parental criticism	8.69	3.65	9.22	3.64	4.28*	10.91	4.15	10.95	4.24	0.00
Doubts about actions	10.78	3.35	10.50	3.25	1.45	12.84	3.29	12.36	3.22	0.34
Organization	23.41	4.55	21.45	5.01	35.56***	22.45	5.22	19.95	5.81	3.60
n	1,128		241			112		19		

Note. N = 1500; When analysing NSSI behaviors, the entire sample was used; $* p < .05.$ $*** p < .001.$

However, the results revealed that when there was an absence of NSSI behaviors, males were more likely to report parental criticism than females, $F(1, 1367) = 4.28$, $p = .039$. Moreover, females were more likely to score higher on organization than males, $F(1, 1367) = 35.56$, $p = .001$. Further statistical analyses were conducted separately for males and females in light of gender differences on these subscales and will be presented in Tables 3 and 4.

Correlational analyses (see Table 3) demonstrated that greater levels of concern over mistakes were significantly related to the presence of NSSI thoughts and NSSI behaviors in males, $r = .15$, $p = .019$, and $r = .16$, $p = .01$, for thoughts and behaviors respectively and females, $r = .21$, $p = .001$, and $r = .16$, $p = .001$, for thoughts and behaviors respectively. In addition, females with a greater score on high personal standards tended to display NSSI behaviors, $r = .07$, $p = .015$. A greater score on parental expectations and doubts about actions were significantly related to the presence of NSSI behaviors in males, $r = .13$, $p = .044$ and, $r = .15$, $p = .017$, for parental expectations and doubts about actions respectively and females, $r = .09$, $p = .001$, and $r = .17$, $p = .001$, for parental

expectations and doubts about actions respectively as well as to the presence of NSSI thoughts in females, $r = .16$, $p = .001$, $r = .20$, $p = .001$. Moreover, a higher score on parental criticism was significantly related to the presence of NSSI thoughts in males, $r = .15$, $p = .018$, and females, $r = .22$, $p = .001$, and also to the presence of NSSI behaviors in females, $r = .17$, $p = .001$. Lastly, a higher score on organization was significantly related to the absence of NSSI thoughts in males, $r = -.13$, $p = .05$, and females, $r = -.08$, $p = .009$, and also to the absence of NSSI behaviors in females, $r = -.06$, $p = .036$.

Multiple Logistic Regressions

Four multiple logistic regressions were conducted to determine the relative influence of each predictor (i.e., concern over mistakes, personal standards, parental expectations, parental criticism, doubts about actions, and organization) on NSSI thoughts and NSSI behaviors. Separate regressions were conducted for males and females.

The first regression was performed to study the associations between the perfectionism subscales on NSSI thoughts in the female subsample (see Table 4).

Table 3

Pearson Correlations Between Subscales of Perfectionism and NSSI Thoughts and Behaviors as a Function of Gender

| | Thoughts | | Behaviors | |
	Female (*n* = 161)	Male (*n* = 27)	Female (*n* = 112)	Male (*n* = 19)
Variable				
Concern over mistakes	.21**	.15*	.16**	.16**
Personal standards	.02	-.05	.07*	.04
Parental expectations	.16**	.09	.09**	.13*
Parental criticism	.22**	.15*	.17**	.12
Doubts about actions	.20**	.06	.17**	.15*
Organization	-.08**	-.13*	-.06*	-.08

*Note. * $p < .05.$ ** $p < .01.$

Table 4

Multiple Logistic Regression for the Subscales of Perfectionism and NSSI Thoughts According to Gender

Variable	R^2		B	$SE\ B$	Wald χ^2	Exp(B)
	Cox & Snell	Nagelkerke				
Perfectionism in females	.08	.13				
Concern over mistakes			0.06**	0.02	9.66	1.07
Personal standards			-0.08***	0.03	10.45	0.92
Parental expectations			0.19	0.03	0.37	1.02
Parental criticism			0.07	0.04	3.64	1.08
Doubts about actions			0.09*	0.04	6.09	1.10
Organization			-0.02	0.02	1.03	0.98
Perfectionism in males	.05	.11				
Concern over mistakes			0.10*	0.05	4.01	1.10
Personal standards			-0.06	0.06	1.19	0.94
Parental expectations			-0.02	0.09	0.04	0.98
Parental criticism			0.07	0.10	0.52	1.07
Doubts about actions			-0.08	0.10	0.66	0.93
Organization			-0.05	0.05	1.29	0.95

Note. Wald χ^2: Chi square of the logistic regression. Exp(B): Odds Ratio (OR); * $p < .05$. ** $p < .01$. *** $p < .001$.

This model explained 13.4% (Nagelkerke R^2) of the variance in NSSI thoughts. The results demonstrated that concern over mistakes, β = .06, Wald χ^2 = 9.66, p = .004, and doubts about actions, β = .09, Wald χ^2 = 6.09, p = .038, significantly influenced NSSI thoughts in females. More precisely, for each unit increase in the concern over mistakes score, the probability of reporting NSSI thoughts increased by a multiplicative factor of 1.07, while for each unit increase in the doubts about actions score, the probability of reporting NSSI thoughts increased by a multiplicative factor of 1.10. However, a negative association was found for personal standards, β = -.08, Wald χ^2 = 10.45, p = .006. For each unit increase on the personal standards score, the probability of reporting NSSI thoughts decreased by a multiplicative factor of .92.

The second regression was conducted to examine the associations between the subscales of perfectionism and NSSI thoughts in the male subsample (see Table 4). This model explained 10.8% (Nagelkerke R^2) of the variance in NSSI thoughts. This analysis revealed that concern over mistakes was significantly related to NSSI thoughts in males, β = .10, Wald χ^2 = 4.01, p = .032. For each unit increase in the concern over mistakes score, the probability of males reporting NSSI thoughts increased by a multiplicative factor of 1.10.

The third regression was conducted in order to explore the influence of perfectionism on NSSI behaviors in females (see Table 5). This model

explained 9.9% (Nagelkerke R^2) of the variance in NSSI behaviors. The analysis revealed that both parental criticism, β = .13, Wald χ^2 = 8.81, p = .006, and doubts about actions, β = .12, Wald χ^2 = 8.31, p = .008, positively influenced the presence of NSSI behaviors. In addition, organization, β = -.05, Wald χ^2 = 0.25, p = .034, negatively influenced the presence of NSSI behaviors. Specifically, for each unit increase in the parental criticism score, the probability of reporting NSSI behaviors increased by a multiplicative factor of 1.14. Similarly, for each unit increase in the doubts about actions score, the probability of reporting NSSI behaviors increased by a multiplicative factor of 1.13. Lastly, for each unit increase in the organization score, the probability of reporting NSSI behaviors decreased by a multiplicative factor of .95.

Finally, the fourth regression was conducted to explore the impact of perfectionism on the experience of NSSI behaviors in males (see Table 5). The analyses revealed that none of the perfectionism subscales were significantly related to the presence of NSSI behaviors in males.

Discussion

The primary aim of this study was to investigate potential links between subscales of perfectionism and NSSI thoughts and behaviors according to gender among a student sample of young adults. Our results indicate that NSSI thoughts and behaviors occur in proportionate frequencies between males and females,

Table 5

Multiple Logistic Regression for the Subscales of Perfectionism and NSSI Behaviors According to Gender

Variable	R^2		B	$SE\ B$	Wald χ^2	Exp(B)
	Cox & Snell	Nagelkerke				
Perfectionism in females	.05	.10				
Concern over mistakes			0.02	0.02	0.43	1.02
Personal standards			0.02	0.03	0.58	1.02
Parental expectations			-0.06	0.04	3.36	0.94
Parental criticism			0.13**	0.04	8.81	1.14
Doubts about actions			0.12**	0.04	8.31	1.13
Organization			-0.05*	0.03	4.61	0.95
Perfectionism in males	.04	.10				
Concern over mistakes			0.04	0.05	0.68	1.04
Personal standards			-0.03	0.06	0.28	0.97
Parental expectations			0.09	0.10	0.89	1.10
Parental criticism			-0.05	0.11	0.23	0.95
Doubts about actions			0.13	0.10	1.55	1.14
Organization			-0.06	0.05	1.79	0.94

Note. Wald χ^2: Chi square of the logistic regression. Exp(B): Odds Ratio (OR); * $p < .05$. ** $p < .01$.

which contrast the findings of a recent meta-analysis that suggested women were more likely to engage in NSSI behaviors than men (Bresin & Schoenleber, 2015). In addition, we demonstrated that particular subscales of perfectionism were related to the presence of NSSI thoughts and behaviors, partially confirming the present study hypotheses. These results differed according to type of NSSI endorsed (i.e., thoughts or behaviors) and gender.

As hypothesized, the more females and males reported a negative reaction to mistakes and the tendency to perceive them as failures (i.e., concerns over mistakes), the more they reported NSSI thoughts. Further, the more females reported uncertainty about their actions and beliefs (i.e., doubts about actions), the more likely they were to experience NSSI thoughts. This partially confirmed our hypothesis, which stated that these results would be found in both females and males. Existing research has established links between NSSI behaviors and concern over mistakes (Claes et al., 2012; Hoff & Muehlenkamp, 2009), as well as between NSSI behaviors and doubts about actions (Claes et al., 2012). In this context, NSSI thoughts could be used as a coping mechanism to punish oneself for their own inability to succeed (i.e., automatic-positive reinforcement function; Nock & Prinstein, 2004).

Our results may also be interpreted using the conceptualization of perfectionism as comprising both adaptive and maladaptive dimensions (Dunkley, Blankstein, Masheb, & Grilo, 2006). Perfectionism

can be divided into two overarching constructs: personal standards perfectionism (PSP) and evaluative concerns perfectionism (ECP). On the one hand, PSP is more adaptive and pushes people to strive for high personal standards and goals. On the other hand, ECP pertains to high self-criticism and evaluation of one's own behavior, constant concerns about others' criticism and expectations, and an inability to gain satisfaction from personal successes, which may lead one to develop internalizing problems (Dunkley et al., 2006). Based on the comparison of the definitions of PSP and ECP, we suggest that ECP encompasses both concern over mistakes and doubts about actions. In sum, this may indicate that these dimensions of perfectionism may increase one's susceptibility to the use of NSSI thoughts and behaviors.

Moreover, our hypothesis that a higher score on personal standards would be associated with an increased tendency to engage in NSSI thoughts for both males and females was not confirmed. Indeed, the more females reported setting very high standards for themselves and evaluating their value based on the achievement of those standards, the less likely they were to experience NSSI thoughts. In fact, it would appear that high personal standards, encompassing more characteristics of PSP, were negatively associated with NSSI thoughts. Broadly speaking, this suggests that PSP may serve as a protective factor against NSSI. Understandably, it could be argued that individuals could constantly strive for higher standards once a goal has been achieved. This would in turn create a stressful environment that could lead

to potential psychological issues, which could make this behavior maladaptive. That said, having high personal standards could also be evaluated as adaptive as it may lead to a high degree of motivation and a strong sense of accomplishment upon achieving one's goal. This could give way to a positive internal state.

Our hypothesis stating that a higher score on parental criticism and doubts about actions would be related to an increased tendency to engage in NSSI behaviors in females was confirmed. Indeed, the more females perceived having overly critical parents (i.e., parental criticism) and hesitated about their actions or beliefs (i.e., doubts about actions), the more likely they were to engage in NSSI behaviors. To date, studies that have examined the association between perfectionism and NSSI behaviors (e.g., Claes et al., 2012; Flett et al., 2012; Hoff & Muehlenkamp, 2009) similarly found that participants who endorsed NSSI behaviors reported both greater parental criticism and doubts about actions. Additionally, Yates, Tracy, and Luthar (2008) found that parental criticism was associated with an increased engagement in NSSI behaviors. With this is mind, external criticism can be internalized as self-criticism and self-doubt, which are characteristic of ECP, making it maladaptive. This supports Nock and Prinstein's (2004) four-function model, where individuals who doubt their actions and perceive high parental criticism could use NSSI behaviors as a way to remove an undesirable internal state (i.e., automatic-negative reinforcement), inflict self-punishment (i.e., automatic-positive reinforcement), remove interpersonal demands from parents (i.e., social-negative reinforcement), or seek support in order to alleviate their distress (i.e., social-positive reinforcement).

Additionally, our hypothesis stating that a higher score on organization would be associated with a decreased tendency to engage in NSSI thoughts and behaviors was confirmed for females and behaviors only. Indeed, female participants who had a preference for order and neatness (i.e., organization) were less likely to report engagement in NSSI behaviors, confirming previous findings (Hoff & Muehlenkamp, 2009). We suggest that this subscale of perfectionism encompasses characteristics of PSP, as it could be related to a person's high standards of neatness, making it a protective factor against NSSI behaviors. More specifically, organizing one's environment could create an internal sense of security, which, in turn, could lead to a positive state of mind.

Lastly, we had initially hypothesized that males who scored higher on the subscales of concern over mistakes, personal standards and doubts about actions would have an increased tendency to engage in NSSI thoughts and behaviors, and that those who scored

higher on organization would have a decreased tendency to engage in NSSI thoughts and behaviors. However, with the exception of a positive relationship between perfectionism and NSSI thoughts in males on the concern over mistakes subscale, no link was found between NSSI thoughts and other subscales of perfectionism. No relationship was found between NSSI behaviors and perfectionism subscales. These findings suggest that perfectionism may more strongly contribute to NSSI thoughts and behaviors among females than among males. This confirms results reported by Flett and colleagues (2012), whereby females who reported having highly critical parents tended to engage in more NSSI behaviors than males. Moreover, the small number of male participants in the current study could explain the lack of results for that group. Nonetheless, future research could examine the associations between NSSI thoughts and behaviors and other personality traits in males with the intention of better explaining NSSI thoughts and behaviors correlates in males.

It is worth mentioning that, in the current study, NSSI thoughts and NSSI behaviors were not necessarily associated with the same subscales of perfectionism. For instance, while perfectionism resulting from concern over mistakes was significantly related to the presence of NSSI thoughts in males and females, it was not related to NSSI behaviors. This could be explained by methodological differences, such as the type of questions used (e.g., the range of NSSI behaviors participants were asked to identify) and participant demographics (e.g., clinical or community samples).

Implications

The findings from the present study demonstrate the importance of evaluating perfectionism in predicting NSSI thoughts and behaviors in young adults. In addition, these results more likely demonstrate that there is a different explanatory model of NSSI thoughts and behaviors, and future research should continue to test theoretical models separately for these two concepts. Indeed, findings from recent research conducted by Caron and colleagues (2016a) and Caron, Lafontaine, and Bureau (2016b) offer further support for the notion that NSSI thoughts and behaviors may be uniquely linked to differing correlates. Specifically, they found that certain romantic relationship constructs (i.e., insecure romantic attachment, negative romantic caregiving behaviors, and low sexual satisfaction) were linked to NSSI thoughts and not behaviors (Caron et al., 2016b), while intimate partner violence victimization was linked to NSSI behaviors and not thoughts (Caron et al., 2016a). Taken together, these findings suggest that individuals may be more likely to engage in

relatively more harmful coping strategies (e.g., NSSI behaviors) in response to more severe stressors (i.e., intimate partner violence victimization). Distress resulting from relatively less severe stressors (e.g., low sexual satisfaction) may be effectively reduced through engagement in less dangerous coping methods (e.g., thinking of harming oneself).

The findings of this study may also hold certain clinical implications, as they indicate that particular subscales of perfectionism seem to be linked to the use of NSSI thoughts and behaviors more so than other subscales. Specifically, adaptive dimensions of perfectionism may act as a protective factor against NSSI thoughts and behaviors, while maladaptive dimensions of perfectionism may lead to engagement in NSSI thoughts and behaviors. These specific dimensions of perfectionism could be considered as a focus of treatment for NSSI thoughts and behaviors and prevention efforts for young adults, particularly young females.

Limitations

Despite the important empirical and clinical implications of this study, certain methodological limitations must be acknowledged. Firstly, the findings are correlational, and thus it cannot be inferred that perfectionism causes NSSI thoughts or behaviors. Nonetheless this study provides invaluable information about how different subscales of perfectionism may be associated to that phenomenon. Secondly, as the sample consists solely of undergraduate university students enrolled in introductory psychology courses, this sample may not be representative of the general population of young adults. Moreover, given that most psychology courses tend to have a greater number of female enrolment, the sample did not favor equal gender representation, which may serve to explain the relatively fewer significant findings for males. In addition, this sample consisted primarily of participants of European descent, which makes it difficult to generalize the results to individuals of other ethnic or racial backgrounds. Further, participants were not asked to report mental illness, and thus such characteristics of the sample could partly explain the relationship between variables (Zetterqvist, 2015). In addition, while participants' consent forms mentioned that they would be asked to answer questions on "past and/or present self-injuring behaviors", the two questions that were used did not mention the deliberate nature of the act, nor its social aspect. As a result, the definition of NSSI may have been understood differently among participants. However, as the measure later asks whether participants have adopted specific NSSI thoughts and/or behaviors, the examples would have clarified the definition. Finally, having conducted

multiple analyses may have increased the likelihood for type 1 error.

Conclusion

In conclusion, our findings suggest that most aspects of perfectionism are either positively or negatively related to NSSI thoughts or NSSI behaviors, particularly so for females. Overall, the findings are consistent with the four-function model of NSSI behaviors (Nock, 2009, 2010; Nock & Prinstein, 2004) and past research (e.g., Hoff & Muehlenkamp, 2009). Future research on NSSI thoughts and behaviors could verify whether NSSI thoughts could be the first coping mechanism for psychological distress related to perfectionism. Specifically, it would be interesting to study whether lower scores of perfectionism would predict NSSI thoughts, while higher scores would predict NSSI behaviors. In addition, while the current study was interested in the prevalence of NSSI thoughts and behaviors, it would have been of interest to assess the motivations for those behaviors by using the full OSI measure. Finally, research efforts (e.g., Kiekens et al., 2015) initiated on the association between NSSI behaviors and personality traits (i.e., openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism) may be pursued to include emotional competence and self-sacrifice, which, to our knowledge, are traits that have not yet been studied in this context. As these personality traits may have an impact on one's view of the self and others, it could be interesting to see how it may relate to NSSI. Future research could also identify differing associations between these traits and NSSI thoughts and behaviors individually.

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The Effects of Parental Involvement on Youth Substance Use

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Parental involvement can act as a protective factor against various problematic social behaviours within the adolescent years. Previous research suggests greater parental involvement is linked to less substance use, lower frequency of use, and a later age of substance initiation. An american community sample of 18,271 respondents completed a questionnaire assessing illegal substance use (frequency and age of first use) plus a 9-item measure of parental involvement. Results indicated that parental involvement was related to lower use of some drugs (e.g., marijuana), but not others. Parental involvement was not associated with frequency and age of first use, but was related to adolescents' decision to try substances. That is, once substance use began, parental involvement could offer little to buffer either frequency or age of use. In conclusion, this research helps to better our understanding of how parental involvement affects adolescent drug use.

Keywords: parental involvement, substance use, adolescence, marijuana, drug use

L'implication parentale peut agir comme facteur de protection contre divers comportements sociaux problématiques pendant l'adolescence. Les recherches suggèrent qu'une plus grande implication parentale est liée à une consommation et une fréquence d'utilisation de substances plus faible, ainsi qu'à un âge d'initiation plus tardif. Une communauté américaine de 18 271 répondants a complété un questionnaire évaluant la consommation de substances illicites (fréquence et âge de la première consommation) et un questionnaire comprenant 9 items mesurant l'implication parentale. Les résultats montraient un lien entre l'implication parentale et une consommation plus faible de certaines drogues (p. ex., la marijuana), mais pas d'autres. L'implication parentale n'était pas associée à la fréquence et l'âge de la première consommation, mais plutôt au choix des adolescents d'essayer des substances. Cependant, une fois que la consommation de substances commence, l'implication parentale n'agirait pas comme tampon pour la fréquence ou l'âge d'usage. Finalement, cette recherche permet de mieux comprendre comment l'implication parentale affecte la consommation de drogues des adolescents.

Mots-clés : implication parentale, consommation de substances, adolescence, marijuana, consommation de drogues

Parental involvement is undoubtedly an important factor in the lives of youth (Eamon, 2005). As adolescents grow older, parenting will remain a central agent in this socialization process, whether youth continues to depend on parents to help navigate their way through the world, or new parents appear wary of making mistakes that put youth at a disadvantage (Hayakawa, Giovanelli, Englund, & Reynolds, 2016; Janssen, Weerman, & Eichelsheim, 2016; Oppenheimer et al., 2016). Since parental involvement is vital in the socialization process of youth, examining the impact of parental involvement on adolescent behaviours, specifically drug use, can provide insight into how parental involvement can buffer problem behaviours, which could cause detrimental effects to adolescents well-being. Early drug use may have long-lasting negative effects; therefore understanding how to lower the likelihood of early drug use is important in protecting youth from these long-term negative consequences (Criss et al., 2015). Previous studies have not fully explored how parental involvement impacts adolescent substance abuse (Piehler & Winters, 2017; Véronneau, Dishion, Connell, & Kavanagh, 2016; Williams, Ayers, Baldwin, & Marsiglia, 2014). The present study aims to better understand this relationship. Specifically, this study examined illegal substance use, frequency, and age of initiation among adolescents and young adults as it relates to parental involvement.

Parental Involvement

Developmental theory outlines how parental involvement emerges from parenting styles, or rather how parents choose to raise a child as they meter out both love and discipline (Baumrind, 1971, 1991). Specifically, parenting styles differ chiefly in the amount of warmth and control that parents utilize in the course of child behavioural management (Pinquart, 2017; Vasta, Younger, Adler, Miller, & Ellis, 2014). As such, with the crossing of differing levels of warmth and control, parenting styles fall into one of

four categories: authoritative, authoritarian, permissive or uninvolved. The authoritative parenting style is characterized by high parental warmth and control; these parents tend to be sensitive and responsive to their child's needs and wants, but also set clear boundaries to guide appropriate behaviours. This parenting style is often viewed as the best way to raise children, as youth tend to feel loved and respected. Conversely, the authoritarian parenting style incorporates higher control but lower warmth (McLaughlin, Campbell, & McColgan, 2016; Pinquart, 2017). Thirdly, permissive parents demonstrate high warmth but low control over their children's behaviours (Vasta et al., 2014). Finally, uninvolved or disengaged/neglectful parents offer children neither parental warmth nor control and guidance. Parenting styles can affect the child-parent relationship, and this can either protect children from negative behaviours or provide an environment that invites negative behaviours and is therefore a pivotal factor in the development of youth.

Parent-child relationship forms early in a child's life, so it is crucial to understand the mechanisms that would necessarily affect a child's life trajectory–encouraging behaviours contributing to growth and discouraging negative behaviours that impair development. Benner, Boyle, and Sadler (2016) have shown that higher parental involvement in school activities, such as volunteering at the school, was related to both a higher grade point average (GPA) in high school and continuation in post-secondary schooling. Moreover, greater parental advice on students' academic decisions was related to educational achievement. In short, these results show that parental involvement in their child's school affairs can greatly impact not only high school grades but also their likelihood to continue their education. Previous studies have contributed to the understanding of how higher levels of parental involvement can have a positive effect on adolescent lives and help prevent behaviours that may be detrimental to the adolescent's future, such as dropping out of school or substance abuse. Criss and colleagues (2015) have shown that parents promoting students to do well in high school, thereby increasing the likelihood of further education predicts job success and overall well-being. This occurs because greater parental solicitation (i.e., the amount of information parents inquire about their child's life), child disclosure, and higher parental involvement are keenly tied to the amount of knowledge parents have about their children.

Parenting styles can have profound effects on a child's future, yet they vary considerably between families. As such, it is important to understand how different parenting styles can affect a child's growth and overall well-being. Whereas it has been well documented that higher parental involvement relates to greater success later in the child's life, one factor not fully understood is the role of parental involvement concerning youth substance abuse. Past research has explored whether youth with disconnected parents will use illicit drugs (McLaughlin et al., 2016). However, our research will examine more specific metrics, such as the age of drug initiation, frequency of use, and the profile of illicit drugs used.

Youth Substance Abuse

Youth substance abuse has been recognized worldwide as a major healthcare concern with important socio-economic consequences (Hassan, Csemy, Rappo, & Knight, 2009). Research has shown that whereas greater parental involvement positively impacts several aspects of children's lives, it may also act as a protective factor against several negative outcomes, including substance abuse. Specifically, Criss and colleagues (2015) reported that higher levels of parental involvement were related to lower levels of both antisocial behaviours and substance abuse. Whereas substance use can occur at any point in the lifespan, earlier initiations of any substance use predict more chronic ongoing addictions and substance abuse later in life (Campbell, Sterling, Chi, & Kline-Simon, 2016). As such, halting substance use at a younger age should help prevent substance abuse later in life.

Past research has shown that as many as one in four 12th graders have used an illicit drug (such as cocaine or heroin), and 35% have smoked marijuana within the past year (National Institute on Drug Abuse [NIDA], 2016). So too, half of all American youth in the course of a year have abused at least one illicit drug (Johnston, O'Malley, Miech, Bachman, & Schulenberg, 2016). These statistics help support the need for continued research on youth substance use, in an effort to find ways to decrease the number of adolescents abusing illicit and dangerous substances. While not technically considered a "hard" drug, marijuana, is among the most commonly abused substance by youth (Young et al., 2002).

Although the effects of marijuana use are less detrimental compared to other "harder" substances, there are several negative effects that can occur from regular cannabis use, such as impaired memory (Bolla, Brown, Elderth, Tate, & Cadet, 2002). Campbell and colleagues (2016) found that when looking at three different groups of marijuana users (i.e., abstinent, low/stable, and increasing use), those who indicated that they were increasingly using marijuana reported an average monthly usage of 25 times over a 7-year period. Not only had marijuana use significantly increased over time for the "increasing use" group, but

so had the use of other hard illicit substances (Campbell et al., 2016).

The increasing use of hard illicit substances is important to note, as hard drug use during adolescence has the potential to create lifelong substance use difficulties including addiction problems (Teichner, Donohue, Crum, Azrin, & Golden, 2000). Furthermore, hard drug use during adolescence is significantly related to several negative secondary effects, such as increased risk of car accidents, head injuries, and physical fights (Teichner et al., 2000). Reyes, Foshee, Baurer, and Ennett (2014) had found that alcohol, marijuana use, and hard drug use have all been strongly related to aggressive behaviours, and ultimately premature death. Additionally, they found that drug use has been associated with a greater likelihood to engage in dating aggression and partner violence. Finally, Morentin, Ballesteros, Callado, and Meana (2014) reported that recent cocaine use in those aged between 15 and 49 years old significantly predicted an increased risk of cardiovascular issues resulting in sudden death.

As evident from the research, adolescent substance abuse carries a long list of negative consequences, and therefore understanding how to protect children and youth from these consequences remains vital. The present study aims to understand this link by examining how involved parents are in their child's life (e.g., highly involved authoritative parenting, or uninvolved disengaged parenting styles) and to which extent the type and amount of involvement affect the use of substance, frequency of use, or age of first use.

Parenting and Youth Substance Abuse

The exact relationship between parental involvement and adolescent substance use is still unclear, as questions remain concerning the mechanisms behind the parent's specific role. Authors of the current study ask whether setting curfews, reviewing homework, and implementing household chores impact the absolute initiation of youth substance use, the age of that initiation, and/or the frequency of use. However, a glimpse into the role of parental involvement may be offered in the related field of youth alcohol abuse. Carroll and colleagues (2016) suggested that higher parental monitoring was strongly related to lower youth consumption of alcoholic beverages across a given week. Similarly, McLaughlin and colleagues (2016) found that a secure parent-child attachment acted as a protective factor against youth alcohol use. They further reported that parents who were more loving, caring, supportive, and trustworthy towards their children were less likely to have children who would abuse substances. Finally, not only can better parenting impact youth substance

use, but it can further influence behavioural resilience among youth. Liebschutz and colleagues (2015) found that youth at risk for negative behaviour outcomes were significantly more likely to show resilience (i.e., no early substance use, no risky sexual behaviours, and a lack of problematic behaviours) when parental involvement was high. Previous literature has shown how higher parental involvement can play a role against youth alcohol use, but little research has been done to examine the relationship between parental involvement and drug use. The present study aims to fill this gap and contribute to the research by examining how parental involvement affects substance abuse, focusing on a variety of illicit substances.

Present Study

As parental involvement and substance use inarguably carry a huge impact on the lives of youth, understanding their association should help to protect youth from many negative effects of early substance use (Criss et al., 2015). Although several studies have investigated parenting and substance use in youth, there remains a gap in understanding the extent to (and the role by) which parental involvement may buffer youth substance use. We further explored this relation by examining adolescent substance use in relation to parental involvement in respondents' lives. In essence, we investigated whether keeping track of an adolescent's progress through school, establishing curfews and reasonable chores, and utilizing a care-based authoritative parenting style (Baumrind, 1971, 1991) could protect youth from the risks of substance use. We hypothesized that with less parental involvement in adolescents' lives, youth will (a) be more likely to use illicit substances, (b) use illicit substances more frequently, and (c) begin using illicit substances at a younger age.

Method

Participants

The data used for the present study was taken from the National (American) Household Survey on Drug Use and Health (Thompson, 2011), which overall contained approximately 3,100 variables and 55,600 participants (see a recent publication from this dataset in Silverstein & Levin, 2014). This dataset was chosen due to the number of participants sampled across the United States, as well as the vast number of variables with which to work. Although collected some years earlier, the present data remained unanalyzed on our research question. The participants in the analysis (N = 18,271, 48% male) were between 12 and 17 years of age (M = 14.50, SD = 1.69), mainly Caucasian (64%; 5,979 males and 5,704 females), although many were Hispanic (14%; 1,363 males and 1,252 females) and African-American (13%; 1,204 males and 1,254

Table 1

Sample Demographics by Gender and Age

Age (Years)	Males[a]		Females[b]	
	n	%	*n*	%
12	1,439	50.1	1,431	49.9
13	1,615	50.71	1,570	49.3
14	1,601	51.1	1,531	48.9
15	1,593	51.2	1,519	48.8
16	1,550	51.6	1,456	48.4
17	1,516	51.1	1,450	48.9

Note. [a] *n* = 9,314; [b] *n* = 8,957.

females); with 8% (*n* = 1,515) indicating they belonged to other categories (see Table 1 for a breakdown of age by gender). As an incentive, respondents received $30 upon completion, resulting in a 91% response rate (Thompson, 2011).

Materials and Procedure

Participants completed the *National Household Survey on Drug Use and Health* as a survey using computer-assisted interview methods (Thompson, 2011).

Drug use. Although several drug, crime, and depression variables (among a variety of other scales) were included in the full dataset, only illegal (rather than prescription) drug use variables were evaluated for our study with respect to parental involvement. In addition to illegal drug use where participants had to answer *yes/no*, we included the age at which participants indicated they had first tried any of the drugs in question. We further included inhalants (e.g., whippets, lighter gases, correctional fluid, amyl nitrate, lighter fluid, glue, halothane, lacquer, spray paints) as substitutes for illegal drugs; this is salient given that some youth are unable to afford (or have access to) illegal substances. In total, 19 different drugs were included in the study.

Parental involvement. This measure was derived from a set of nine questions selected for the present study (scored either 0 = "*seldom/never*" or 1 = "*always/sometimes*") to assess the amount of attention that respondents believed their parents paid to them (see Table 2 for the complete list), such as "*Have you talked with parents about the dangers of tobacco and alcohol?*" and "*Have your parents checked if your homework is done in the past year?*".

Only eight of the nine parenting variables were summed to create the final parenting score (*M* = 5.83, *SD* = 1.77, ranging from 0-8), whereby a higher score indicated greater parental involvement. Item-total statistics showed that dropping one of the nine parenting variables ("*Did you have a fight with at least one of your parents in the past year?*") increased KR-20 to .642.

Results

Parental Involvement Predicts Use of Some Substances

A significance level of .05 was set for all analyses, and a Bonferroni correction was used for the analysis of 19 substances to avoid unneeded inflation of type I error risk. To test the hypothesis of the association between parental involvement and youth substance use, we used an independent sample 2-tailed *t*-test

Table 2

Parental Involvement Scale Items

1. Have you talked with your parents about the dangers of tobacco and alcohol?

2. Have your parents checked if your homework is done in the past year?

3. Have your parents helped you with homework in the past year?

4. Have your parents made you do chores around the house in the past year?

5. Have your parents limited the amount of TV usage in the past year?

6. Have your parents limited your time out on a school night in the past year?

7. Have your parents told you that you have done a good job in the past year?

8. Have your parents told you they are proud of the things you've done in the past year?

9. How many times have you argued or fought with your parents in the past year?

Table 3

Mean Parental Involvement by Adolescent Drug Use

Substances	Has used			Never used			t	p	R^2
	M	*SD*	*n*	*M*	*SD*	*n*	*t*	*p*	R^2
Marijuana	13.14	1.92	3581	14.00	1.69	14686	24.23	<.001	.10
Cocaine	12.64	2.11	438	13.86	1.75	17830	11.99	<.001	.24
Crack	12.49	2.43	93	12.68	2.02	345	0.70	.486	
Heroin	12.45	2.39	60	13.83	1.77	18196	4.57	<.001	.26
LSD	12.76	2.17	238	13.06	1.96	745	1.96	.050	
PCP	12.86	2.16	128	13.01	1.20	857	0.81	.421	
Peyote	13.59	1.91	67	12.96	2.02	907	1.68	.094	
Mescaline	12.87	2.01	43	12.97	2.02	924	0.33	.738	
Ecstasy	12.67	2.01	387	13.16	2.00	591	3.78	<.001	< .01
Amyl nitrite	12.96	2.06	329	13.28	1.93	1815	2.73	.006	
Correction fluid	13.19	2.04	438	13.24	1.93	1684	0.52	.601	
Lighter fluid	13.12	1.94	744	13.30	1.97	1407	2.02	.043	
Glue, polish, toluene	13.15	1.93	842	13.29	1.97	1302	1.61	.109	
Halothane, ether, Other anaesthetic	12.99	2.00	90	13.24	1.95	2054	1.17	.231	
Lacquer, thinner, Other solvents	12.89	2.07	351	13.30	1.93	1802	3.65	<.001	< .01
Lighter gases	12.86	2.05	234	13.28	1.94	1920	2.41	.016	
Nitrous oxide (whippits)	12.99	2.07	315	13.28	1.93	1832	2.41	.016	
Spray paints	12.98	2.05	581	13.32	1.91	1564	3.57	<.001	< .01
Other aerosol sprays	13.09	2.04	431	13.27	1.92	1708	1.70	.090	

Note. Bonferroni corrections were applied ($p < .003$); R^2 estimates of explained variance were included only for significant results. Follow-up non-parametric Mann-Whitney *U* tests confirmed the significant results.

with substance use (*yes/no*) as the grouping variable and parental involvement summed-scores as the dependent measure. Table 3 shows the means, standard deviations, and sample sizes for respondents divided according to use of a given substance. Results indicated that for 6 of the 19 substances tested (i.e., marijuana, cocaine, heroin, ecstasy, lacquer thinner, and spray paint), lower parental involvement was associated with greater use of that substance ($p < .05$, Bonferroni). Because the data often appeared in non-

normal distributions with non-homogeneous variances (as per Levene's test), follow-up non-parametric Mann-Whitney *U* tests (not subject to parametric distributional constraints) were conducted to confirm that the results remained significant; these non-parametric alternative tests rendered the same results.

Frequency of Substance Use in the Past Year

We evaluated the relation between parental involvement and frequency of substance use,

Table 4

Parental Involvement and Frequency of Drug Use Within the Past Year (Days)

Substances	*M*	*SD*	*n*	*r*	*p*	Skewness	Kurtosis
Marijuana	28.16	79.21	1037	-.09	.005	5.19	11.58
Cocaine	35.35	65.93	263	-.02	.727	6.74	8.33
Crack	56.75	85.96	50	-.07	.635	3.59	2.96
Heroin	65.26	104.35	33	.24	.171	4.34	1.81
Inhalants	25.21	53.04	775	-.01	.706	17.70	14.22

Note. Spearman rho non-parametric correlational analyses confirmed these results.

Table 5

Parental Involvement and Age of First Drug Use (Years)

Substances	M	SD	n	r	p	Skewness	Kurtosis
Marijuana	16.26	3.94	3506	.03	.074	-0.87	19.33
Cocaine	19.76	4.87	423	.06	.226	-2.21	7.75
Crack	21.98	6.98	89	.08	.436	-1.37	1.78
Heroin	19.97	5.41	59	.04	.753	-1.81	2.97
Hallucinogens	17.56	3.59	841	-.04	.301	-2.02	7.48
LSD	17.48	3.22	222	-.06	.398	-1.90	6.14
PCP	17.63	3.92	118	-.11	.224	-	9.76
Ecstasy	19.16	4.26	366	.05	.370	-1.19	6.66

Note. Spearman rho non-parametric analyses confirmed these results.

calculated from the number of days that any of five substances were used in the past year. Those five substances (i.e., marijuana, cocaine, crack, heroin, and inhalants) were selected by the authors to include information concerning frequency of use (the survey did not include frequency of use data for remaining substances such as PCP and LSD). Table 4 shows the average number of days of use for each substance, including the Pearson product-moment correlation between frequency of substance use and parental involvement. A Bonferroni correction was used for the analysis to avoid the inflation of type I error risk. Results showed that even with the conservative Bonferroni correction, the correlation was significant only for marijuana use, $r(3756) = -.09$, $p = .005$ (we note the especially high degree of freedom). All other correlations were not significantly related to parental involvement. In other words, whereas the previous analysis showed that absolute use of several substances was predicted by parental involvement, this analysis did not show that parental involvement was related to the frequency of substance use, except in the case of marijuana use. Although the data was not normally distributed and was skewed negatively, a non-parametric Spearman rho was conducted, and it was found that the lack of normality did not affect the analysis.

Age of First Drug Use

Finally, we evaluated the relation between parental involvement and the age at which youth first used any of eight substances (i.e., marijuana, cocaine, crack, heroin, hallucinogens, LSD, PCP, and ecstasy). A Bonferroni correction was used for the analysis to avoid the inflation of type I error risk. Table 5 shows the average age at which youth began using a given substance, as well as the correlation between age of first use and parental involvement. Results showed that all correlations were non-significant ($ps > .05$), although marijuana did trend in the predicted direction, $r(3504) = .03$, $p = .074$. In other words, as

with frequency of substance use, parental involvement did not predict the age at which youth began using a given substance.

Discussion

The goal of the present study was to examine the relation between parental involvement and youth substance use. Specifically, we addressed the question of whether greater parental involvement could buffer their children from risk of substance use via any of three avenues: (a) inhibiting overall use of a given substance, (b) reducing frequency of a given substance use, and (c) delaying age of first initiation for a given substance.

To evaluate the first avenue (i.e., inhibiting overall use of a given substance), results showed that parental involvement was significantly related to initiation of use among certain substances, but not others. Specifically, lower parental involvement was observed in participants who used marijuana, cocaine, heroin, ecstasy, lacquer thinner, and spray paints. The proportion of explained variance was especially noteworthy for marijuana, cocaine, and heroin. Alternatively, higher parental involvement was not associated with the initiated use of crack, PCP, peyote, mescaline, correction fluid, lighter fluid, glue, shoe polish, halothane, ether, whippits, or aerosol sprays. The significant and sizable relation between parental involvement and marijuana use is salient, since although it may be a tall order to expect every substance to be impacted by parents' concerns for their adolescents, halting the initiation of marijuana use may close the gateway toward the initiation of harder illicit drugs (Campbell et al., 2016). Future research would benefit from pursuing why parental involvement had a stronger effect on some drug use (marijuana, cocaine, and heroin) compared to other substance use variables.

Furthermore, evaluating the second avenue concerning parental involvement and frequency of

substance use revealed only one significant effect, as related to frequency of marijuana use—that is, in general, parental involvement did not significantly predict the frequency of substance use. The one exception was observed for marijuana where a significant (albeit especially small) negative relation was uncovered—namely that greater parental involvement was associated with less frequent marijuana use. Previous research had reported a significant negative relation for several substances (Charles, Mathias, Acheson, & Dougherty, 2017; Criss et al., 2015). Our results may have uncovered a significant relation for marijuana use only due to its light recreational level, yet heavier substances such as cocaine, crack, and heroin would demand more than parental involvement to buffer their frequency of use. Indeed, when analyzing the frequency of substance use, review of the means indicates that lighter drugs (e.g., marijuana) have a much lower frequency of use than any harder drugs (e.g., crack or heroin). This supports the notion that adolescents who use harder substances will use them more frequently (Hanson, Thayer, & Tapert, 2014). Future research should confirm this speculation, as well as to what can be done to help reduce the frequency of harder substance abuse in adolescents. The importance of lowering the frequency of drug use can have lifelong effects on the user, as higher drug use is more closely related to addiction problems and mental health issues (Campbell et al., 2016).

With respect to the third avenue (i.e., delaying age of first initiation for a given substance), results did not support our hypothesis that parental involvement would be associated with the age at which youth began using a given substance (although age of initiation of marijuana did trend in the predicted direction). Previous research has suggested higher parental involvement should impact age of first drug use (Campbell et al., 2016; Criss et al., 2015), such that diverting youth from drugs as long as possible was crucial to proper adolescent development. These results are troubling since many parents believe that high parental involvement may be enough to protect children from abusing substances at a young age (McLaughlin et al., 2016). To speculate as to why parental involvement was not significantly related to age of first substance use may highlight the role of peers, arguably more salient in the lives of adolescents (McDonough, Jose, & Stuart, 2015).

To summarize, our results showed that parental involvement seemed to play a role only in the initiation of youth substance use rather than the frequency and age of first use. In other words, parents' involvement in their youth's lives appear to be associated with whether they use substances, but not when or how much. The present study allows for the development of a more specific understanding of how parental involvement affects adolescent drug use. This study also encourages research to expand on as to why parental involvement affects the use of some drugs but not others. We now understand that parental involvement is related to adolescent drug use, but we do not understand yet how to limit the use of drugs that are not influenced by parental involvement (such as hard drug use; e.g., crack and heroin). We encourage future research to focus on such areas. The implications of this study are important as parents may assume that by being involved in their child's life, they may help dissuade them from experimenting with illegal substances. However, the results of this study show this may not be entirely the case, as parental involvement was not related to the frequency of drug use or the age of first use.

Limitations

Several limitations within this study should be considered when implementing modifications for future research. For instance, more current data should be collected given the age of the data analyzed (in 2004). Arguably within a 14-year period, drug culture among adolescents could have changed in significant ways (Johnston, O'Malley, & Bachman, 1987). As adolescent culture changes over time, drug culture can also change to fit within these changes and future research should reflect this (Johnston et al., 1987). That too should prove relevant when considering changes to parental involvement since data was collected in 2004. Schools have stressed in recent years the importance of being involved in youth lives and this would be reflected in more up-to-date data collection. As well, the parental involvement scale used for this analysis was not tested previous to this study. Although the KR-20 estimate of internal consistency was acceptable, testing the parenting scale beforehand may have changed which variables we included within the scale. Another limitation of the present study involves the cross-sectional design employed. Unfortunately, the dataset captured the life experience of youth from one point in time, and could not unpack how substance use might have changed over the course of subsequent years. Future studies should focus on parental involvement changes over time and the effects on adolescents drug use. Lastly, mediators or moderators to parental involvement, such as supportive family members that did not include the youth's parents, was not included in the present study, but would be worthwhile to explore so as to complete a more complex model. Future studies related to adolescents' support system outside of their parents could provide information about if the support system could moderate the effects of low parental involvement.

Conclusion

In conclusion, this study contributes to our understanding of the relation between parental involvement and adolescent substance use. The precise role of parental involvement emerged only in the domain of adolescent substance use rather than frequency of use or age of initiation. Once adolescents begin using a given substance, we observed less impact from parental involvement concerning youth substance use behaviours. Future studies should further unpack these and other mechanisms that have a role in adolescents' choices to explore hard drug use.

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The Importance of Sexual Context in the Subjective Appraisal of Sexual Arousal, Desire, and Orgasm Among BDSM Practitioners

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Sexual arousal, desire, and orgasm are experienced differently across gender, sexual orientation, and context. The variety of sexual practices performed by the BDSM (bondage, domination/submission, discipline, and sadomasochism) community enables researchers to better understand the human subjective sexual response across a wider range of erotic contexts. The present study investigates the subjective experience of sexual arousal, desire, and orgasm across contexts and their associations with sexual sensation seeking in BDSM practitioners. A total of 122 participants were recruited and completed an online questionnaire. Findings suggest that BDSM practitioners experience sexual arousal, desire, and orgasm differently based on whether they engage in solitary masturbation, partnered intercourse, or BDSM practices. This experience is also related to their level of sexual sensation seeking. This investigation represents a key initiative in understanding the complexity of human sexual responses across multiple contexts and within diverse populations.

Keywords: BDSM, sexual arousal and desire, orgasm, subjective experience, sexual contexts

L'excitation sexuelle, le désir et l'orgasme sont vécus différemment selon le sexe, l'orientation sexuelle et le contexte. La variété des pratiques sexuelles adoptées par la communauté BDSM (bondage, domination/ soumission, discipline et sadomasochisme) permet aux chercheurs de mieux comprendre la réponse sexuelle subjective humaine dans un éventail de contextes érotiques. Cette étude investigue l'expérience subjective de l'excitation sexuelle, du désir et de l'orgasme à travers les contextes et leurs associations avec la quête de sensations sexuelles chez les pratiquants du BDSM. Un échantillon de 122 participants a complété un questionnaire en ligne. Les résultats suggèrent que les pratiquants du BDSM ressentent différemment l'excitation sexuelle, le désir et l'orgasme s'ils se livrent à la masturbation solitaire, à des rapports sexuels en couple ou aux pratiques BDSM. Cette expérience est aussi corrélée à leur niveau de quête de sensations sexuelles. Cette étude représente une initiative clé pour comprendre la complexité des réponses sexuelles humaines dans de multiples contextes et dans diverses populations.

Mots-clés : BDSM, excitation sexuelle et désir, orgasme, expérience subjective, contextes sexuels

In the past, individuals who practice bondage/discipline, domination/submission, and sadism/masochism (BDSM; Richards & Barker, 2015) have been the target of considerable stigmatization and social marginalization. Yet, recent studies show that BDSM practices are commonly fantasized about and experienced in the general population (Joyal & Carpentier, 2017; Joyal, Cossette, & Lapierre, 2014). Indeed, the diversity of human sexual responses reflects our organism's complexity (Pfaus et al., 2012).

The capacity to respond sexually varies greatly between individuals, but models of human sexual responses are largely based on studies performed on conventional populations (e.g., undergraduate students; Chivers, Seto, Lalumière, Laan, & Grimbos, 2010), which do not encompass the full human potential to respond sexually across contexts and sexual experiences. Moreover, most of these studies use objective physiological measures of sexual responses, which are informative and relatively stable across individuals of the same biological sex, but limited in their capacity to describe one's appraisal of a sexual response. Consequently, this study aims to address these issues by exploring the phenomenological subjective experiences of sexual arousal, desire, and orgasm in individuals with sexual interests in BDSM (Richards & Barker, 2015). By safely and consensually using a variety of stimuli to explore their sexuality, BDSM practitioners provide researchers with a unique opportunity to investigate the nuances of the human sexual responses (i.e., sexual arousal, desire, and orgasm) across a wider range of experiences.

Models of Human Sexual Responses

Linear models. Masters and Johnson (1966) posited their Human Sexual Response model, composed of four linear physiological stages: excitation, plateau, orgasm, and resolution. The first stage (i.e., excitation) is the physiological preparation for sexual intercourse (e.g., genital vasocongestion, heart rate acceleration) as a response to erotic stimuli (e.g., kissing, erotic images). The second stage (i.e., plateau) is characterized by an intensification of sexual excitation and pleasure. The third stage (i.e., orgasm) is a brief climactic period of sexual excitement and pleasure that results in repeated muscular contractions in the pelvic region. In females, the vaginal muscles and uterus will experience repeated contractions. In males, the base of the penis will experience contractions and semen will be ejaculated (Scovell & Eisenberg, 2016). In the final stage (i.e., resolution), the body relaxes (e.g., muscle relaxation, heart rate decrease) and returns to its baseline, unexcited state.

Although certain individuals, particularly males, identify with this linear progression, there are numerous shortcomings with Masters and Johnson's (1966) model. For instance, Kaplan (1974) noted that this model overlooks the cognitive precursors of sexual response (i.e., sexual desire) which plays a role in initiating sexual activity, and Robinson (1976) argued that the plateau phase was the final stage of the excitation phase. Hence, in a revised version of this model, the sexual response was proposed to begin with sexual desire, which was followed by arousal, orgasm, and finally, resolution. However, this type of linear model lacked empirical support and has been criticized as being unrepresentative of individual experiences (Meana, 2010; Nowosielski, Wróbel, & Kowalczyk, 2016; Tiefer, 1991).

Circular models. Alternative circular models have been proposed wherein the motivation to engage in sexual activities is seen as more complex. Specifically, the sexual activity, desire, or arousal may begin for a variety of reasons depending on the individual and the situation. However, once the activity is initiated, the increase in arousal may contribute to the desire to pursue the activity. The sexual desire will also feedback and increase arousal levels, creating a circular pathway (Basson, 2001, 2002; Brome et al., 2016). Moreover, Basson (2000) proposed that the rewarding sensations previously experienced, such as emotional closeness, increased commitment, and bonding, will feed forward to induce the motivation to engage in sexual activities. This model accounts for the overlap and interrelations between sexual arousal and desire. It also emphasizes the importance of the subjective aspects of the sexual response as they parallel the physiological components (e.g., genital responses, heart rate, increased sensitivity). Hayes (2011) highlights that other models have attempted to consolidate the factors that "promote" or "inhibit" human sexual responses, but they have failed to provide rigorous definitions or descriptions of the phases of the sexual responses (e.g., Bancroft, 1999; Perelman, 2009).

Sexual Arousal and Desire

In trying to accurately describe sexual arousal and desire and respond to the need for evidence-based conceptualizations of the human sexual responses that accounts for interpersonal, religious, social, psychological, and biological factors, Toledano and Pfaus (2006) sought to develop a new tool, the *Sexual Arousal and Desire Inventory* (SADI), which captures the subjective experience of sexual arousal and desire. The SADI uses an adjective-rating methodology, whereas each adjective loads onto at least one of the following four factors (with some adjectives overlapping across subscales): (1) an evaluative factor, reflecting cognitive-emotional variables of subjective experience (e.g., *passionate, seductive, pleasure*); (2) a physiological factor, related to autonomic and endocrine experiential features (e.g., *tingly all over, entranced, throbs in genitals*); (3) a motivational factor (e.g., *anticipatory, lustful, tempted*), and (4) a negative/aversive factor, reflecting inhibitory characteristics of sexual arousal and desire (e.g., *frigid, unattractive, uninterested*). The SADI, which can be used as a state or trait measure, was developed as a response to the paucity of information regarding the complex, multidimensional, and interrelated nature of factors involved in the human sexual responses (Toledano & Pfaus, 2006). While acknowledging the debate surrounding a definition of sexual arousal and desire, Toledano and Pfaus (2006, p. 854) defined sexual arousal as:

> Increased autonomic activation that prepares the body for sexual activity and decreases the amount of sexual stimulation necessary to induce orgasm. This includes both parasympathetic increases in blood flow to genital tissues and sympathetic increases in blood flow to striated and smooth muscles that participate in different sexual responses, such as increased heart and breathing rate. Sexual arousal also includes a central component that increases neural "tone" or preparedness to respond to sexual incentives.

The awareness of those sensations constitutes what is called the subjective sexual arousal. Contrastingly, Toledano and Pfaus (2006, p. 857) defined sexual desire as: "[...] an energizing force that motivates a person to seek out or initiate sexual contact and behavior". As Toledano and Pfaus (2006, p. 854) explain, "[sexual desire] is the "wanting" or "craving"

for sexual activity". For example, being horny is fueled by sexual arousal through physiological responses (e.g., erection for men, wetness for women) and sexual desire through cognitive appraisals (e.g., approaching a possible mate, flirting).

Importantly, sexual arousal and desire are based on an individual's capacity to perceive and become aware of physiological state changes, and they rely on the person's cognitive evaluation of these changes, as well as their emotional meaning (Brome et al., 2016; Carvalho & Nobre, 2011; Dosch, Rochat, Ghisletta, Favez, & Van der Linden, 2016; Nimbi, Tripodi, Rossi, & Simonelli, 2017). Toledano and Pfaus' (2006) approach to describing sexual arousal and desire, which we use in the present investigation, mirrors the multidimensional models proposed by Basson (2000, 2001, 2002), as it accounts for the interrelation and coordination of perceptual-cognitive, emotional, motivational, and physiological components of the sexual response.

While establishing the validity of the SADI, Toledano and Pfaus (2006) discovered that sexual arousal and desire can be context-dependent and gender-specific. For instance, individuals' subjective experience is different depending on the type of pornography videos they watch or if they are fantasizing about erotic content (Toledano & Pfaus, 2006). Men experience high concordance between genital arousal and subjective sexual arousal and desire. In contrast, women display more discordant responses between physiological and subjective measures (Chivers et al., 2010). Moreover, men and women's subjective experiences of sexual desire and arousal tended to be different on the evaluative and negative/aversive dimensions of the SADI, but not on the physiological and motivational dimensions (Toledano & Pfaus, 2006). Specifically, men reported higher mean scores for the evaluative dimension than women, whereas women reported higher mean scores on the negative/aversive dimension (Toledano & Pfaus, 2006). Other studies, such as by Persson, Ryder, and Pfaus (2016), have found an association between sexual orientation and sexual arousal and desire during sexual activities. Interestingly, bisexual men and women reported higher sexual arousal and desire for women than heterosexual men and lesbians (Persson et al., 2016).

Orgasm

Sexual pleasure is a key motivating factor in sexual activity (Boul, Hallam-Jones, & Wylie, 2008). Orgasm is certainly considered by many as the hallmark of our hedonistic pursuit of sexual gratification as it provides individuals with highly pleasurable sensations (Kontula & Miettinen, 2016).

Orgasm is included in all models of the human sexual responses, but remains difficult to define as it reflects more than simple muscular contractions in the pelvic region (Ortique & Bianchi-Demicheli, 2007; Tavares, Laan, & Nobre, 2017). Similarly to sexual arousal and desire, orgasms have been traditionally investigated using objective physiological measures. However, as Mah and Binik (2002) note, these physiological measures fail to account for the subjective component of the orgasmic phenomenon, which is likely to be influenced by biopsychosocial factors. Therefore, to account for the variability in its phenomenological expression across individuals, Mah and Binik (2002) also took a multidimensional approach in describing and evaluating the subjective qualities of orgasm. Based on biopsychosocial models by Davidson (1980) and Warner (1981), which indicated that orgasm phenomenology comprises both physical sensations and psychological/emotional experiences, Mah and Binik developed a two-dimensional model of orgasm using an adjective rating methodology.

This model highlights that orgasms are comprised of two dimensions, namely sensory, which encompasses all sensations arising from the physiological events of orgasm, and cognitive-affective, which relates to the affective and evaluative experiences associated with orgasm experiences. Mah and Binik (2002) also found that, to some extent, the human subjective experience of orgasm is context-dependent and gender-specific. Specifically, the situational context in which the orgasm is being experienced will influence the individuals' experience and subsequent description of orgasm, such as whether the individual is engaging in solitary masturbation or partnered intercourse (Mah & Binik, 2002, 2005). Moreover, gender differences are observed with regards to the sensory component, whereby men describe their orgasm with items relating to shooting sensations, likely reflecting males' ejaculation capacity (Mah & Binik, 2002). Overall, their findings suggest that, beyond the sensation of ejaculation, male and female orgasm experiences are subjectively experienced in similar ways .

Sexual Sensation Seeking and Human Sexual Experience

In this regard, some researchers proposed that differences in the breadth of sexual behaviors and preferences may also be related to personality traits such as higher levels of sensation seeking (e.g., Martin, Smith, & Quirk, 2016). Sensation seeking is defined as "a personality trait expressed in the generalized tendency to seek varied, novel, complex, and intense sensations and experiences and the willingness to take risks for the sake of such experiences" (Zuckerman, 1979, 1994, 2007, p. 1).

Kalichman and colleagues (1994) sought to narrow this down to sexual sensation seeking. They operationally defined it as "the propensity to attain optimal sexual excitement and to engage in novel sexual experiences" (Kalichman et al., 1994, p. 387). Elevated levels of sensation seeking are generally associated with a high physiological response and a rapid habituation to new stimuli (Martin et al., 2016). Habituation refers here to decreased response due to repeated stimulation and not sensory or motor fatigue (Groves & Thompson, 1970). This habituation pattern of response to sexual stimuli may be felt through a differentiated sexual subjective experience.

Indeed, some evidence shows that sexual sensation seeking is associated with different subjective and psychophysiological sexual responses. For example, a recent study by Burri (2017) found that women who scored higher on a measure of sexual sensation seeking reported better sexual functioning, as indicated by higher levels of desire, arousal, lubrication, and orgasm, and by less sexual pain. Yet, the association between sexual sensation seeking and sexual functioning has yet to be investigated across various sexual contexts.

BDSM: A Gateway to Understanding Human Sexual Responses

Overall, research suggest that the subjective human sexual responses (i.e., sexual arousal, desire, and orgasm) may be phenomenologically experienced differently across different erotic contexts (Goldey & van Anders, 2012). However, research is quite limited, because researchers mostly focused on conventional populations (e.g., undergraduate students; Chadwick, Burke, Goldey, & van Anders, 2017; Dewitte, 2015), in a limited number of contexts (e.g., pornography viewing, fantasy, solitary masturbation, and partnered sexual intercourse), and using objective physiological measures (Chivers et al., 2010).

As such, these methodological limitations fail to account for the variety and complexity of sexual responses in erotic contexts, such as BDSM practices. In order to understand the human potential to respond sexually across diverse modes of stimulation and a wide variety of contexts, subjective measures must be incorporated in investigations. This methodology can also help reveal the motivation for individuals to explore their sexuality in a diverse manner. To a greater extent, it can tell us about our sexual selves and our capacity to expand our sexual horizons, such as BDSM practitioners do. Finally, understanding diverse sexual practices provides us with an opportunity to explore the relationships between the subjective experience of sexual responses and sensation seeking across a larger variety of erotic contexts.

Our capacity to respond sexually appears to vary greatly among individuals. To grasp its spectrum, one needs to apprehend its extremes and compare them to the more central tendencies. This is what individuals with sexual interests in BDSM enable us to do. BDSM interests are an extreme expression of our potential for sexual arousal, desire, and experiencing orgasm towards different stimulation. As such, BDSM practitioners enable us to study mechanisms that may well apply in more subtle ways in the non-BDSM population.

BDSM is an umbrella term designating a vast range of consensual sexual practices including: (1) bondage and discipline (B/D), which refers to physical and psychological restraints; (2) domination and submission (D/S), which involves one or more person seizing control while the other(s) renounces it; and (3) sadism and masochism (S/M), which refers to sexual gratification through psychological/physical pain or humiliation of others, or from one's own pain and humiliation (Federoff, 2008; Hébert & Weaver, 2015; Richards & Barker, 2015).

As previously mentioned, BDSM interests have long been stigmatized and considered pathological. However, claims that BDSM interests result from psychopathology, dangerousness tendencies, sexual difficulties, or early traumatic experience have been systematically disproven over the course of the last two decades of research (e.g., Connolly, 2006; Joyal & Carpentier, 2017; Richters, de Visser, Rissel, Grulich, & Smith, 2008). Individuals with an interest in BDSM are now considered to have distinct sexual preferences, which are often associated with increased well-being and sexual satisfaction in comparison to their non-BDSM counterparts (Ambler et al., 2017; Graham, Butler, McGraw, Cannes, & Smith, 2016; Wismeijer & van Assen, 2013). BDSM is also considered a sexual subculture oriented towards experiencing a variety of bodily sensations and erotic stimulations (Caruso, 2012; Spengler, 1977). BDSM erotic activities include power dynamic/exchange (e.g., dominance, submission, switching), pain infliction (e.g., spanking, whipping, burning), humiliation (e.g., verbal degradation), physical restriction (e.g., handcuffs, ropes) and fantasy role-play (e.g., slavery, being a pet). BDSM practices vary in terms of sophistication, intensity, norms, rules and codes, but physical and psychological well-being remain central (Caruso, 2012). While most BDSM practitioners also engage in other forms of non-BDSM sexual interactions, some are fully committed to BDSM relationships, which requires constant role-play (Brame, 2000; Kolmes, Stock, & Moser, 2006; Sandnabba, Santtila, Alison, & Nordling, 2002).

BDSM is commonly fantasized about and experienced in the general population. Joyal and Carpentier (2017) surveyed a large sample of Canadian adults who did not self-identify as BDSM practitioners. They found that approximately 23.8% of participants reported masochistic fantasies (27.8% of women and 19.2% of men). The prevalence of BDSM experiences, as opposed to fantasies is somewhat lower. Joyal and Carpentier's findings revealed that 19.2% of participants reported at least one masochistic experience within their lifetime, whereas Richters and colleagues (2008) found that, among sexually active Australians, 2.0% of men and 1.4% of women reported engaging in BDSM interactions within the past year. According to Joyal and Carpentier (2017), the high prevalence of self-reported BDSM fantasies and experiences calls into question the definition of normophilic and paraphilic interests.

Moreover, contrary to popular misconception, BDSM interests do not appear to be a narrowing of the spectrum of stimuli provoking sexual arousal, but rather an expansion. A study by Chivers, Roy, Grimbos, Cantor, and Seto (2014) shows that individuals with interest in masochism have non-specific subjective and physiological sexual responses when faced with masochistic or non-masochistic sexual stimuli, compared to controls who respond only to non-masochistic stimuli. Thus, it is not that individuals with masochistic interests are not able to be aroused by non-masochistic stimuli, but that they are more fluid regarding what stimuli can trigger their arousal, compared to non-masochist controls.

BDSM practices offer insight into the diversity of sexual experiences and the phenomenology of our sexual responses towards these experiences, which may well represent epigenetic changes in the brain that come from prior experiences of sexual pleasure (Pfaus et al., 2012). BDSM practitioners provides us with an opportunity to look at the human sexual responses across a broader range of sexual contexts (i.e., sexual practices) within individuals. Given that the general population also explores certain BDSM activities, it might be possible to find similar experiences in the non-self-identified BDSM population (Joyal & Carpentier, 2017). However, selecting a sample of self-identified BDSM practitioners would require a smaller sample size considering the larger range of sexual activities they engage in. By exploring a vast range of sensations across various erotic contexts, BDSM practitioners open a door to the investigation of how we respond sexually in terms of arousal, desire, and orgasm to a wider range of stimulations.

In fact, BDSM practitioners often report that their BDSM sexual interactions are intensely embodied and multisensorial. In a recent study by Turley (2016), a core feature of BDSM play was described by participants as an experience involving diverse bodily sensations that are experienced through various senses (i.e., olfactory, tactile, and auditory stimulation). Participants further stated that such multisensorial experiences within the context of BDSM allowed their focus to shift from cognitive awareness to embodied experience. Moreover, BDSM activities enable the experimentation and manipulation of corporeal sensations on oneself and others. Participants revealed that this enables exploratory experiences that are not permitted in non-BDSM sexual contexts. As such, the appeal towards BDSM may result from the increased opportunities for exploring a diverse range of stimuli and physiological experiences.

As this literature review shows, researches have begun investigating BDSM practitioners and their sexual experiences. However, research so far has ignored how these individuals subjectively experience the sexual episodes in which they are engaged.

What We Still Need to Know About Subjective Sexual Experience and the Role of Sexual Sensation Seeking

Research suggest that BDSM sexual practices may also be related to differential experiences across individuals. For example, findings indicate that women report greater sexual desire for masochistic stimuli (Joyal & Carpentier, 2017; Renaud & Bryers, 1999). Moreover, BDSM practices seem to be related to heightened experiences of sexual arousal and desire for its practitioners (Hébert & Weaver, 2015). Sexual arousal and desire is somewhat context-dependent and gender-specific. Therefore, BDSM sexual experiences may be subjectively experienced differently than non-BDSM sexual experiences by its practitioners. If that is the case, this could provide evidence for the differential phenomenological experience of sexual arousal and desire across various erotic contexts. It could also further explain why individuals seek BDSM stimuli by providing a more accurate description of the experience.

Furthermore, although BDSM practices are not necessarily engaged in for the sake of reaching orgasm, many activities revolve around controlling or preventing orgasm until a high level of arousal and excitation is achieved (Caruso, 2012; Connolly, 2006; Lenius, 2011; Turley, 2016). Orgasms are often used in BDSM practices as a reward for good behavior in a domination-submission interaction or to condition various stimuli with pleasure (Caruso, 2012). While orgasms still represent a rewarding and pleasurable experience that contributes to the well-being of BDSM practitioners, they may well take a different function across BDSM contexts (Mah & Binik, 2005; Pfaus et

al., 2012). Given that BDSM practices are qualitatively different in terms of intensity, practices, settings, or number of partners than solitary masturbation and non-BDSM partnered sexual intercourse (Richards & Barker, 2015), it is presumed that the subjective experience of orgasm during BDSM sexual experience will be different.

Finally, although the relationship between BDSM practice and sexual sensation seeking has not been clearly established, BDSM practitioners tend to display traits that reflect thrill-seeking tendencies. For example, Richters and colleagues' (2008, p. 1660) Australian national survey showed that individuals who reported engaging in BDSM were more likely to have: "experienced oral sex and/or anal sex, to have had more than one partner in the past year, to have had sex with someone other than their regular partner, and to have taken part in phone sex, visited an Internet sex site, viewed an X-rated (pornographic) film or video, used a sex toy, had group sex, or taken part in manual stimulation of the anus, fisting or rimming". The variety and "non-vanilla" nature of these practices reflects a certain openness to experience and extraversion, traits which have been observed in BDSM practitioners (Wismeijer & van Assen, 2013).

Together, this evidence puts forth the possibility that individuals who practice BDSM have a propensity towards sensation seeking in sexual contexts, and that the rapid habituation that marks the sexual response of individuals high on this trait may result in chronically low levels of physiological activation in BDSM practitioners. This could, in turn, drive them to search for more intense/diversified sexual sensations offered by BDSM practices (Martin et al., 2016). It is thus likely that individuals who practice BDSM will experience a more positive experience of subjective sexual arousal, desire, and orgasm within a BDSM context relative to non-BDSM contexts. Furthermore, people who practice BDSM should rate their experience as being higher in sensations and lower in cognitive-affective interpretations when considering a BDSM context compared to a partnered, non-BDSM sexual context.

Goals and Hypotheses

The present study aims to explore BDSM practitioners' phenomenological subjective experiences of sexual arousal, sexual desire, and orgasm. It will also investigate the relationship between sexual sensation seeking, sexual arousal and desire, and orgasm in North American BDSM practitioners. It is proposed that BDSM practitioners' experience of sexual arousal, desire, and orgasm will be different depending on the context. Specifically:

Hypothesis 1: The sexual arousal and desire of BDSM practitioners will be higher on the evaluative, physiological, and motivational dimensions of the SADI (Toledano & Pfaus, 2006), and lower on its negative/aversive dimension when they engage in their preferred BDSM experience compared to their general experience of sexual arousal and desire.

Hypothesis 2: BDSM practitioners' experience of orgasm will be higher on the sensory and cognitive-affective dimension of the *Orgasm Rating Scale* (ORS; Mah & Binik, 2002) when they engage in a BDSM experience compared to solitary masturbation. Moreover, BDSM practitioners' experience of orgasm will be higher on the sensory dimension and lower on the cognitive-affective dimension of the ORS when they engage in a BDSM experience compared to non-BDSM partnered sexual intercourse.

Hypothesis 3: Since sexual sensation seeking motivates sexual arousal, desire and orgasm in BDSM practitioners, we expect sensation seeking to be positively related to these variables. More specifically, levels of sexual sensation seeking will be positively associated with the evaluative, motivational, and physiological dimensions of the SADI and negatively associated with the negative/aversive dimension of the SADI across solitary, partnered and BDSM-specific sexual experiences. Sexual sensation seeking will be positively associated with the cognitive-affective and sensory dimensions of the ORS across sexual contexts.

Method

Participants

One hundred and twenty-two participants (M_{age} = 32.07 years; SD = 14.46 years; age range = 18-72 years) were recruited using online advertisements on social media specialized BDSM groups (e.g., Facebook's BDSM info), on Fetlife.com groups (e.g., Mental BDSM), by word of mouth in the BDSM community, and through advertisements (e.g., flyers) at Concordia University. The sample was composed of 74 females (60.66%), 41 males (33.61%), two genderqueer individuals (1.64%), two agender individuals (1.64%), one transwoman (0.80%), one transman (0.80%), and one individual who self-identified as being androgynous (0.80%). Participants were invited to answer a 45-minute online questionnaire on LimeSurvey (version 2.50+) pertaining to their BDSM sexual life, sexual health, and sexual practices. To take part in this study, participants needed to be at least 18 years of age. Demographic information is presented in Table 1 and Table 2.

Table 1

Demographic Information for Self-identified Females and Males

	All participants $N = 122$	Females $n = 74$	Males $n = 41$
M_{age} (years, *SD*)	32.07 (14.46)	27.61 (11.94)	39.90 (15.72)
Age range (years)	18-72	18-72	18-70
Ethnicity (number of participants)			
White	104	63	34
Hispanic, Latino or Spanish	3	0	3
Black of African American	1	1	0
Asian	7	4	3
American Indian or Alaska Native	1	1	0
Other	10	5	0
Religion (number or participants)			
Catholicism	38	25	12
Protestantism	21	10	9
Judaism	9	5	4
Islam	3	3	0
Hinduism	4	2	2
Buddhism	2	1	1
Other	12	5	5
No religion	31	21	8
Sexual orientation (number of participants)			
Exclusively heterosexual	47	29	17
Predominantly heterosexual, only incidentally homosexual	26	19	7
Predominantly heterosexual, but more than incidentally homosexual	15	13	2
Equally heterosexual and homosexual	1	0	0
Predominantly homosexual, but more than incidentally heterosexual	0	0	0
Predominantly homosexual, only incidentally heterosexual	5	0	5
Exclusively homosexual	4	0	4
Relationship status (number of paticipants)			
Single	29	15	12
Casual dating	16	11	5
In a relationship/exclusive dating	51	38	10
In an open relationship/non-exclusive dating	15	6	8
Married	9	3	6
Divorced	2	1	0
Level of education completed (number of participants)			
High school diploma (DES)	88	55	28
Professional diploma (DEP)	16	11	5
CEGEP diploma (DEC)	53	40	12
University undergraduate degree	49	28	20
University gradute degree (master, PhD, doctorate)	14	5	7
Other	7	3	4

Note. The "All participants" column includes self-identified females and males, but also participants who did not self-identify as male or female.

Table 2

Demographic Information for Self-identified Females and Males

	All participants *N* = 122	Females *n* = 74	Males *n* = 41
Average times of masturbation/week			
0	15	10	4
1-5	73	52	16
6-10	19	9	9
10-15	9	2	7
15 or more	5	0	5
Average times of thinking about sex/week			
0	0	0	0
1-5	14	0	3
6-10	30	24	5
10-15	19	14	5
15 or more	58	26	28
Average times of anal intercouse/week			
0	81	55	22
1-4	32	13	16
5-8	0	0	0
9 or more	0	0	0
Average times of genital intercouse/week			
0	32	15	14
1-4	62	42	16
5-8	17	13	4
9 or more	3	2	1
Average times of oral intercouse/week			
0	28	14	11
1-4	75	46	26
5-8	11	8	2
9 or more	5	3	2

Note. The "All participants" column includes self-identified females and males, but also participants who did not self-identify as male or female.

Materials

Demographics. The *Demographic Information Questionnaire* (DIQ) is a Concordia homemade 30-item questionnaire that was created for collecting demographic information in the present study. Participants reported information on their gender, age, ethnicity, religion, religiosity, relationship status, relationship duration, sexual orientation, educational level, and income. Descriptive questions regarding sexual practices, sexual arousal and desire, and the experience of orgasm were also included. Specifically, participants reported the weekly frequency and the type of pornographic material watched, the frequency and pleasure gained from sexual intercourse and related behaviors, as well as the frequency and

intensity of orgasm in both solitary and partnered contexts.

Sexual arousal and desire. As aforementioned, the *Sexual Arousal and Desire Inventory* (SADI; Toledano & Pfaus, 2006) is a multidimensional, descriptor-based self-rating scale assessing subjective experience of sexual arousal and desire during partnered intercourse. Specifically, 54 descriptor items factor onto one or more of the SADI's four scales, namely evaluative (28 items), physiological (17 items), motivational (10 items), and negative/aversive (17 items). The SADI produces four scores for each respective factor, whereby ratings for each adjective contained within the respective scale are summed. Toledano and Pfaus (2006) found high reliability for

the total SADI (α = .91-.96), as well as for the four subscales (α = .72-.93).

In addition to the original SADI, participants completed a modified version used to measure subjective experience of sexual arousal and desire during a preferred BDSM practice. Specifically, participants were asked to name and briefly describe their favorite BDSM sexual practice (e.g., number of partners and materials involved). Subsequently, participants were invited to rate the 54 descriptor items and scores were summed by subscale, as per the original version. Thus, two contexts were implemented using the SADI: (non-BDSM) partnered intercourse and BDSM practice.

Orgasm. *The Orgasm Rating Scale* (ORS; Mah & Binik, 2002) is a self-report measure that quantifies men and women's subjective experience of orgasm in three separate contexts. Participants rate how well each of the 40 adjectives (e.g., *blissful, euphoric, unifying, unreal*) describes their experience of orgasm using a 6-point Likert scale (0 = *does not describe it at all* to 5 = *describes it perfectly*). In the solitary-masturbation context, participants are instructed to: "*Recall to the best of your ability the most recent orgasm you experienced during solitary masturbation. This would include any sexual activity in which you engaged while alone.*" In the sex-with-partner context, instructions are to: "*Recall to the best of your ability the most recent orgasm you experienced during sex with a partner. This would include any sexual activity in which you had orgasm while your partner was present.*" In the present study, a third sexual context was included to reflect BDSM experiences wherein participants were instructed to: "*Recall to the best of your ability the most recent orgasm you experienced during a BDSM sexual experience.*" Participants rated the 40-descriptor items three times for a total of 120 adjective ratings. Thus, three contexts were implemented with the ORS: solitary masturbation, (non-BDSM) partnered intercourse, and BDSM practice.

For each context, 28 items load onto one of the two factor/scales comprising the ORS. The sensory factor reflects the physiological sensations (e.g., *throbbing*) that accompany the experience of orgasm. The cognitive-affective factor encompasses orgasm-related evaluations (e.g., *satisfaction*) and emotions (e.g., *elation*). Dimension scores are obtained by summing the subscale scores for each factor. Mah and Binik (2002) have demonstrated high internal consistency of the original ORS for men and women across sexual contexts (α = .88-.92).

Sexual Sensation Seeking. The *Sexual Sensation Seeking Scale* (SSSS; Kalichman et al., 1994) was designed to assess sexual sensation seeking and the willingness to engage in high-risk sexual behaviors. The SSSS includes 11 items that reflect individuals' propensity towards four domains of sensation seeking, namely thrill and adventure seeking, experience seeking, disinhibition, and boredom susceptibility. Participants rated the degree to which they related to statements such as "*I enjoy "X-rated" videos*" and "*I like new and exciting sexual experiences*" using a 4-point Likert scale (1 = *not at all like me* to 4 = *very much like me*). However, in the present study a 6-point Likert scale (1 = *strongly disagree* to 6 = *strongly agree*) was used to provide participants with more response choices. The original SSSS is a reliable measure, with acceptable internal consistency coefficients (α = .75-.79; Kalichman et al., 1994; Kalichman & Rompa, 1995) and test-retest reliability coefficients, both at two-week (r = .78) and three-month (r = .69) intervals.

Procedure

Interested participants received an ID code and the link to the survey. Once consent and age were confirmed electronically, participants completed a battery of measures in the following order: a demographic form that included a *Kinsey Scale* (KS; Kinsey, Pomeroy, & Martin, 1948); the original and modified versions of the SADI (Toledano & Pfaus, 2006) wherein orgasm is described in two contexts (partnered intercourse, BDSM practice); the original and modified versions of the ORS (Mah & Binik, 2002) wherein orgasm is described in three contexts (solitary masturbation, partnered intercourse, BDSM practice); and the SSSS as a measure of sensation seeking within contexts of a sexual nature (Kalichman et al., 1994). Participants were compensated with a chance to win a 500.00$ gift certificate to the Apple Store.

Results

Sexual Arousal and Desire

To test the first hypothesis, BDSM practitioners' subjective experience of general sexual arousal and desire was compared to their experience of sexual arousal and desire when they engaged in their preferred BDSM practice using paired samples *t*-test on the four dimensions of the SADI (Toledano & Pfaus, 2006). A Bonferroni correction was used in order to ensure scientific integrity, with a new *p*-value of .013. A paired samples *t*-test detected that BDSM practitioners described their general subjective experience of sexual arousal and desire in a more evaluative manner (M = 94.93, SD = 26.07) than when they engaged in their preferred BDSM sexual practice (M = 87.64, SD = 29.54), $t(105)$ = 3.72, p < .001, d = .26. A paired samples *t*-test detected that BDSM
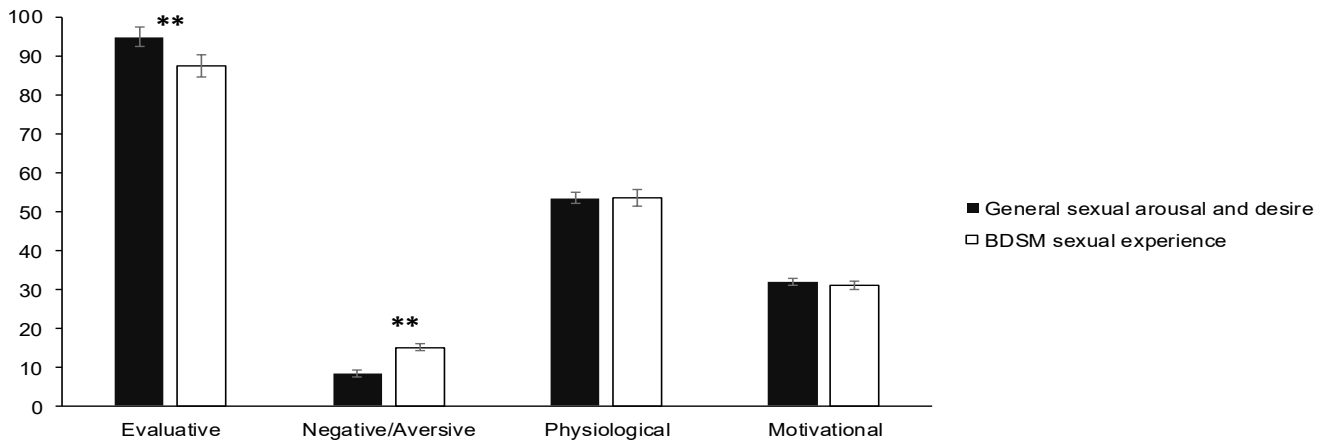
Figure 1. A comparison of within-subjects' general subjective experience of sexual arousal and desire and their subjective experience of sexual arousal and desire during their preferred BDSM sexual practice (** $p < .01$). The error bars represent the standard error of the means (SEM).

practitioners also described their general subjective experience of sexual arousal and desire in a less negative/aversive manner ($M = 8.43$, $SD = 8.42$) than when they engage in their preferred BDSM sexual practice ($M = 15.09$, $SD = 9.83$), $t(105) = -9.16$, $p < .001$, $d = .73$ (see Figure 1). No significant differences were found between the physiological dimension of sexual arousal and desire in general experience ($M = 53.55$, $SD = 15.89$) and the preferred BDSM sexual practice ($M = 53.47$, $SD = 21.42$), $t(105) = .06$, $p = .953$, $d = .00$. Moreover, no significant differences were found between the motivational dimension of sexual arousal and desire in general experience ($M = 31.84$, $SD = 8.94$) and the preferred BDSM sexual practice ($M = 30.95$, $SD = 11.25$), $t(104) = 1.22$, $p = .226$, $d = .09$.

Orgasm

To test the second hypothesis, which proposes that BDSM practitioners' subjective experience of orgasm would be different across different contexts, repeated measures ANOVAs were conducted to compare their experiences of the last orgasm they had during solitary masturbation, partnered sexual experience, and BDSM sexual experience.

Because Mauchly's Sphericity Test indicated that the assumption of sphericity was not met, $c^2(2) = 17.496$, $p < .001$, and because Epsilon was greater than .75, a Huynh-Feldt correction was applied (Girden, 1992). The final repeated measures ANOVA revealed that mean scores on the sensory dimension of the ORS differed across solitary, partnered, and BDSM contexts, $F(1.71, 141.8) = 9.72$, $p < .001$. Pairwise comparisons revealed that participants scored higher on the ORS sensory dimension when considering their partnered experience ($M = 33.69$, $SD = 19.57$), compared to their solitary experience

($M = 27.80$, $SD = 17.61$), $p < .001$, but not their BDSM experiences ($M = 32.57$, $SD = 21.40$), $p = 1.000$. Moreover, participants scored higher on the ORS sensory dimension when rating BDSM experiences than when rating solitary experiences, $p = .019$.

In addition, a repeated measures ANOVA was conducted to examine the variance in scores on the cognitive-affective dimension of the ORS. Mauchly's Sphericity Test once again indicated that the assumption of sphericity was not met, $c^2(2) = 9.07$, $p = .011$, and that Epsilon was greater than .75. A Huynh-Feldt correction was applied and the ANOVA revealed a statistically significant difference in the cognitive-affective dimension across solitary, partnered, and BDSM contexts, $F(1.86, 169.30) = 22.85$, $p < .001$. Pairwise comparisons revealed that participants scored higher on this dimension when considering their partnered experience ($M = 45.05$, $SD = 18.78$) compared to their solitary ($M = 32.36$, $SD = 18.21$), $p < .001$, and BDSM experiences ($M = 36.41$, $SD = 23.61$), $p < .001$. No significant differences were found between solitary and BDSM experiences, $p = .191$.

Sexual Sensation Seeking

We conducted Pearson product-moment correlations to test our third hypothesis that sexual sensation seeking would be: positively associated with the evaluative, physiological and motivational dimensions of the SADI; negatively associated with the negative/aversive dimension; and positively associated with the cognitive-affective and sensory dimensions of the ORS within the BDSM community.

All correlations regarding the association between sexual sensation seeking, experience of orgasm, and sexual arousal and desire are shown in Table 3. Small

Table 3

Correlation Between Sexual Sensation Seeking, Orgasm, and Sexual Arousal and Desire

Variables	SSSS
Sexual arousal and desire	
Non-BDSM - Evaluative	.27**
Non-BDSM - Negative/aversive	.01
Non-BDSM - Physiological	.27**
Non-BDSM - Motivational	.28**
BDSM - Evaluative	.27**
BDSM - Negative/aversive	.01
BDSM - Physiological	.27**
BDSM - Motivational	.28**
Orgasm	
Org. int. Masturbation	-.03
Org. int. partenered intercourse	.16
Masturbation - Sensory	.23*
Masturbation - Cog./aff.	.15
Partenered intercourse - Sensory	.26*
Partenered intercourse - Cog./aff.	.14
BDSM - Sensory	.30**
BDSM - Cog./aff.	.49**

Note. *p < .05. **p < .01.

to moderate associations were found between sexual sensation seeking and participants' subjective experience of sexual arousal and desire, both in general and when they engage in their preferred BDSM sexual practice. Sexual sensation seeking was positively associated with the evaluative, $r(111) = .27$, $p = .004$, physiological, $r(111) = .27$, $p = .004$, and motivational, $r(111) = .28$, $p = .003$, dimensions of the SADI within general sexual experience. Sexual sensation seeking also presented statistically significant moderate positive associations with the evaluative, $r(105) = .29$, $p = .002$, physiological, $r(105) = .34$, $p < .001$, and motivational, $r(104) = .30$, $p = .002$, dimensions of the SADI when participants engaged in their preferred BDSM sexual experience. No statistically significant associations between sexual sensation seeking and the negative/aversive dimension of the SADI were found.

In terms of orgasm subjective experience, there is a small to moderate association between sexual sensation seeking and the sensory dimension of the ORS across sexual contexts. Specifically, scores on the SSSS were positively associated with the sensory dimension during solitary masturbation, $r(98) = .23$, $p = .020$, partnered sexual experience, $r(92) = .26$, $p = .013$, and BDSM sexual experience, $r(89) = .30$, $p = .004$. The SSSS was not related to the cognitive-

affective dimension of the ORS for solitary masturbation or partnered sexual experience. However, for the BDSM sexual experience, there was a moderate positive association between sexual sensation seeking and the cognitive-affective dimension of the ORS. More precisely, sexual sensation seeking was positively associated to the cognitive-affective experience of orgasm during a BDSM sexual experience, $r(121) = .49$, $p < .01$.

Discussion

BDSM practitioners provide the opportunity to capture the nuances of the human sexual responses because of the diversity of their responses and practices. This study is the first step in providing evidence for the phenomenological difference in the subjective human sexual responses (i.e., arousal, desire and orgasm) across different erotic contexts in BDSM practitioners. It is consistent with previous investigation on the reasons to engage in BDSM, which proposed that there is something unique to BDSM practices compared to other form of sexual activity. Lastly, it highlights that differences in sensation seeking are related to the cognitive evaluation of sexual arousal, desire, and orgasm, across sexual contexts.

Sexual Arousal and Desire

It was hypothesized that the sexual arousal and desire of BDSM practitioners would be higher on the evaluative, physiological, and motivational dimensions of the SADI (Toledano & Pfaus, 2006), and lower on its negative/aversive dimension when they engage in their preferred BDSM experience compared to their general experience of sexual arousal and desire. This hypothesis was not confirmed. Results suggest that BDSM practitioners experience sexual arousal and desire differently depending on the context. However, participants described their general experience of sexual arousal and desire in a more positive evaluative manner (i.e., reflecting cognitive-emotional aspects of the subjective experience) compared to their sexual arousal and desire during their preferred BDSM sexual experience. Practitioners also seem to experience sexual arousal and desire in their preferred BDSM sexual practice in a more negative/aversive way, which is a dimension that taps into aspects of sexual aversion or inhibition (Toledano & Pfaus, 2006). One possibility is that for some individuals, the exploration of BDSM might not have been as satisfying in terms of sexual arousal and desire compared to what they assumed their baseline experience is. Alternatively, it is also possible that some adjectives in the negative/aversive dimension (e.g., *restrained*, *anxious*, *resistant*, or *insensible*) better reflects their preferred BDSM sexual experience

(Toledano & Pfaus, 2006), but do not necessarily imply aversion for BDSM practitioners. It may be that aspects of aversion or inhibition become arousing and the motivation to pursue BDSM practices for some of its practitioners (Bivona & Critelli, 2009; Critelli & Bivona, 2008; Joyal et al., 2014). There may be some arousing aspects to engaging in sexual practices perceived as less socially acceptable, prohibited, or stigmatized. Practitioners report that BDSM experiences offer them an escape from socially-normative sexual practices (Turley, 2016), but overall, they report increased pleasure, enjoyment, and positive affects during BDSM sexual experiences (Hébert & Weaver, 2015; Newmahr, 2010; Williams, Prior, Alvarado, Thomas, & Christensen, 2016). Taken together, it is possible that the feeling of inhibition, control, restraint, and the perceived transgressive value of BDSM practices become arousing and sexually satisfying. This effect might result in participants describing their experience as higher on the negative/aversive dimension, but still enjoying it. These phenomenological findings captured by the SADI may also highlight some of the limitations in the interpretation of this tool. Specifically, the negative/aversive dimension might take a whole new meaning in different sexual populations as some of its adjectives may not be so negative for certain individuals.

Orgasm

Results suggest that BDSM practitioners experience orgasms differently across contexts. It was expected that BDSM practitioners' experiences of orgasm would be higher on the sensory and cognitive-affective component of the ORS when they engage in BDSM experience compared to solitary masturbation. This hypothesis was partially supported as BDSM practitioners' experience of their last orgasm during a BDSM sexual experience was higher on the sensory dimension of the ORS (Mah & Binik, 2002) compared to solitary masturbation. However, no differences were found between BDSM experience and solitary masturbation on the overall cognitive-affective dimension.

The hypothesis that BDSM practitioners' experience of orgasm would be higher on the sensory dimension and lower on the cognitive-affective dimension of the ORS when they engage in a BDSM sexual experience compared to a non-BDSM partnered sexual intercourse was also partially confirmed. There were no significant differences on the sensory dimension, but their experience of orgasm during a BDSM sexual experience was indeed lower on the cognitive-affective dimension. This may occur because many BDSM practices take place outside of romantic, intimate or primary partnered relationships

as mentioned by participants in the present study and previous research (Connolly, 2006). Thus, it is proposed that this segregation between BDSM sexual experience and romantic sexual experiences is reflected in the present sample orgasm experience. For example, within the cognitive-affective dimension, a significant difference was found on the emotional intimacy dimensions, which uses words such as "*close*", "*loving*", "*passionate*", or "*tender*" to describe participants' experience of orgasm (Mah & Binik, 2002). These terms might not always reflect practitioners' orgasm experience in BDSM contexts, since they portray an emotional closeness that is not necessarily present with one or many play partners (e.g., mistress, dominant, submissive) in a BDSM scene (e.g., bondage, humiliation). Some BDSM practitioners may seek BDSM experiences because they are different from their usual partnered sexual intercourse (Turley, 2016). It is proposed here that some practitioners may seek BDSM stimuli outside of primary relationships because they are detached from the emotional intimacy that surrounds their romantic relationship or because this detachment enables them to reach states of heightened arousal, desire, or orgasm experience.

Sexual Sensation Seeking

Results suggest that sexual sensation seeking is related to experiences of sexual arousal, desire, and orgasm across different contexts. Specifically, higher scores on sexual sensation seeking is associated with an experience of sexual arousal and desire that is more evaluative, physiological, and motivational. This extends to both their general experience of sexual arousal and desire, and when they engage in their preferred BDSM sexual practice. Furthermore, high sensation seeking BDSM practitioners will experience their orgasms in a more sensory manner across sexual contexts compared to low sensation seekers. They will also experience their orgasm in a more cognitive-affective way in the context of a BDSM sexual experience. Similarly, other researchers have demonstrated differences in the physiological responses of high versus low sensation seekers. Specifically, research on heart rate (Orlebeke & Feij, 1979; Robinson & Zahn, 1983; Zuckerman, 1971; Zuckerman, Buchsbaum, & Murphy, 1980; Zuckerman, Simons, & Como, 1988), skin-conductance (Feij, Orlebeke, Gazendam, & van Zuilen, 1985; Neary & Zuckerman, 1976; Robinson & Zahn, 1983; Smith, Perlstein, Davidson, & Michaels, 1986; Stelmack, Plouffe, & Falkenberg, 1983), cortical reaction (Brocke, Beauducel, John, Debener, & Heilemann, 2000; Orlebeke, Kok, & Zeillemaker 1989; Zuckerman et al., 1988), stress response (i.e., cortisol secretion; Roberti, 2004) and brain activation (Joseph, Liu, Jiang, Lynam, & Kelly, 2009) suggest

that high sensation seekers' psychophysiological experience is different from low sensation seekers. Taken together, these findings suggest the existence of psychophysiological phenomenon underlying sensation seeking, which may produce a differential experience of sexual arousal, desire, and orgasm in the present sample of BDSM practitioners.

Future Studies and Conclusion

There are a number of limitations associated with the present study. Firstly, results relied on the use of self-reported measures. Recalling and describing one's experience of sexual arousal, desire, and orgasm days after an experience occurred might not be as accurate as describing it directly following the experience (Mah & Binik, 2002). Secondly, results are limited by the semantical interpretation of adjectives used in the questionnaires (e.g., SADI or ORS) and what participants believe their experience should be like (Mah & Binik, 2002). Thirdly, the present study is limited by its correlational nature that prevents inference of causality (Kline, 2009). Lastly, all participants reported engaging in some form of BDSM practice which prevented the comparison with a control group that never experienced BDSM. Future studies should incorporate a proper control group that will enable better comparison of the experience of sexual arousal, desire, and orgasm between BDSM and non-BDSM practitioners. Additionally, future investigations should aim to investigate the relationship between sensation seeking, sexual arousal and desire, and the development of sexual preferences using combined psychophysiological, subjective, and cognitive measures, such as eye-tracking, fMRI/PET-scan, and genital thermography. This type of research could provide evidence for perceptual differences between individuals with distinct sexual preferences, which could further our understanding of why some individuals explore BDSM and how they experience it. Finally, it will contribute to the development of new objective measures to assess the complexity of the human sexual responses.

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Using Group Identity and Norms to Explain Prosocial Behaviours in Anonymous Online Environments

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Social media usage has significantly increased in recent years and continues to grow. Thus, it is important to investigate the behaviours that occur on social media in order to enhance our understanding of how individuals interact in these online environments. The present studies explored the occurrence and the type of prosocial online supportive behaviours on anonymous geographically based social media (i.e., *Yik Yak*) and examined how a social identity approach could help understand the occurrence of these prosocial behaviours. The first study explored whether prosocial behaviours occurred on the *Yik Yak* platform. Results of this study revealed use of this social media platform to provide and receive support. It also extended the findings by examining the types of issues and social support involved. The second study examined self-reported use of the anonymous social media platform to seek and to provide support. Results supported the use of the platform for prosocial behaviours and revealed group identification and norms as moderators.

Keywords: anonymity, group identity, groups norms, social media, social support

L'utilisation des réseaux sociaux a augmenté considérablement pendant les dernières années et continue de croître. Il est donc important d'investiguer les comportements survenant sur les réseaux sociaux afin de mieux comprendre comment les individus interagissent dans ces cyberespaces. Les présentes études ont exploré l'occurrence et le type de comportements prosociaux de soutien sur des réseaux sociaux anonymes géolocalisateurs (p. ex., *Yik Yak*) et ont examiné comment une approche axée sur l'identité sociale pouvait aider à comprendre la survenue de comportements prosociaux. La première étude a exploré si des comportements prosociaux survenait sur la plate-forme *Yik Yak*. Les résultats ont révélé que cette plate-forme est utilisée pour offrir et recevoir du soutien. L'étude étend ses résultats en examinant les types de problèmes et de soutien social impliqués. La deuxième étude a examiné l'utilisation auto-rapportée de la plate-forme pour rechercher et offrir du soutien. Les résultats ont appuyé l'utilisation de la plateforme pour les comportements prosociaux et ont identifié deux modérateurs : l'identification des groupes et les normes.

Mots-clés : anonymat, identité de groupe, normes de groupes, réseaux sociaux, soutien social

The use of social media has significantly increased among teenagers (73%), young adults (72%) and adults (40%; Lenhart, Purcell, Smith, & Zickuhr, 2010). As usage rates continue to grow (Asur, Huberman, Szabo, & Wang, 2011), it is important to expand current social psychology research in order to fully understand social interaction in online environments. One important characteristic of some social media sites and apps is the ability to hide your identity and be anonymous (Kang, Brown, & Kiesler, 2013). The nature of anonymity has been studied extensively both online and offline (e.g., McKenna & Bargh, 2000; Zimbardo, 1969) and its effect on users' behaviours has important implications for understanding online social interactions. Anonymity has traditionally been thought to be more likely to promote negative behaviours, especially in online social interactions (e.g., lack of accountability enables personal attacks, threats, and rumors; Almuhimedi, Wilson, Liu, Sadeh, & Acquisti, 2013). Less research has been done on the positive aspects of anonymity in online behaviours (McKenna & Bargh, 2000). Among existing studies, there is some evidence of prosocial behaviours where users provide their peers with social support (De Choudhury & De, 2014), yet there is a lack of explanation as to why anonymity would influence this type of positive behaviours as part of online social interactions. Thus, the overarching aim of the present study is to explore the occurrence of prosocial interactions on anonymous social media and the group processes that may influence them. The construct of anonymity has attracted significant research attention in the field of social psychology. Anonymity is traditionally conceptualized as the state of being unidentifiable to others (Pfitzmann & Köhntopp, 2001). Social psychology research has long established that anonymity strongly influences behaviours. Specifically, a wide range of studies have

looked at how anonymity can influence behaviours at both an individual level (e.g., it can increase aggressive behaviours; Zimbardo, 1969) and at group level (e.g., bystander apathy; Darley & Latané, 1968). Social psychologists have also studied the impact of anonymity in online social environments, especially with the rapid increase of internet use in the past decade. One of the main uses for the Internet is interpersonal communication (Kraut, Mukhopadhyay, Szczypula, Keisler, & Scherlis, 1999), which is commonly referred to as computer-mediated communication (CMC). Anonymity is a major component in CMC due to the ability for individuals to conceal their identity from others if they wish to do so.

Anonymity and its Influence on Social Behaviours

In recent years, an exponential trend in anonymity-seeking behaviours has been observed on the Internet, specifically on online social media (Stutzman, Gross, & Acquisti, 2013). Users who seek full anonymity have access to a variety of anonymous social media apps and sites such as *Whisper* and *4chan*. Unlike traditional social media sites such as *Facebook* and *Twitter*, users of anonymous social media sites are able to post content without creating a profile or having to share any personal information. Reasons why individuals tend to seek anonymity on the Internet include: being able to freely express themselves, maintain control over personal information disclosure and over personal image, and to avoid embarrassment, judgment, and criticism (Kang et al., 2013). A study by Zhang and Kizilcec (2014) found that when given the option, users were more likely to post anonymously on social media, especially for controversial content. With the ever-growing popularity and adoption of these sites comes a greater need for understanding what kind of behaviours occurs in these anonymous settings.

A common theme among studies on anonymity and online behaviours is the disinhibition effect. According to Suler (2004), anonymity decreases users' inhibitions, which can lead to inflammatory behaviours, such as rude or hateful language and illegal or harmful acts (i.e., toxic disinhibition). This negative deindividuating effect of anonymous online communication has been one of the most discussed aspect of CMC (McKenna & Bargh, 2000). For example, Bernstein and colleagues (2011) found content posted on *4chan*, an anonymous discussion board, was frequently offensive and given to antisocial behaviours. Another study by Wang and colleagues (2014) on an anonymous social media site called *Whisper* ran a content analysis on deleted posts and found that the majority of posts contained abusive content such as nudity, pornography, and sexually

explicit messages. Evidence of the negative effects of online anonymity further extend to social interactions. For example, Whittaker and Kowalski (2015) examined cyberbullying via social media and found that aggressive behaviours occurred more frequently on anonymous forums than on *Facebook*.

Alternatively, Suler (2004) theorized that the online disinhibition effect can also lead to increased self-disclosure and prosocial behaviours (i.e., benign disinhibition). Self-disclosure can be conceptualized as revealing personal information to others, while prosocial behaviours are positive interpersonal interactions (e.g., giving advice or comfort; Lapidot-Lefler & Barak, 2015). Self-disclosure and prosocial behaviours are frequently found among online anonymous discussion boards, such as discussion boards for individuals with irritable bowel syndrome (Coulson, 2005) and eating disorders (Eichhorn, 2008). Researchers looking at mental health discourse on *Reddit*, a highly popular social media site, found that a considerable amount of mental health discourse and certain types of disclosure received greater social support (De Choudhury & De, 2014). Specifically, they observed that anonymous posts received more frequent, high quality feedback that provided different types of social support (e.g., emotional, instrumental, and informational support) than non-anonymous posts. Even on *4chan*, a platform on which posts are found to be frequently offensive, Bernstein and colleagues (2011) note that posts asking for advice are quite common as well and promote intimate and open conversations. In sum, Suler's (2004) theory that the online disinhibition effect can lead to contradicting results in online environments (i.e., antisocial behaviours, prosocial behaviours) has been observed in various subsequent studies.

Previous research supports the effect of anonymity on increasing self-disclosure in CMC (e.g., Joinson, 2001), and has also explained why individuals use anonymous social media for self-disclosure (i.e., allows them to express themselves freely while avoiding judgment and criticism; Kang et al., 2013). However, the literature does not clearly document whether anonymity encourages individuals to provide support to their self-disclosing peers. To address this gap in the literature, the present study aims to explore the occurrence of prosocial behaviours (i.e., social support) in an anonymous online environment. Previous studies have been unable to find significant evidence to support that anonymity encourages online prosocial behaviours (e.g., Lapidot-Lefler & Barak, 2015). This lack of sufficient evidence highlights the need to further explore whether there are prosocial behaviours happening in online settings. Thus, the present studies look at whether individuals used

anonymous social media platforms to provide and receive social support.

Another important gap in the literature that needs to be addressed is how anonymity influences individuals to provide constructive and positive feedback to their peers in online settings. A study by Wodzicki, Schwämmlein, Cress, and Kimmerle (2011) speculated that the effect of anonymity on prosocial behaviours may be moderated by other factors, including group processes and the purpose of the participation. Further investigation is needed in order to examine what factors may motivate online prosocial behaviours. Thus, the present study also aimed to examine what factors may influence individuals to provide their anonymous peers with social support. Specifically, drawing on the speculations of Wodzicki and colleagues (2011), we focused on a group-based approach to examine the determinants of prosocial online behaviours on anonymous social media.

Social Identity Model of Deindividuation Effects (SIDE)

A theoretical framework that is commonly used to explain behaviours in CMC environments, that focuses on group processes and that may help to better understand the effect of anonymity on prosocial behaviours is the Social Identity Model of Deindividuation Effects (SIDE; Reicher, Spears, & Postmes, 1995). SIDE theory proposes that anonymity can induce both negative and positive effects in CMC depending on the specific conditions of a social situation. Specifically, when an individual defines themselves as a member of a group, then anonymity will enhance group salience and in turn, group influence (Postmes, Spears, Sakhel, & De Groot, 2001; Reicher et al., 1995). For example, a study by Coffey and Woolworth (2004) investigated an online discussion board created following a local murder for the community to voice their concerns and encouraged a positive dialogue to overcome the tragedy. However, the anonymous forum was filled with angry, hateful, and racist posts. In comparison, the community also held a town meeting as another way for citizens to voice their concerns, yet there were no vengeful statements made. This finding implies that if antisocial behaviours are the group norm (i.e., implicit rules of what are acceptable behaviours and attitudes of group members), then antisocial behaviours will occur in anonymous CMC.

Based on SIDE theory, it is likely that the presence of prosocial behaviours on anonymous social media is due to the salience of a user's group identity and will be influenced by the group norm. Thus, we hypothesized that if an individual has a high level of group identification (i.e., the degree to which one identifies as a member of a group), and prosocial behaviours are perceived as the group norm, then individuals are more likely to provide their peers with social support on anonymous social media platforms. This proposal may help us understand, for example, why a notoriously offensive forum such as *4chan* has the potential for encouraging prosocial behaviours, as seen in the advice and discussion threads where users provide their peers with social support.

Overview

We investigated how anonymity may be linked to prosocial behaviours in an online environment among individuals in the same social network. Specifically, the social media platform we chose to observe online behaviours was *Yik Yak*. *Yik Yak* was an anonymous location-based social media app that allowed users to post and view messages called "yaks" within a 1.5 mile radius of the poster's location. The restricted radius made discussions more intimate and relevant for users because it limits access to those within specific communities, such as university campuses. It thus allowed users to interact with their fellow community group members, albeit anonymously. As such, it provided a unique opportunity to examine the role of group membership on CMC. Users had the option to generate discussion by replying to yaks on their feed, as well as "upvote" or "downvote" them. Previous research on *Yik Yak* has found the app to be an efficient method for students to communicate with their fellow peers, as many posts were highly context specific and reflected perceived campus norms (Black, Mezzina, & Thompson, 2016). Focusing on the *Yik Yak* platform, we examined the following research questions: (1) Do university students ask their community group peers for social support on anonymous social media? (2) Do university students receive social support from their community group peers on anonymous social media? and (3) Do university students receive antisocial responses from their community group peers on anonymous social media?

We examined these questions as part of two studies. The first study explored whether prosocial behaviours occurred on the *Yik Yak* platform. Specifically, we explored whether individuals used the platform to seek social support, if social support was provided, and if antisocial online behaviours occurred on the platform. In addition, we also explored the specific types of social support asked for and received via the online platform. The second study examined self-reported use of the *Yik Yak* platform in order to (1) confirm the occurrence of prosocial behaviours, and (2) examine group processes that may influence why individuals provide their online peers with social

support on an anonymous social media platform. Specifically, we examined the role of group identification and perceived group norms as moderators for *Yik Yak* usage. We also examined the type of responses people recalled receiving to their posted questions, including prosocial and antisocial ones.

Study 1

The purpose of Study 1 was to explore whether prosocial behaviours occurred on *Yik Yak* and, if they did, what type of supportive behaviours occurred. Specifically, we explored individual posts to determine whether the platform was used to seek social support, if social support was provided, and if antisocial online behaviours were observed. Furthermore, we explored what kind of support was requested and received and what type of question themes arose.

Method

Data collection. To capture prosocial behaviours on *Yik Yak*, we collected yaks (i.e., individual posts shared on *Yik Yak*) that specifically asked a question. We created a sampling schedule to capture yaks on 15 randomly-selected days from November 2015 to January 2016. On each sampling day, we collected yaks four times a day: morning (i.e., 7:00-11:00am), afternoon (i.e., 12:00-5:00pm), evening (i.e., 6:00-11:00pm), and night (i.e., 12:00-6:00am), based on a randomly selected time in each block. During each sampling time, three types of yaks were collected: the most recent ones that appeared on the feed, the first question that appeared, and the question with the most replies. We collected these yaks by taking screenshots of the *Yik Yak* post and their replies on the identified sampling days and times. In total, we collected 307 yaks. The final sample consisted of 150 questions, with number of replies per post ranging from 0 to 74.

Coding scheme.

Questions. After randomly sampling and collecting the yaks, a coding scheme was developed to identify what type of support students were requesting (see Table A for types of support coding scheme), as well as what kind of questions they asked (see Table B for questions content coding scheme). The categories for social support (i.e., resources or assistance available through one's social network; Cohen & Hoberman, 1983) were based on Gottlieb's (1978) four types of support: informational, emotional, instrumental and appraisal. Seventeen categories were created to code what students asked their peers on *Yik Yak*. Finally, we also coded the time of day and date that the yak was posted, as well as how many votes and replies each yak received at the time of the collection.

Replies. In addition to questions, we also collected the replies to those questions and created a coding scheme to reflect whether support was actually provided (see Table C for support provided coding scheme), as well as the type of support (see Table D for types of support coding scheme). The types of support coding scheme for replies also used Gottlieb's (1978) category of social support. In the "support provided" coding scheme, we included a category for "troll" to keep track of antisocial behaviours. A troll is defined as a respondent who deliberately posts opinions and comments to start an argument or to stir up emotion for no apparent purpose (Buckels, Trapnell, & Paulhus, 2014).

Coding process. Three researchers used the coding schemes discussed above to code all posts collected on *Yik Yak*. The first two researchers' coding was compared and any discrepancies were resolved using the third researcher's coding. Specifically, 70% of the posts were coded the same by the two researchers, and the remaining 30% that was not coded the same was determined by the third researcher.

Results

The overall goal of this study was to explore whether anonymity promotes actual prosocial behaviours on *Yik Yak* among university students. Specifically, we were interested in whether students (1) requested social support from their community group peers, (2) received social support from their peers, and (3) received antisocial responses from their peers. We also examined what types of supportive behaviours occurred. The yaks we collected were transcribed, coded, and then analyzed.

Requesting social support. Out of a total of 307 collected posts, 150 were questions (48.9%). Each of the 150 questions (yaks) were coded for type of support and question content. Table 1 features frequency data associated with types of support, where more than half ($n = 79$; 52.7%) of students on *Yik Yak* were seeking informational support (i.e., advice, guidance, suggestions). Also frequent were questions seeking emotional support ($n = 25$; 16.7%; i.e., seeking comfort, reassurance, and affection) and

Table 1

Frequency of Types of Support Posts

Support types	Frequency (%)
Informational	52.7
Emotional	16.7
Instrumental	14.7
Appraisal	11.3
Rhetorical	4.7

Table 2

Frequency of Question Content Posts

Question content	Frequency (%)
Course-related	20.7
Campus resources	12.7
Seeking connection	10.0
Pursuing	9.3
Hooking up	8.7
Entertainment, activities, food	6.7
Other	6.7
Relationships	5.3
Gym/health	4.7
City of Guelph	3.3
Living situation	2.7
Friends	2.0
Mental health	2.0
Technology	2.0
Alcohol/substance-use	1.3
Family	1.3
"What should I do?"	0.7

instrumental support (n = 22; 14.7%; i.e., providing assistance in money, labour, or time). Table 2 features frequency data for the types of questions students were asking on *Yik Yak*. The top five most reoccurring topics were course-related (n = 31; 20.7%), campus resources (n = 19; 12.7%), seeking connection (n = 15; 10%), pursuing (n = 14; 9.3%) and hooking up (n = 13; 8.7%). Table 3 features both types of support and question content codes in a cross-tabular format. We found that students seeking informational support commonly asked about course-related (n = 25; 31.6%), campus resources (n = 19; 24.1%), and entertainment, activities, food (n = 7; 8.86%). Students seeking emotional support frequently inquired about pursuing (n = 8; 32%), relationships (n = 6; 24%), and hooking up (n = 4; 16%). Students seeking instrumental support asked about seeking connections (n = 13; 59.1%), hooking up (n = 4; 18.18%), and alcohol/drug use (n = 2; 9.1%). Lastly, students looking for appraisal support commonly asked questions that were course-related (n = 5; 29.4%), hooking up (n = 2; 11.76%), and entertainment, activities, food (n = 2; 11.76%).

Receiving social support. The 150 questions we analyzed received a total of 1335 replies. Out of total replies, 229 provided informational support (17%), 39 provided emotional support (2.92%), 32 provided

Table 3

Cross-Tabulation of Type of Support and Question Content Posts

	Informational	Emotional	Instrumental	Appraisal	Rhetorical	Total
Course-related	25[a]	0	1	5[a]	0	31
Campus resources	19[b]	0	0	0	0	19
Seeking connection	0	0	13[a]	1	1	15
Pursuing	5	8[c]	0	1	0	14
Hooking up	3	4[b]	4[b]	2	0	13
Entertainment, activities, food	7[b]	0	1	2	0	10
Other	2	0	1	3	4[c]	10
Relationships	2	6[b]	0	0	0	8
Gym/health	3[b]	2	0	1	1	7
City of Guelph	5[b]	0	0	0	0	5
Living situation	2[b]	0	0	1	1	4
Friends	0	3[b]	0	0	0	3
Mental health	0	2	0	1	0	3
Technology	3[b]	0	0	0	0	3
Alcohol/substance-use	0	0	2[b]	0	0	2
Family	2[b]	0	0	0	0	2
"What should I do?"	1[b]	0	0	0	0	1
Total	79	25	22	17	7	150

Note. [a] Highest number of posts in support category; [b] Highest number of posts in question content category; [c] Highest number of posts in both support and question content categories.

Table 4

Troll Comments

Post content	Troll comments (%)	Support type	Question content
How does one go about getting rebound sex??	.35	Informational	Hooking up
When it's just you and a cute girl on the bus…. How do I not make this awkward?	.25	Emotional	Pursuing
I want honest opinions, I'm a 6'10 guy, is that too tall to be considered attractive?	.24	Emotional	Pursuing
Why can't we live in a world where we can develop our own cultures. Why is it that I can't live in my own ethnic community without seeing someone that's not part of it want to join in?	.24	Rhetorical questions	Other
Why is that I feel something inside me when my friend told me that she's looking for a hookup / or relationship?	.17	Emotional	Friends
Best place on campus to meet great girls?	.16	Informational	Pursuing
How do I stop hating that my boyfriend has/makes female friends?	.14	Emotional	Relationships
Can't stop thinking about the girls my boyfriend hooked up with while we were broken up, any tips from ppl with similar experiences?	.13	Emotional	Relationships
Gift ideas for gf? 200 budget. Thanksy'all	.13	Informational	Relationships
Any good shows that have individual story lines for each episode? An overarching story over the season is ok, but one story per episode is more important to me	.13	Informational	Entertainment, activities, food
What happens if you miss a seminar?	.13	Informational	Course-related
Looking forward to going home, except I have to take the train which cause me to have panic attacks. Any tips?	.11	Emotional	Mental health
If a girl used to like you/love you but you didnt realize at the time and now shes having a hard time believing you and doesnt know what she wants but still hooks up with you WHAT DOES IT MEAN :'(	.09	Emotional	Relationships
My friend that is in 5th year is ALWAYS with his gf and I never hang out anymore. What can I do to make him realize it's not healthy to be together 24/7	.07	Emotional	Friends
How much would it cost to adopt/buy a cat?	.07	Informational	City of Guelph
Real talk anyone just wanna chat? About anything. Drop a topic and have a discussion, I'm up for it. No negativity though, all good vibes.	.06	Instrumental	Seeking connection
Every time I fuck a girl she says it hurts her. What can I do?	.06	Emotional	Hooking up
Do Asian boys like white girls? I notice that most seem to stay interracial.. Am I out of luck??	.05	Emotional	Pursuing
SOS I'm a girl, just masturbated for the first time. As I started to climax, I… peed a bit. I cleaned myself up, weirded out. I started again & as I got myself off I peed AGAIN. Why? Is that normal?	.05	Emotional	Hooking up
Am I supposed to just leave it? (picture of spilled coffee)	.04	Informational	Advice
What year were you born in?	.04	Informational	Other
So, imagine that 2 girls have the same personality. Girl A is amazing in bed but not very pretty. Girl B is pretty but terrible in bed. Which would you date?	.04	Informational	Hooking up
Girls who are dtf???	.03	Instrumental	Hooking up
I been going to the gym for 3 months now and im noticing improvements on how much i can lift but cant really noticed any changed in my arms, should i be using protein powder cuzi don't	.03	Informational	Gym/health

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instrumental support (2.4%), and 210 provided appraisal support (15.73%).

Antisocial responses. Out of the 1335 replies we analyzed, approximately 5% ($n = 70$) were categorized as troll comments. Out of the 150 posts, 24 received at least one troll reply (16%). Table 4 displays these posts. The highest percentage of troll replies a post received was 35% ("How does one go about getting rebound sex??"). The type of support posts that got the most troll comments were emotional support ($n = 11$; 45.8%) and informational support ($n = 10$; 41.7%). The type of questions that got the most troll comments was hooking up ($n = 5$; 20.8%), pursuing ($n = 4$; 16.7%), and relationships ($n = 4$; 16.7%).

Discussion

The results of Study 1 provide evidence of prosocial behaviours occurring on an anonymous social media platform. Specifically, we found that university students used *Yik Yak* to seek social support from their community group peers by posting questions, and also to provide support to their peers by replying to their posts. Furthermore, the occurrence of antisocial troll behaviours was very low in comparison to the number of prosocial responses. Secondly, we were able to explore what kind of support students were requesting and the common themes of the questions asked. We found that students requested informational support (i.e., advice, guidance, suggestions) the most, specifically about courses and campus resources. The next most frequently requested type of support was emotional support; we found that students tend to request emotional support when inquiring about romantically pursuing someone, relationships, and hooking up.

Study 2

The purpose of Study 2 was to provide further support for the occurrence of online prosocial behaviours on anonymous geographically based social media (i.e., *Yik Yak*) and to examine the influence of group identification and group norms on these prosocial online behaviours.

Method

Participants. One hundred and twenty-nine university students completed a survey focusing on various aspects of student life, including measures of group identification, perceived group norms about online social interactions and online behaviours, in exchange for course credit. Participants were recruited using convenience sampling from a participant pool and through advertisements on campus. Participants recruited from the participant pool received course credits as compensation, while those recruited through

on campus advertisements received monetary compensation.

Materials and procedure.

Group identification. Identification was assessed using the Cameron (2004) measure of identification. The measure consists of fifteen items, rated on a five-point Likert scale ranging from 1 "*strongly disagree*" to 5 "*strongly agree*". A sample item is "*I have a lot in common with other students at the University of Guelph*". Items were combined by averaging across all items ($\alpha = .92$); greater values indicate greater degree of group identification.

Perceived group norms. The measure consists of four items that focused on group norms about online behaviours. Items were assessed using a five-point Likert scale from 1 "*strongly disagree*" to 5 "*strongly agree*". A sample item is "*The majority of University of Guelph students would provide constructive advice to an online question made from the campus.*". Items were combined by averaging across all items ($\alpha = .81$); greater values indicate greater support for online prosocial behaviours.

Behaviours on Yik Yak platform. Participants were asked a serie of questions about their usage of the *Yik Yak* platform within the campus boundaries. Participants were asked if they had the *Yik Yak* app on their phone; if they had ever posted a genuine question on the platform while geographically on campus; if the question received replies; if the replies answered the question. Participants were also asked if they had replied to someone else's question while they were on campus and if the reply they provided was intended to offer support to the user who posted the question.

Results

Types of online behaviours. Of the 129 participants, 63 (49%) did not have the *Yik Yak* app on their phone, while 66 did (51%). Of the participants who had the *Yik Yak* app on their phone, 29 (44%) had never posted a question or a reply on the platform. Twenty-four (36%) had posted both replies and questions, 5 (8%) had only posted a question, and 8 (12%) had only posted replies.

A total of 29 participants had posted a question on the platform. Of these, 22 (75.9%) received responses. Of these, 14 (63.6%) were classified as having received support, 6 (27.2%) were classified as having received the support directly requested and 2 (9.1%) were coded as offensive, demeaning or hurtful. Supporting the hypothesis that community peer ingroups provide social support via online platform, even if anonymous, more support responses were

reported than antisocial ones (i.e., offensive, demeaning or hurtful), $c^2(1) = 11.56$, $p = .001$.

Group identification and norms. A series of logistic regressions were conducted to examine the relationship between group identification, norms and usage of the platform. Group identification and norms were centered at their respective means.

The first regression examined whether or not participants had the app on their phone. The overall regression accounted for a significant amount of variance, $\chi^2(3) = 15.75$, $p = .001$. Examination of the regression revealed that identification was significantly related to ownership of the app $b = .57$, Wald $z = 7.71$, $p = .006$, that norms were not significantly related to ownership of the app, $b = .32$, Wald $z = 2.65$, $p = .104$, and that the interaction of identification and norms was not significantly related to ownership of the app, $b = .26$, Wald $z = 1.30$, $p = .254$.

The second regression examined whether or not participants had posted questions on the platform while on campus. The overall regression accounted for a significant amount of variance, $\chi^2(3) = 28.81$, $p < .001$. Examination of the regression revealed that identification was not significantly related to having posted questions, $b = .72$, Wald $z = 3.76$, $p = .053$, that norms were significantly related to having posted questions on the platform, $b = .81$, Wald $z = 7.09$, $p = .008$, and that these main effects were qualified by the interaction of identification and norms, $b = .81$, Wald $z = 4.55$, $p = .033$. The interaction was examined using simple slopes by degree of group identification (i.e., +1SD vs. -1SD; see Aiken & West, 1991). Supporting the hypothesis of the SIDE model, at high degrees of group identification, norms significantly increased the likelihood of having posted a question on the platform, $b = 1.62$, Wald $z = 13.98$, $p < .001$. However, at low degrees of group identification, norms were not significantly related to the likelihood of having posted a question on the platform, $b = .01$, Wald $z = .01$, $p = .992$.

The third regression examined whether or not participants had posted a reply to answer a question on the platform while on campus. The overall regression accounted for a significant amount of variance, $\chi^2(3) = 24.86$, $p < .001$. Examination of the regression revealed that identification was not significantly related to having posted replies, $b = .61$, Wald $z = 3.24$, $p = .072$, that norms were significantly related to having posted replies on the platform, $b = .76$, Wald $z = 6.97$, $p = .008$, and that these main effects were qualified by the interaction of identification and norms, $b = .74$, Wald $z = 4.47$, $p = .034$. The interaction was examined using simple

slopes by degree of group identification. At high degrees of group identification, norms significantly increased the likelihood of having posted a reply to a question on the platform, $b = 1.49$, Wald $z = 13.05$, $p < .001$. However, at low degrees of group identification, norms were not significantly related to the likelihood of having posted a reply to a question on the platform, $b = .02$, Wald $z = .01$, $p = .962$.

Discussion

Study 2 accomplished two main objectives. First, the results of Study 2 provided further support for the occurrence of prosocial behaviours on the *Yik Yak* platform through self-report data. We found that university students used *Yik Yak* to seek social support from their community group peers by posting questions on the app. Furthermore, students were successful in receiving support from their peers and reported having received more support responses than antisocial ones (i.e., offensive, demeaning, or hurtful replies).

Second, the results of study 2 help understand under which conditions anonymity may influence individuals to provide their online peers with social support by exploring factors that might promote this behaviour. Specifically, we examined the relationship between group identification, norms, and usage of the platform. We found that degree of identification predicted having *Yik Yak* downloaded on their phone. We also found that norms alone were not a predictor of *Yik Yak* usage. More importantly, the interaction of perceived group norms and group identification was a significant predictor of the type of usage; when students identified highly with their community group peers, norms significantly increased the likelihood of having posted a question on *Yik Yak* and posting a reply to a question on *Yik Yak* while on campus.

A potential explanation for these findings could be due to the anonymity feature of the *Yik Yak* platform. Indeed, according to SIDE theory, anonymity increases the degree to which an individual identifies as a member of a group and this individual will likely be more influenced by group norms (Postmes et al., 2001; Reicher et al., 1995). As suggested by the results of our studies, it is the norm for students to provide support (or prosocial responses) to their community group peers who request support on *Yik Yak*. Thus, students may be influenced by the group norm to provide prosocial responses on *Yik Yak* due to their salient group identity and the anonymous environment. Furthermore, group identification alone does not predict prosocial responses on *Yik Yak*; prosocial group norm in combination with a salient group identity is required to predict prosocial behaviours. Overall, our results provide converging support that anonymity in an online environment can

promote prosocial behaviours as long as the group identity is salient and the norm is prosocial interaction.

General Discussion

Traditionally, anonymity has been thought to promote negative behaviours in social interactions. However, according to the SIDE theory, anonymity could actually induce both negative and positive behaviours depending on the salience of group identity and norms (Postmes et al., 2001; Reicher et al., 1995). We wanted to explore occurrences of positive prosocial supportive behaviours in an online, anonymous environment, and examine if the SIDE framework could help us understand the occurrence of these prosocial behaviours on anonymous social media. Herein, we examined how anonymity promotes prosocial behaviours, focusing on social support, in an online environment among individuals in the same social network. Specifically, we used *Yik Yak* as our anonymous social media platform to determine whether university students asked their community group peers for social support, if they received social support from their community group peers, and if they received antisocial responses from their community group peers. To explore our research questions, we conducted two studies: an observational study sampling posts made on the *Yik Yak* platform (Study 1) and a correlational study focusing on self-reported *Yik Yak* usage (Study 2).

In Study 1, we observed posts both requesting and receiving social support, with a minimal amount of antisocial troll behaviours (i.e., replies posted to start an argument or to stir up emotion for no reason). Furthermore, we found that more than half of the questions requested informational support (i.e., advice, guidance, suggestions) and majority of the questions were university-related (i.e., course-related, campus resources). In Study 2, we found further evidence to support our conclusions from Study 1. Specifically, we found that university students asked their community group peers questions and received prosocial responses to their questions on *Yik Yak*. We also found that individuals self-reported receiving more prosocial responses than antisocial responses. Our results further suggest that group identification and norms predict whether a student interacted with their peers on *Yik Yak*. Specifically, when university students identified highly with their community group peers, norms increased the likelihood of having posted a question and replying to a question on *Yik Yak* while on campus.

Our findings provide converging evidence to help us answer our research questions. Firstly, both Study 1 and Study 2 demonstrate that university students used the anonymous social media platform to ask their community group peers for social support via questions. Secondly, students also received responses from their peers: in Study 1, we observed that questions posted on *Yik Yak* received supportive replies; in Study 2, students reported having received support from their peers. Finally, both studies show that antisocial behaviours is minimal on posts that request social support.

Most importantly, the results of our studies taken together contribute to our understanding of why prosocial behaviours occur in anonymous online environments. Using SIDE theory (Reicher et al., 1995) as our theoretical framework, we speculated that group identity and norms would explain why individuals provide their anonymous peers with social support. As predicted, we found that when students identified highly with their community group peers, group norms significantly increased the likelihood of requesting social support, as well as providing social support on *Yik Yak*. This finding helps us to further understand the factors that influence whether positive behaviours will occur in CMC environments. Specifically, we can predict that prosocial group norms and a salient group identity will most likely lead to prosocial behaviours in anonymous online settings.

Implications

Our findings have important implications for understanding what kind of behaviours occur in anonymous online settings. Anonymity has traditionally been thought to promote antisocial behaviours in CMC, yet research has also documented occasions in which prosocial behaviours occur instead. However, there has been a lack of explanation as to why anonymity would influence this type of positive behaviours in settings that have traditionally promoted negative interactions. Our results demonstrate the circumstances under which prosocial behaviours occur. With the ever-growing use of social networking sites (Asur et al., 2011), it is important to understand what variables may affect the type of behaviours that occur in online settings. For example, this information can be used to help reduce occurrences of negative behaviours such as cyberbullying. Furthermore, understanding how to promote prosocial behaviours online could help us take advantage of the positive aspects of anonymous social networks (e.g., being able to freely express themselves, avoid judgment; Kang et al., 2013) while controlling for harmful antisocial behaviours.

Our findings also have some important implications for supporting university students. Specifically, we found that the majority of the questions requested informational support about course-related topics and campus resources. Although *Yik Yak* is no longer in service, it served as a useful

tool for connecting students with their fellow peers on campus and provided an anonymous environment where students felt comfortable obtaining and providing social support on topics related to university life. Social media designers planning on designing an app similar to *Yik Yak* should keep in mind the role that group identification and norms play in anonymous online communication in order to develop an app that can help university students support each other anonymously while minimizing potential antisocial behaviours.

Limitations

There are several methodological limitations that should be considered when interpreting the results. First, given the nature of the research question (i.e., we were looking at anonymous online social behaviours), we were unable to link specific online posts to specific individuals. Thus, the best option for us was to take advantage of *Yik Yak* 1.5 mile geographic radius and examine posts on campus. However, there is no guarantee that all posters were students which may affect the results of our study. Another limitation to consider is that the prevalence of antisocial behaviours documented in our studies may not be entirely reflective of actual rates of these behaviours online. Specifically, *Yik Yak* had a feature that allows users to upvote or downvote any posts and replies. Any posts that receive 5 downvotes got removed and were thus not available for our documentation. Furthermore, users could flag postings that are racist, homophobic, or generally abusive in order to get them removed. Thus, it is possible that there may be more antisocial responses submitted to the system than those observed by our examination of the posts available to be seen on the platform. Lastly, our sample size was fairly small; a larger sample size would greatly benefit future research, as it will allow for a stronger comparison of levels of group identification and group norms.

Future Directions

Future research should continue to explore the variables that promote prosocial behaviours in online anonymous settings. Specifically, extending our study to use a different social networking platform or population sample could provide further insight on how group identification and norms influence prosocial behaviours. For example, can this relationship be found on general discussion boards such as *reddit* and *4chan*? Or is it only limited to smaller community forums such as mental health support groups? Increasing our understanding of how to encourage prosocial behaviours across different platforms and populations can help in the future development of anonymous social media where users will be able to experience the advantages of using

anonymous social networks (e.g., able to freely self-disclose and get support from peers without judgment) while minimizing negative behaviours.

It should also be noted that the *Yik Yak* platform was shut down during summer 2017 (CBC News, 2017). Other platforms, however, still continue to offer location-based geographical proximity postings (e.g., *Nearby*). Future research may wish to replicate our findings on these other platforms.

Conclusion

Anonymity and socially dysfunctional behaviours, such as aggressive behaviours, have a long history in social psychology. The present study aimed to explore the presence of online prosocial behaviours on anonymous geographically based social media (i.e., *Yik Yak*) and to examine whether such behaviours could be explained using a theory focusing on group processes. Results of the study suggest that online prosocial behaviours can occur, even under conditions of anonymity. Moreover, our results suggest that identity and norms derived from social groups can help explain why people would engage in prosocial behaviours. In sum, the results of the present study offer some hope for positive contributions of anonymous social media platforms.

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APPENDIX

Table A

Type of Support (Questions) Coding Scheme

Type of Support	Description	Example
Informational*	Suggestion, directives, information	"What time do places on campus stop serving breakfast?" "SOS how do u unmatch on tinder!?"
Emotional*	Esteem, affect, trust, concern, listening, personal	"how do I stop hating that my boyfriend has/makes female friends?"
	Seeking to be reassured, to improve self-esteem	"Looking forward to going home, except I have to take the train which cause me to have panic attacks. Any tips?" "Is an 18 yr old girl hooking up with a 24yr old guy weird?"
	Advice	"I've been there before"
Instrumental*	Aid in kind, money, labor, time, modifying environment	"Real talk anyone just wanna chat? About anything…" "Does anyone have that I can grab off of? Urgent"
	Helping behaviours	
Appraisal*	Affirmation, feedback, social comparison	"Who else is screwed for this stat*2040 exam?" "Did anyone else find the first question hard on that econ midterm? Or am I just that stupid…"
Rhetorical questions	Not expecting a response	"What happened to people respecting the quiet hours? Like I swear these assholes were quieter before they started."
Other	Does not fit into any categories above	

Note. *Gottlieb (1978).

Table B

Type of Question Content Coding Scheme

Category Name	Definition	Example
Course-related	Anything to do with a specific course in general, professors, assignments, examinations, and classmates in the course.	"Will they bell curve econ2310" "Any advice for the frhd 1100 and frhd 3060 exam?"
School-related	Anything to do with the university campus that isn't course specific. Includes administrative questions, location of buildings, important dates.	"When is the last day of the add period?" "What's for dinner at mountain?"
Intimate relationships	Specific questions about boyfriend/girlfriend. Can also be about someone they're casually dating or "friends with benefits" (FWB – casually hooking up with). Anything to do with the actual act of sex can be coded as "hooking up".	"how do I stop hating that my boyfriend has/makes female friends?" "Gift ideas for gf? 200 budget. Thanksy'all"
Hooking up	Questions about kissing, oral sex, touching, cuddling, and anything intercourse-related. Includes asking if anyone is down to engage in any of the activities above.	"Hey ladies I'm just wondering what your opinion is regarding the optimal duration of sexual activity?" "How does one go about getting rebound sex??"
Pursuing	Questions about meeting girls/guys, pursuing someone romantically, may mention turn ons and turn offs, flirting, attractiveness, how to approach them. Includes using social media applications (e.g., Tinder) to meet people.	"Is 6'5" attractive or is that too tall?" "I really want to talk to this cute girl in my class, how should I try to start a convo?" "Anyone actually hook up with someone you met off YikYak?"
Friends	Questions that mention friends.	"My friend that is in 5th year is ALWAYS with his gf and I never hang out anymore. What can I do to make him realize it's not healthy to be together 24/7"
Alcohol/ Substance-use	Question has to do with alcohol and drugs. Questions that refer to "going out" as "drinking" can be coded as this category.	"Does anyone have that I can grab off of? Urgent" "Best delivery options while high?"
Going out, partying-related	Anything to do with partying, or going out.	"Where is the best place to party downtown?"
Housemate, roommate, landlord, RA	Questions related to living situation off-campus or in residence.	"How much is too much to pay for a single apartment in Guelph? I'm thinking of renting one next year. Would 900$ per month be decent, or should I go higher to get my money's worth?" "Would it be easier to find a one bedroom apartment or to find two new roommates?"
City of Guelph-related	Questions about Guelph in general, such as locations of places in the city, by-laws, time places open/close, etc.	"Where in Guelph is a good place to get your hair dyed that is reasonably priced?" "Where can I get my nose pierced in Guelph"
Gym, health	Questions about the gym or health in general. Includes questions about physical appearance. If it has to do with mental health, see this category.	"Is the gym busy?" "I need to get an STI test ASAP. How can I do this?" One of those mornings where I look in the mirror and think things like: "are my eyes placed symmetrically?" and "has that ear lobe always been bigger than the other?" Am I the only one who does this?"
Mental Health	Questions about mental health, including disorders, therapists/councillors, emotions/feelings.	"Have to take the train this weekend which gives me panic attacks, any tips?" "Too depressed to get out of bed, what should I do?"
Entertainment, activities, food	Entertainment purposes, such as movies, activities, sports, games, going out to eat, ordering take-out, etc.	"Anyone else excited for The 100 Season 3!!!???" "Best on-campus food?"
Technology	Includes social media, computers, cell phones, and the internet in general.	"Wtf are yakarma?" "SOS how do u unmatch on tinder!?"
Family	Family-related.	"If you think you're going to fail a course, would you tell your parents now or wait to see if you magically passed?"
"What should I do?"	General question about what someone should do in particular situation that does not fit in with any of the above categories.	"Am I supposed to just leave it?"(picture of spilled coffee)
Seeking social connection	Questions that seek connection with people or a conversation. These can also be the bold or controversial statement type questions that create a lot of conversation.	"Lol all the softies get upset when I say learn to handle your liquor. What's the point in the university having shot glasses saying we outdrink everyone else if y'all can't even keep it down." "Any guys looking for sexy time?"
Other	Anything that does not fit in one of the categories above.	"How many coffees have you had today?" "So why is everyone freaking out over this song that was released 14 years ago..? It ain't bad, but why all of a sudden the trend?"

Table C

Support Provided Coding Scheme

Support Provided	Definition	Example
Actual support	The responder is actually trying to help the poster	"Last day to drop courses is March 14th" "I feel the same way!! Just try not to let it get to you"
Neutral	The responder does not add anything to the conversation Useless comment	"Okay" "LOL"
Troll	The responder appears to intentionally want to stir up emotion	"Just get laid, solves all your problems" "Trolling is my speciality"
Additional information	The responder requests more information	"What happened?!"
OP	The poster responds to responders	

Table D

Type of Support (Replies) Coding Scheme

Type of Support Provided	Definition	Example
Informational*	Suggestion, directives, information	"The foodcourt opens at 7am" "You can unmatch on Tinder by opening up your match's profile, it's under options"
Emotional*	Esteem, affect, trust, concern, listening, personal	"That sucks OP, maybe try listening to music to relax you?"
	Seeking to be reassured, to improve self-esteem	"Don't stress about it, it's not weird at all" "I've been there before"
	Advice	
Instrumental*	Aid in kind, money, labor, time, modifying environment	"I'll talk to you! What's up?"
	Helping behaviours	"I have some you can grab off, come to Mountain res"
Appraisal*	Affirmation, feedback, social comparison	"I didn't study either!!" "You're right, that midterm was soo hard"
No support provided	Useless comment, does not add to the conversation, does not help the poster in anyway	

Note. *Gottlieb (1978).

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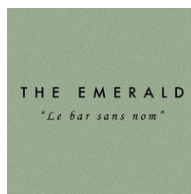# 2017 – 2018

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AUX VIVRES
Resto Vegan

s○upesoup
COMPTOIR LOCAL

Service d'impression

BUTR
SAVON SUR MESURE

Caracol

L'HO RLO GER

Université
de Montréal

L.e.e.k.ed

DÉCOUVREZ
de vrais bons pains
BOULANGERIE
ACE BAKERY

THE EMERALD
"Le bar sans nom"

A.G.É.É.P.U.M
Ψ
Depuis 1977

STONES & FABRIC
HANDCRAFTED HAPPINESS MADE IN MONTREAL
EQUILIBRIUM THROUGH OLD AND NEW

L'GROS LUXE
RESTO · CAFÉ · BAR

Café
Le Psychic

SHORTLISTED
REIMAGINE
EDUCATION
AWARDS 2018

HYBRID LEARNING

PHILADELPHIA 4-5 Dec

Fonds de recherche
Société et culture
Québec

Laboratoire sur les changements sociaux et l'identité
Social Change and Identity Laboratory

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