



# Mind Pad

Canada's student written, edited,  
and published psychology newsletter.

# Notes d'idées

Le bulletin rédigé, édité et publié par les étudiants  
de la Société canadienne de la psychologie.

FALL 2020 – AUTOMNE 2020

CANADIAN  
PSYCHOLOGICAL  
ASSOCIATION



SOCIÉTÉ  
CANADIENNE  
DE PSYCHOLOGIE



## Notes d'idées

Le bulletin rédigé, édité et publié par les étudiants de la Société canadienne de la psychologie.

*Mind Pad* has two mandated goals:

1. It aims to provide a professional newsletter that is written and reviewed by students of psychology who are affiliates of the Canadian Psychological Association. The content of the newsletter should be of interest to all who are practicing and studying psychology, but the primary audience of the newsletter is students of psychology.

2. It aims to offer studying psychology researchers and writers an opportunity to experience a formal submission process, including submission, review, and resubmission from the points of view of both submitter and reviewer/editor.

*Mind Pad* is a student journal of the Canadian Psychological Association (CPA) over which the CPA holds copyright. The opinions expressed are strictly those of the authors and do not necessarily reflect the opinions of the Canadian Psychological Association, its officers, directors, or employees. *Mind Pad* is published annually or semi-annually, only in electronic form and made available to members of the CPA and the general public.

Le mandat de *Notes d'idées* a deux objectifs :

1. Fournir un bulletin professionnel rédigé et évalué par les étudiants en psychologie qui sont membres affiliés de la Société canadienne de psychologie. Le contenu devrait être d'intérêt à tous les praticiens et étudiants en psychologie, mais les étudiants en psychologie sont les lecteurs cibles.

2. Fournir aux étudiants en psychologie l'opportunité de connaître le processus formel de soumission y compris la soumission, la révision, et la resoumission du point de vue d'auteur et d'évaluateur/rédacteur.

*Notes d'idées* est une revue étudiante de la Société canadienne de psychologie (SCP). La SCP réserve les droits d'auteur. Les opinions exprimées sont strictement celles des auteurs et ne reflètent pas nécessairement les opinions de la SCP, ses représentants, directeurs, ou employés. *Notes d'idées* paraît d'une à deux fois par année et n'est publié qu'en format électronique. Le bulletin est disponible aux membres de la SCP et au public.

## Table of contents

**3 Human Facial Communication: Microexpressions Reconceptualized**  
Karen Tse Yan Tang, Dalhousie University

**7 Childhood Maltreatment and Binge Eating Disorder: An Exploration of Mediators of BED Symptom Expression in Puberty**  
Sasha Elbaz, Concordia University

**12 The Influence of the Biomedical Model of Mental Disorders: Public Perceptions, Help-Seeking Behaviours, and Treatment Options**  
Abby Postma, University of Waterloo

**17 Examining the Non-Traditional Treatment of Psychedelic Psychotherapy for Major Depressive Disorder**  
Sridevi Kundurthi, University of Waterloo

**24 Examining Relationships between Personality and Mental Health on Exercise Behaviours, Motivation and Adherence**  
Megan Bolt, Laurentian University

**28 You're lagging – Can You Hear Me now?: Challenges with Implementing Online Therapy During COVID-19**  
Veerpal Bambrah, York University  
Vivian F. Zhang, University of Toronto

**33 Edifying Empathy in Forensic Psychology Students: The Role of Experiential Learning**  
Jessie N. Doyle, University of New Brunswick  
MacGillivray M. Smith, St. Francis Xavier University

**41 The 2019 Novel Coronavirus: A Sleep and Mood Perspective**  
Maya E. Amestoy, Ryerson University  
Parky H. Lau, Ryerson University

**45 Is It Time to Take Psychedelic-Assisted Therapies to Mental Illness More Seriously?**  
Emily Bernier, University of Calgary

### Editor-in-Chief:

Chelsea Moran, University of Calgary

### Associate Editors:

Michael Dubois, University of Toronto  
Enoch Leung, McGill University

### Reviewers:

Leah Chadwick, University of Calgary  
Ryan Cook, Saint Mary's University  
Lilach Dahoah Halevi, Ryerson University  
Dalainey Drakes, Memorial University  
Cody Fogg, University of Regina  
Caitlyn Gallant, Brock University  
Laura Herman, Ryerson University  
Kayla Hollett, Memorial University  
Chantal Labonte, University of Alberta  
Parky Lau, Ryerson University  
Aiden Mehak, McGill University  
Maya Pilin, University of British Columbia  
Brady Roberts, University of Waterloo  
Lauda de la Roche, Trent University  
Alyssa Saiphoo, Ryerson University  
Quinta Seon, McGill University  
Jackson Smith, University of Waterloo  
Yadurshana Sivashankar, University of Waterloo  
Kathleen Walsh, Memorial University  
Ryan Christopher Yeung, University of Waterloo

### CPA Liaison:

Dr. Lisa Votta-Bleeker, CPA Deputy CEO and Science Director  
executiveoffice@cpa.ca

Design: Raymond Leveille, [memoproductions.ca](http://memoproductions.ca)

CANADIAN  
PSYCHOLOGICAL  
ASSOCIATION



SOCIÉTÉ  
CANADIENNE  
DE PSYCHOLOGIE

# Human Facial Communication: Microexpressions Reconceptualized

Karen Tse Yan Tang, Dalhousie University, Ph.D. Student

## Abstract

The universality of microexpressions (MEs) has been widely received in the research community and media, although there is little empirical research to support this claim. MEs are currently defined as fleeting facial expressions that differ from the expressed emotion and can be suppressed by the individual within 1/5 to 1/25-of-a-second. When an emotion is concealed, the true emotion will manifest as MEs due to emotional leakage; thus, the current definition implies that perceiving MEs with the naked eye is almost impossible. ME-based training to detect deception have been developed and implemented across the world. While the interaction of human emotions and communication remain an important cross-section of research, the current conceptualization of the MEs theory should be interpreted with caution. Here, I demonstrate that the phenomenon of MEs should be reconceptualized or redefined based on emerging new literature, which may have direct implications for deception detection and ME-based training worldwide.

## Résumé

L'universalité des micro-expressions faciales (MEF) est largement admise dans le milieu de la recherche et les médias, bien qu'il y ait peu de recherches empiriques qui appuient cette affirmation. On définit actuellement les MEF comme des expressions faciales brèves qui diffèrent de l'émotion exprimée, et que la personne peut faire disparaître dans un délai de 1/5 à 1/25 de seconde. Lorsqu'une émotion est dissimulée, la véritable émotion se manifestera sous forme de MEF sous l'effet de la fuite émotionnelle sous-jacente; ainsi, selon la définition actuelle, il serait quasi impossible de percevoir les MEF à l'œil nu. Une formation sur la reconnaissance des MEF pour détecter la tromperie a été élaborée et est mise en œuvre dans le monde entier. Bien que l'interaction des émotions humaines et de la communication demeure un thème de recherche important, la conceptualisation actuelle de la théorie des MEF devrait être interprétée avec prudence. Je fais la démonstration, ici, que le phénomène des MEF devrait être reconceptu-

alisé ou redéfini sur la base de publications nouvelles, qui pourraient avoir des implications directes sur la détection de la tromperie et la formation sur la reconnaissance des MEF donnée dans le monde entier.



The field of research exploring human emotions via nonverbal communication is a long-standing area that examines a plethora of elements from gestures to facial expressions. Perhaps the first promising theory on nonverbal communication came from Charles Darwin when he postulated what is now called the Inhibition Hypothesis (Ekman, 2003). The hypothesis, also called emotional leakage, states that “facial actions [that] cannot be voluntarily created may be involuntarily expressed when reflexive processes such as genuine emotions initiate it” (Ekman, 2003, p. 211). Essentially, emotional leakage occurs when an underlying emotion is involuntarily revealed by the facial expressions of the deceiver. Paul Ekman extended on this theory to coin the term microexpressions (MEs); MEs are defined as “transient but complete (i.e., full-faced, involving both the upper and lower regions of the face) facial expressions that differ from the expressed emotion and are usually suppressed by the individual within 1/5 to 1/25-of-a-second” (Ekman, 1992, 2006; Ekman & Friesen, 1975). Ekman’s definition implies that perceiving MEs with the naked eye is almost impossible, and when an emotion is concealed, the true emotion or the individual’s real intent will manifest as MEs because of emotional leakage. Recent research, however, may refute this claim, as new findings suggest that MEs should be reconceptualized as “subtle emotional leakage that *can* be detected by the naked eye (as it lasts for more than 1/5 of a second to over a second), often occurring in either the upper or lower facial regions (as opposed to the full-face), and is especially prominent in high intensity emotions” (Porter & ten Brinke, 2008; Porter, ten Brinke, & Wallace, 2012). Additionally, new research appears to support the notion that MEs are not universal (i.e., displayed by every human), but rather only occur in a subset of the population. While human emotions and communication remain an important



field of research, the current conceptualization of the MEs theory championed by Ekman should be interpreted with caution given that the working definition of MEs remains unclear and indefinite. Moreover, the phenomenon of MEs should be redefined or reconceptualized based on new, more robust literature, which may have direct implications for deception detection.

The universality and present conceptualization of MEs has been widely received in the research community and general public, although there is little empirical research to support the current definition (Porter & ten Brinke, 2008). The existence of MEs were first confirmed by Haggard and Isaacs (1966) when examining recorded films of psychotherapy sessions. In 1974, Ekman and Friesen demonstrated a quantifiable technique to measure MEs by conducting a frame-by-frame analysis of videotaped interviews with depressed clients (Ekman & Friesen, 1974). Expanding on this methodology, Ekman found evidence for seven universal emotions, or MEs, that transcend societal and cultural bounds: anger, disgust, sadness, happiness, fear, surprise, and the more recently added, contempt (Ekman & Friesen, 1971, 1986). The universality of complete MEs have also been popularized in media, including in the hit television show *Lie to Me* (Cary, Downer, & Roth, 2009). The premise of the show was primarily inspired by the pioneering work of Ekman, who is portrayed as Dr. Cal Lightman, an applied psychologist and MEs expert who works with law enforcement agencies to conduct criminal investigations (Cary et al., 2009).

Based on prior research and the current definition of MEs, ME-based training is believed to be efficacious in teaching deception detection to law enforcement (Ekman, 2006) and the general public, specifically through the production and implementation of the Facial Action Coding System (FACS; Ekman & Friesen, 1978), which is frame-by-frame coding of facial movements to detect MEs. The ME-based training undertaken by law enforcement agencies are currently developed from the existing definition of MEs, which may highlight a potential flaw in the accuracy of the MEs definition. One study comparing a variety of deception detection experts (i.e., police officers, federal polygraphers, US Secret Service, judges, psychiatrists) to university students found that, generally, trained experts were no better at lie detection compared to laypeople (Ekman & O'Sullivan, 1991). Minor exceptions included the Secret Service personnel performing more accurately than other groups (Ekman & O'Sullivan, 1991). In some cases, experts were less accurate than laypeople — specifically, years of job experience were negatively correlated with accuracy in the Secret Service group, whereas age was nega-

tively correlated with accuracy for the polygraphers group (Ekman & O'Sullivan, 1991). It was determined that accurate lie catchers sought out various behavioural cues, with more emphasis on nonverbal behaviour than verbal (Ekman & O'Sullivan, 1991), indicating the importance of nonverbal cues in detecting deception.

These findings should be interpreted with caution due to several limitations; for example, the Secret Service group self-scored their *own* tests, so the validity and reliability of these conclusions are questionable (Bond, 2008). Specifically, the researchers provided the answers and members of the group were told to raise their hand if they got all ten correct, nine correct, and so on, in order to compare themselves to others in the group (Bond, 2008); the Ekman and O'Sullivan (1991) article does not state how the tests were scored, instead, the researchers reveal it in a later book (Bond, 2008).

In another study, federal officers (mostly from the United States' Central Intelligence Agency) were found to be the most accurate group with 73% accuracy discriminating between lies and truths (Ekman, O'Sullivan, & Frank, 1999). The research team attributed accuracy to nonverbal behaviour cues (e.g., facial; Ekman et al., 1999) such as MEs. Although these results may sound promising for the human emotions and nonverbal communication literature, this study also had a hidden methodological flaw: the federal officers group took two additional lie detection tests and had accuracy results of 63.4% and 48.2%, which were not reported in the published article and thus, indicate poor reliability (Bond, 2008). Therefore, the conclusions drawn from this series of research studies on nonverbal behaviour as deception cues, specifically the current theory on MEs, should be subject to further scrutiny.

There is no doubt that the groundwork and current conceptualization of MEs by Ekman and colleagues have contributed immensely to the important field of human emotions and nonverbal communication, however, more recent research may advocate for a rethinking of the definition of MEs. For example, recent findings continue to suggest that *complete* MEs do not exist, but rather that people may exhibit *partial* MEs, if at all (Porter & ten Brinke, 2008; Porter et al., 2012). In one study, 59 students were recruited to investigate emotional leakage in universal MEs (e.g., sadness, happiness, disgust, fear; Porter et al., 2012). Participants were shown a slideshow of images that were high and low in emotional intensity. They were instructed to make genuine (i.e., the true emotion felt from viewing the image) or deceptive (i.e., simulated, masked, or neutral) expressions while being videotaped (Porter et

al., 2012). For all of the 1711 videotaped expressions that participants made during the study, each 1/30-of-a-second frame of the video was coded and analyzed for the occurrence and duration of universal MEs (Porter et al., 2012). It was determined that high intensity emotions (e.g., high happiness versus low happiness) were harder to mask, and emotional leakage occurred more often in the upper half of the face (i.e., eye and forehead regions) when compared to the lower regions (i.e., nose, mouth, cheek, chin; Rinn, 1984) for all emotions studied. Findings from this study suggest that no *complete* MEs (e.g., full-faced expressions occurring between 1/25th- 1/5th of a second as described by Ekman and Friesen, 1975) simultaneously involving *both* the upper and lower halves of the face were found in the 1711 expressions participants made (Porter et al., 2012). However, Porter and colleagues (2012) did find evidence for *partial* MEs which were exhibited in a quarter of participants (25.4%), mostly in the upper regions consisting of the eyes and forehead region. The authors concluded that universal *complete* MEs do not exist whereas *partial* MEs may be evident in a segment of the population, last longer than traditionally conceptualized by Ekman and Friesen (1975), and are more obvious in high intensity emotions (e.g., fear).

A second study questions whether the current definition of MEs is an accurate portrayal of the phenomenon (Porter & ten Brinke, 2008). Similar to the procedure outlined above, participants viewed images and responded with genuine or deceptive expressions while being videotaped. Again, each 1/30-of-a-second frame was examined, resulting in just under 700 expressions that were analyzed for the presence and duration of MEs. Similar to the previous study by Porter and colleagues (2012), this study also found that no *complete* MEs were detected, while *partial* MEs were evident in 2% of all expressions or only 21.95% of participants (Porter & ten Brinke, 2008). Emotional leakage also lasted longer (more than a second) than the traditional ME definition suggests, and often exhibited in either the upper or lower facial regions, but never both simultaneously (Porter & ten Brinke, 2008).

Indeed, a 2013 study also calls into question the current conceptualization of MEs, specifically the duration of which MEs are currently described. Participants in this study watched videos of varying emotional intensity while being video recorded (Yan et al., 2013). Upon data analysis, the researchers found that only 15 of the 109 expressions coded fit the current definition of MEs (Yan et al., 2013). Notably, study findings corroborate new literature stating that coded expressions lasted longer than the traditional definition of MEs by more than half a second (Yan et al., 2013).

Clearly, recent empirical evidence questions whether the current conceptualization or definition of MEs is conclusive. Since recent studies found evidence for partial MEs only, and in a small subset of the sample (Porter & ten Brinke, 2008; Porter et al., 2012), one cannot conclude that MEs are universal; rather, it seems that emotions are displayed in varying idiosyncratic ways, in a subset of the population, and rarely as full-faced expressions. Additionally, MEs appear to last longer (more than half a second to one second) and are rarely complete expressions involving both the upper and lower regions of the face (Porter & ten Brinke, 2008; Porter et al., 2012; Yan et al., 2013).

Updating the definition of MEs has implications on increasing the efficacy of ME-based training for the purposes of detecting deception. The current ME-based trainings available may not be fully efficacious as they do not fully encapsulate the concept of MEs. Perhaps the existing trainings available, which is based on the current definition of MEs, need to be adapted to what more recent research has found (e.g., MEs occur in only a subset of the population, and are often in parts of the face and not the whole face) in order to increase the efficacy and accuracy of ME-based trainings. As such, further research on MEs is warranted using the information obtained from recent research. For example, given that partial MEs appear to be only expressed in a subset of the population, examining the prevalence of MEs in different cultural and ethnic groups may highlight cultural, societal, or even idiosyncratic differences in the expression of MEs. Additionally, altering current deception detection techniques such as ME-based training to seek out high intensity emotions (e.g., fear) may prove to be highly efficacious.

To conclude, human emotions and communication remain a crucial field of research, however, the current definition of full MEs should be interpreted with caution. New research suggests that the current definition of MEs may be incorrect and should be reconceptualized or redefined pending further research. Should a complete rethinking or reconceptualization of the MEs theory be supported by future research, this may impact the field of deception detection and the current implementation of ME-based trainings worldwide. Hence, the framework of current deception detection training that is implemented across American airports (Ekman, 2006), police stations, and in the general public, may be based on an uncertain conceptualization of MEs that should not be employed until further research is conducted to verify the accuracy of its parameters.



## References

- Bond, C. F. (2008). Commentary a few can catch a liar, sometimes: Comments on Ekman and O'Sullivan (1991), as well as Ekman, O'Sullivan, and Frank (1999). *Applied Cognitive Psychology*, 22(9), 1298–1300. doi:10.1002/acp.1475
- Cary, A., Downer, J., & Roth, T. (Producers). (2009, January 21). *Lie to me* [Television series]. Fox.
- Ekman, P. (1992). *Telling lies: Clues to deceit in the marketplace, politics, and marriage*. New York: Norton.
- Ekman, P. (2003). Darwin, deception, and facial expression. *Ann. N.Y. Acad. Sci.*, 1000, 205–221. doi:10.1196/annals.1280.010
- Ekman, P. (2006, October 29). How to spot a terrorist on the fly. Retrieved from <https://www.washingtonpost.com/wp-dyn/content/article/2006/10/27/AR2006102701478.html>
- Ekman, P., & Friesen, W. V. (1971). Constants across cultures in the face and emotion. *Journal Of Personality and Social Psychology*, 17(2), 124–129. doi:10.1037/h0030377
- Ekman, P., & Friesen, W. V. (1974). Nonverbal behavior and psychopathology. In R. J. Friedman & M. Katz (Eds.), *The psychology of depression: Contemporary theory and research* (pp. 3–31). Washington, D.C.: Winston and Sons.
- Ekman, P., & Friesen, W. V. (1975). *Unmasking the face: A guide to recognizing emotions from facial clues*. Englewood Cliffs, NJ: Prentice-Hall.
- Ekman, P., & Friesen, W. V. (1978). *The facial action coding system*. Palo Alto, CA: Consulting Psychologists Press.
- Ekman, P., & Friesen, W. V. (1986). A new pan-cultural facial expression of emotion. *Motivation and Emotion*, 10(2). doi:10.1007/BF00992253
- Ekman, P., & O'Sullivan, M. (1991). Who can catch a liar? *American Psychologist*, 46(9), 913–920. doi:10.1037/0003-066X.46.9.913
- Ekman, P., O'Sullivan, M., & Frank, M. G. (1999). A few can catch a liar. *Psychological Science*, 10(3), 263–266. doi:10.1111/1467-9280.00147
- Haggard, E. A., & Isaacs, K. S. (1966). Micro-momentary facial expressions as indicators of ego mechanisms in psychotherapy. In L. A. Gottschalk & A. H. Auerbach (Eds.), *Methods of research in psychotherapy* (pp. 154–165). New York: Appleton-Century-Crofts.
- Porter, S., & ten Brinke, L. (2008). Reading between the lies: Identifying concealed and falsified emotions in universal facial expressions. *Psychological Science*, 19(5), 508–514. doi:10.1111/j.1467-9280.2008.02116.x
- Porter, S., ten Brinke, L., & Wallace, B. (2012). Secrets and lies: Involuntary leakage in deceptive facial expressions as a function of emotional intensity. *Journal of Nonverbal Behavior*, 36(1), 23–37. doi:10.1007/s10919-011-0120-7
- Rinn, W. (1984). The neuropsychology of facial expression: A review of the neurological and psychological mechanisms for producing facial expressions. *Psychological Bulletin*, 95(1), 52–77. doi:10.1037/0033-2909.95.1.52
- Yan, W. J., Wu, Q., Liang, J., Chen, Y. H., & Fu, X. (2013). How fast are the leaked facial expressions: The duration of micro-expressions. *Journal of Nonverbal Behavior*, 37(4), 217–230. <https://doi.org/10.1007/s10919-013-0159-8>

# Childhood Maltreatment and Binge Eating Disorder: An Exploration of Mediators of BED Symptom Expression in Puberty

Sasha Elbaz, Concordia University, Undergraduate Student

## Abstract

Childhood maltreatment (CM) has been associated with numerous developmental complications. Moreover, pubertal changes have been found to increase the risk of developing eating disorders. This literature review aims to explore potential mediators of the relationship between CM and binge eating disorder (BED) during puberty. BED is characterized by excessive consumption of food in a short period of time coupled with high levels of distress. Key empirical findings in current literature suggest that CM affects cognitive, neuroanatomical, and neurobiological processes, which may partially explain the relationship between CM and BED. Due to contrasting evidence as to the role of CM in BED formation, further studies are needed. Future exploration of potential treatment methods ranging from psychological therapies to pharmacological interventions, and community approaches stemming from the findings of this review could impact how BED is managed clinically. Thus, the risk of experiencing BED is higher when CM occurs and requires further investigation.

## Résumé

Les mauvais traitements infligés aux enfants (MTE) sont associés à de nombreux problèmes de développement. En outre, on a constaté que les changements qui surviennent à la puberté augmentent le risque de développer des troubles de l'alimentation. La présente revue de la littérature vise à explorer les médiateurs potentiels de la relation entre les MTE et l'hyperphagie boulimique (HB) pendant la puberté. L'HB se caractérise par une consommation excessive de nourriture pendant une courte période de temps associée à des niveaux élevés de détresse. Les principaux résultats empiriques figurant dans la revue de la littérature indiquent que les MTE affectent les processus cognitifs, neuroanatomiques et neurobiologiques, ce qui peut expliquer en partie la relation entre MTE et HB. En raison de la présence de preuves contradictoires quant au rôle des MTE dans le développement de l'HB, d'autres études sont néces-

saires. L'exploration future de méthodes de traitement possibles, allant des thérapies psychologiques aux interventions pharmacologiques, et les approches communautaires découlant des conclusions de la présente revue de la littérature pourraient avoir une incidence sur la façon dont l'HB est prise en charge sur le plan clinique. Par conséquent, le risque de présenter une HB est plus grand en présence de MTE et nécessite une étude plus approfondie.



Binge eating disorder (BED) is characterized by frequent episodes of eating large quantities of food in a short amount of time (e.g., within a 2-hour period), feelings of loss of control (LOC), and heightened emotional distress (Marzilli et al., 2018). The lifetime prevalence of BED ranges from 1.6% (Swanson et al., 2011) to 3% (Stice et al., 2013), making BED a prevalent and problematic eating behavior (Goldschmidt et al., 2016; Swanson et al., 2011). Youth with BED report lower levels of self-esteem, greater body dissatisfaction, emotional disturbance, and heightened experience of depressive mood in comparison to individuals without BED (Stice et al., 2009). Furthermore, BED has also been associated with excessive weight gain and health-related difficulties such as coronary heart disease (Akil & Ahmad, 2011; Blomquist et al., 2011). Children and adolescents who have experienced maltreatment, defined as the failure to provide basic needs to ensure safety, security, and support, may be at an elevated risk for developing BED (Cicchetti & Lynch, 1993; Cowell et al., 2015; Elton et al., 2014). Notably, more than 80% of individuals with BED have described being exposed to various forms of CM. Reports range from a variety of forms of abuse (e.g., emotional, physical, and sexual) to emotional and physical neglect (Grilo & Masheb, 2001).

Childhood maltreatment (CM) has also been associated with an increased likelihood of psychiatric disorder formation (Lippard & Nemeroff, 2020). Moreover, the transition from childhood to adolescence may lead to greater risk for developing eating disorders due to large hormonal changes stemming



from sexual maturation (Kaltiala-Heino et al., 2003). Consequently, adolescents are at greater risk of developing BED (Kaltiala-Heino et al., 2003; McKnight Investigators, 2003). Furthermore, these early experiences of maltreatment, abuse, and neglect have been strongly associated with consequent impairment in working memory, executive and emotional control, inhibitory networks, and overall response inhibition (Boyd et al., 2019; Cowell et al., 2015). However, research exploring how CM can impact the development of BED during puberty has yet to be examined (Lewis & Rudolf, 2014). The present literature review aims to propose potential mediators of the relationship between CM and BED. The present review will investigate cognitive, neuroanatomical, and neurobiological mediators of this relationship.

## Methods

Several steps were conducted to select quality literature for the current review. Initially, four databases were searched including Google Scholar, EBSCOhost, Academic Search Complete, and PsycInfo. Key terms included but were not limited to childhood maltreatment, binge eating disorder, mediation, abuse, eating disorders. Filters were set to include peer-reviewed articles. Additionally, the reference sections from identified articles were searched to find additional literature. The current review discusses 8 articles published between 1993 and 2019. Overall, the search process yielded 31 peer-reviewed articles which were included in the content of this paper (Kay, 2015, 00:24).

## Examination of the Literature

One core theory on the development of BED proposes that children from maltreated upbringings experience difficulties in processing and handling sensory information. Both maltreated and non-maltreated children (between the ages of 3 and 9) with low socio-economic statuses (SES) were tested using a battery of 10 consecutive tasks measuring various aspects of working memory, inhibition, and motor skills (Cowell et al., 2015). Results indicated that maltreated children had lower levels of inhibitory control and working memory when compared to non-maltreated children. These are both important indicators of self-control. Additionally, empirical findings have identified a link between inhibitory control and subsequent uncontrollable binge-eating behaviors (Bartholdy et al., 2017; Hsu et al., 2002), providing further support that cognitive processes may be involved in BED formation. Therefore, it is suggested that alterations in cognition may play a pivotal role in BED formation and maintenance.

De Brito and colleagues (2012) investigated the ef-

fects of maltreatment on brain development in youth. Both maltreated and non-maltreated adolescents (between 10 to 14 years old) were recruited to complete a series of questionnaires and were subsequently scanned in a magnetic resonance imaging (MRI) machine to examine cortical structure (De Brito et al., 2012). Findings indicate that mistreatment can lead to structural differences in the medial orbital frontal cortex (mOFC), an area related to emotion regulation, reinforcement-based decision making, and autobiographical memory (De Brito et al., 2012). Furthermore, an fMRI study by Schienle and colleagues (2009) identified structural differences in the mOFC of individuals with BED. These results propose that structural changes may occur in individuals from maltreated upbringings, thus serving as a risk factor for experiencing BED at later stages in adolescence.

Research has predominantly focused on cognitive and neuroanatomical approaches to exploring the impact of CM, while few studies have focused on its neurobiological substrates. Ouellet-Morin and colleagues (2019) investigated if CM exposed young adults experienced changes in hormonal and stress reactivity. Participants were exposed to the Trier Social Stress Test (TSST), followed by measurement of their cortisol levels and heart rate (Ouellet-Morin et al., 2019). It was found that individuals exposed to CM experienced elevated cortisol and heart rate responses in comparison to those who had not experienced maltreatment (Ouellet-Morin et al., 2019). This study provides some support for the notion that CM affects neurobiological processes in the brain. Further, Gluck and colleagues (2004) reported that elevated cortisol responses indicative of high stress were associated with uncontrollable binge eating behaviors. This identified altered stress response proposes that it may be beneficial for future research to explore eating disorders at a microlevel.

Despite numerous studies pointing towards an association between CM and the development of eating disorders like BED, Welch and Fairburn (1994) drew opposing conclusions to the previously mentioned investigations. In a case-control design, participants with eating disorders were compared to individuals without eating disorders (Welch & Fairburn, 1994). An interview used to assess sexual abuse was utilized and yielded findings denoting that CM occurred as frequently in those with eating disorders as those with any other psychiatric illness (Welch & Fairburn, 1994). This assessment, albeit dated, conveys how eating disorder formation is a complex and a multidimensional matter as findings seem inconclusive between studies.

Similarly, a review by Connors and Morse (1993) drew conclusions aligning with the aforementioned in-



vestigation. Twelve studies exploring the histories of patients diagnosed with eating disorders, non-diagnosed patients, and patients in group therapy were examined (Connors & Morse, 1993). As a result, it was found that around 30% of individuals with eating disorders reported a history of maltreatment (e.g., sexual abuse). Connors and Morse (1993) concluded that the relatively low rate of CM in those with eating disorders might be less than what is observed in other psychiatric disorders. While their paper was based on a small review of studies, the findings propose that not all individuals who experience early age trauma like CM will develop eating disorders such as BED.

### **Exploration of the Potential Mediation Pathways of the Relationship Between Childhood Maltreatment and Binge Eating Disorder**

The findings suggest that CM can negatively impact cognitive processes (Cowell et al., 2015), brain areas related to regulating emotion, making decisions (De Brito et al., 2012), and stress response (Ouellet-Morin et al., 2019). In addition, the outcomes underlie multiple pathways that may be implicated in the development and experience of BED. For example, adopting Hayes' (2009) description of the mediation process, while CM may predict the development of BED, the influence of the mediating variable (e.g., cognitive differences in impulsivity [Bartholdy et al., 2017; Hsu et al., 2002], structural differences in the mOFC [Schienle et al., 2009], or cortisol and heart rate reactivity [Gluck et al., 2004]) may partially explain the basic relationship between CM and BED.

Some findings have also found that CM may not be a significant predictor of eating disorder formation (Connors & Morse, 1992; Welch & Fairburn, 1994). Therefore, it remains unclear what additional forces may be contributing to the development of eating disorders and increasing the risk of experiencing disorders like BED in maltreated individuals. Research on BED to date remains sparse, particularly among adolescent maltreated populations (Lewis & Rudolf, 2014). Given the presented findings a complex interaction between environmental and genetic factors may serve as another potential model explaining the formation of BED (e.g., gene-environment interaction; Ottman, 1996).

### **Clinical Impact, Significance, and Future Directions**

The clinical relevance of this research question extends far beyond the identification of mediators influencing the development of BED. Rather, it offers key insight into the impact of experiencing hardship early in life, like CM, on later youth development prior to and post puberty. The preceding review highlights core

theories and empirical findings in the literature to date, providing clinicians with the identification of several potential mediators of BED. Due to the lack of adequate and valid intervention methods targeting BED in children and adolescents (Nicholls & Barrett, 2015), this review can inform the development of new treatment approaches targeting the management of BED symptoms in adolescence. For example, clinicians may design adaptive approaches embodying inhibition training and the development of healthy coping skills. One possible recommendation is to adopt a therapeutic approach tailored to emotion regulation. Emotion regulation approaches have been adopted in an effort to treat certain psychiatric disorders (e.g., generalized anxiety disorder and major depressive disorder; Renna et al., 2017). This therapeutic approach may also be beneficial for those with BED as they report significant levels of emotional distress (Marzilli et al., 2018). The proposed treatment modality would allow individuals living with eating disorders such as BED to improve cognitive control and emotion regulation, effectively aiding in the management of binge eating episodes.

It is recommended that future studies investigate the effects that the proposed mediators have on the basic relationship between CM and BED using a longitudinal design, to examine the changes of the individual over time (Caruana et al., 2015). Additionally, subsequent studies examining the prevalence and overall role of CM in the development of eating disorders may be required as findings regarding its role in BED formation remain mixed. Future studies may also wish to explore more complex path models to explore the effects of other variables in the development of BED (e.g., adopting a moderated mediation model). Furthermore, supplementary investigations should explore the key differences between types of CM (e.g., maltreatment, abuse, and neglect) and their effects on youth. The goal of this research should be to develop therapeutic approaches to manage subsequent cognitive, structural, and/or hormonal outcomes in individuals with CM to lessen the potential effects on functioning. Notably, psychological treatments such as cognitive behavioral therapy (CBT), interpersonal psychotherapy (IPT), and dialectical behavioral therapy (DBT) have all shown promise as valid treatment methods for BED (Iacovino et al., 2012). In extreme cases, certain pharmacological interventions have been found to be effective in the treatment of BED such as selective serotonin reuptake inhibitors (SSRIs), antiepileptics, and appetite suppressants (Gorla & Mathews, 2005). Yet, further studies examining the overall efficacy of pharmaceuticals in adolescent populations would be informative.

Lastly, the implementation of community programs would provide individuals living with BED an opportunity to discuss their experiences with others and learn helpful coping strategies from peers to prevent the reoccurrence of symptoms. Community programs may be organized in a group therapy setting for those with BED to discuss their conditions with the primary goal of identifying potential triggers and how to increase levels of coping. The period of vulnerability that individuals with BED would be exposed to during these group sessions should be carefully facilitated and structured by the therapist/clinician to ensure structure and appropriate direction of conversations.



## References

- Akil, L., & Ahmad, H.A. (2011). Relationships between obesity and cardiovascular diseases in four southern states and Colorado. *Journal of Health Care for the Poor and Underserved* 22(5), 61-72. <https://doi.org/10.1353/hpu.2011.0166>.
- Bartholdy, S., Rennalls, S. J., Jacques, C., Danby, H., Campbell, I. C., Schmidt, U., & O'Daly, O. G. (2017). Proactive and reactive inhibitory control in eating disorders. *Psychiatry Research*, 255, 432-440. <https://doi.org/10.1016/j.psychres.2017.06.073>
- Boyd, M., Kisely, S., Najman, J., & Mills, R. (2019). Child maltreatment and attentional problems: A longitudinal birth cohort study. *Child Abuse & Neglect*, 98, 1-12. <https://doi.org/10.1016/j.chiabu.2019.104170>
- Blomquist, K. K., Barnes, R. D., White, M. A., Masheb, R. M., Morgan, P. T., & Grilo, C. M. (2011). Exploring weight gain in year before treatment for binge eating disorder: A different context for interpreting limited weight losses in treatment studies. *The International Journal of Eating Disorders*, 44(5), 435-439. <https://doi.org/10.1002/eat.20836>
- Caruana, E. J., Roman, M., Hernández-Sánchez, J., & Solli, P. (2015). Longitudinal studies. *Journal of Thoracic Disease*, 7(11), E537-E540. <https://doi.org/10.3978/j.issn.2072-1439.2015.10.63>
- Cicchetti, D., & Lynch, M. (1993). Toward an ecological/transactional model of community violence and child maltreatment: Consequences for children's development. *Psychiatry*, 56, 96-118. <https://doi.org/10.1080/00332747.1993.11024624>
- Connors, M. E., & Morse, W. (1993). Sexual abuse and eating disorders: A review. *International Journal of Eating Disorders*, 13(1), 1-11. [https://doi.org/10.1002/1098-108X\(199301\)13:1<1::AID-EAT2260130102>3.0.CO;2-P](https://doi.org/10.1002/1098-108X(199301)13:1<1::AID-EAT2260130102>3.0.CO;2-P)
- Cowell, R., Cicchetti, D., Rogosch, F., & Toth, S. (2015). Childhood maltreatment and its effect on neurocognitive functioning: Timing and chronicity matter. *Development and Psychopathology*, 27(2), 521-533. <https://doi.org/10.1017/S0954579415000139>
- De Brito, S. A., Viding, E., Sebastian, C. L., Kelly, P. A., Mechelli, A., Maris, H., & McCrory, E. J. (2012). Reduced orbitofrontal and temporal grey matter in a community sample of maltreated children. *Journal of Child Psychology and Psychiatry*, 54(1), 105-112. <https://doi.org/10.1111/j.1469-7610.2012.02597.x>
- Elton, A., Tripathi, S. P., Mletzko, T., Young, J., Cisler, J. M., James, G. A., & Kilts, C. D. (2014). Childhood maltreatment is associated with a sex-dependent functional reorganization of a brain inhibitory control network. *Human Brain Mapping*, 35(4), 1654-1667. <https://doi.org/10.1002/hbm.22280>
- Gluck, M., Geliebter, A., & Lorence, M. (2004). Cortisol stress response is positively correlated with central obesity in obese women with binge eating disorder (BED) before and after cognitive-behavioral treatment. *Annals of the New York Academy of Sciences* 1032, 202-207. <https://doi.org/10.1196/annals.1314.021>
- Goldschmidt, A. B., Wall, M. M., Zhang, J., Loth, K. A., & Neumark-Sztainer, D. (2016). Overeating and binge eating in emerging adulthood: 10-year stability and risk factors. *Developmental Psychology*, 52(3), 475-483. <https://doi.org/10.1037/dev0000086>
- Gorla, K., & Mathews, M. (2005). Pharmacological treatment of eating disorders. *Psychiatry (Edgmont)*, 2(6), 43-48. <https://doi.org/10.1155/2013/352865>
- Grilo, C. M., & Masheb, R. M. (2001). Childhood psychological, physical, and sexual maltreatment in outpatients with binge eating disorder: Frequency and associations with gender, obesity, and eating-related psychopathology. *Obesity Research*, 9(5), 320-325. <https://doi.org/10.1038/oby.2001.40>
- Hayes, A. F. (2009). Beyond Baron and Kenny: Statistical mediation analysis in the new millennium. *Communication Monographs*, 76(4), 408-420. <https://doi.org/10.1080/03637750903310360>
- Hsu, L. K. G., Mulliken, B., McDonagh, B., Das, S. K., Rand, W., Fairburn, C. G., Rolls, B., McCrory, M. A., Saltzman, E., Shikora, S., Dwyer, J., & Roberts, S. (2002). Binge eating disorder in extreme obesity. *International Journal of Obesity & Related Metabolic Disorders*, 26(10), 1398-1403. <https://doi.org/10.1038/sj.ijo.0802081>
- Iacovino, J. M., Gredysa, D. M., Altman, M., & Wilfley, D. E. (2012). Psychological treatments for binge eating disorder. *Current Psychiatry Reports*, 14(4), 432-446. <https://doi.org/10.1007/s11920-012-0277-8>
- Kaltiala-Heino, R., Marttunen, M., Rantanen, P., & Rimpelä, M. (2003). Early puberty is associated with mental health problems in middle adolescence. *Social Science & Medicine*, 57(6), 1055-1064. [https://doi.org/10.1016/S0277-9536\(02\)00480-X](https://doi.org/10.1016/S0277-9536(02)00480-X)
- Kay, R. (2015, January 26). *Method Section for Review of the Literature (Part 1 - Search Procedure)* [Video]. YouTube. [https://www.youtube.com/watch?time\\_continue=112&v=SuE3TrvnAAY&feature=emb\\_logo](https://www.youtube.com/watch?time_continue=112&v=SuE3TrvnAAY&feature=emb_logo)
- Lewis, M., & Rudolph, K. D. (Eds.). (2014). *Handbook of developmental psychopathology* (3rd ed.). Springer Science

- and Business Media. <https://doi.org/10.1007/978-1-4614-9608-3>
- Lippard, E. T., & Nemeroff, C. B. (2020). The devastating clinical consequences of child abuse and neglect: Increased disease vulnerability and poor treatment response in mood disorders. *American Journal of Psychiatry*, 177(1), 20-36. <https://doi.org/10.1176/appi.ajp.2019.19010020>
- Marzilli, E., Cerniglia, L., & Cimino, S. (2018). A narrative review of binge eating disorder in adolescence: Prevalence, impact, and psychological treatment strategies. *Adolescent Health, Medicine and Therapeutics*, 9, 17-30. <https://doi.org/10.2147/AHMT.S148050>
- McKnight Investigators. (2003). Risk factors for the onset of eating disorders in adolescent girls: Results of the McKnight longitudinal risk factor study. *American Journal of Psychiatry*, 160(2), 248-254. <https://doi.org/10.1176/ajp.160.2.248>
- Nicholls, D., & Barrett, E. (2015). Eating disorders in children and adolescents. *British Journal of Psychiatry Advances*, 21(3), 206-216. <https://doi.org/10.1192/apt.bp.114.014068>
- Ottman, R. (1996). Gene-environment interaction: Definitions and study designs. *Preventive Medicine*, 25(6), 764-770. <https://doi.org/10.1006/pmed.1996.0117>
- Ouellet-Morin, I., Robitaille, M., Langevin, S., Cantave, C., Brendgen, M., & Lupien, S. (2019). Enduring effect of childhood maltreatment on cortisol and heart rate responses to stress: The moderating role of severity of experiences. *Development and Psychopathology*, 31(2), 497-508. <https://doi.org/10.1017/S0954579418000123>
- Renna, M. E., Quintero, J. M., Fresco, D. M., & Mennin, D. S. (2017). Emotion regulation therapy: A mechanism-targeted treatment for disorders of distress. *Frontiers in Psychology*, 8, 98, 1-14. <https://doi.org/10.3389/fpsyg.2017.00098>
- Schienze, A., Schäfer, A., Hermann, A., & Vaitl, D. (2009). Binge-eating disorder: Reward sensitivity and brain activation to images of food. *Biological Psychiatry*, 65(8), 654-661. <https://doi.org/10.1016/j.biopsych.2008.09.028>
- Stice, E., Marti, C. N., & Rohde, P. (2013). Prevalence, incidence, impairment, and course of the proposed DSM-5 eating disorder diagnoses in an 8-year prospective community study of young women. *Journal of Abnormal Psychology*, 122(2), 445-457. <https://doi.org/10.1037/a0030679>
- Stice, E., Marti, C. N., Shaw, H., & Jaconis, M. (2009). An 8-year longitudinal study of the natural history of threshold, subthreshold, and partial eating disorders from a community sample of adolescents. *Journal of Abnormal Psychology*, 118(3), 587-597. <https://doi.org/10.1037/a0016481>
- Swanson, S. A., Crow, S. J., Le Grange, D., Swendsen, J., & Merikangas, K. R. (2011). Prevalence and correlates of eating disorders in adolescents. *Archives of General Psychiatry*, 68(7), 714-723. <https://doi.org/10.1001/archgenpsychiatry.2011.22>
- Welch, S. L., & Fairburn, C. G. (1994). Sexual abuse and bulimia nervosa: Three integrated case control comparisons. *The American Journal of Psychiatry*, 151(3), 402-407. <https://doi.org/10.1176/ajp.151.3.402>

# The Influence of the Biomedical Model of Mental Disorders: Public Perceptions, Help-Seeking Behaviours, and Treatment Options

Abby Postma, University of Waterloo, B.Sc. Student

## Abstract

The chemical imbalance theory of mental disorders remains widespread within the public and amongst clinicians (Pilkington et al., 2013; Read et al., 2015). This perspective postulates that mental disorders result from chemical imbalances in the brain, as opposed to complex interactions between both biological and environmental factors. Advocates of the chemical imbalance theory purport that viewing mental disorders as resulting from purely biological causes reduces the level of stigma directed towards individuals with mental disorders. In this paper, the evidence for this claim will be reviewed and the implications of conceptualizing mental disorders as arising from chemical disturbances will be discussed. Implications will include how individuals experiencing mental illness are affected by this perspective and how their own help-seeking activities may be influenced, how the public's perceptions of individuals with mental disorders may differ as a result of their conceptualization of mental disorders, and how clinical decisions may be modified as a result of the clinician's and patient's conceptualizations. A multidimensional perspective of the etiology of mental disorders will be encouraged, integrating biological, psychological, and social factors that may contribute to the emergence of mental disorders.

## Résumé

La théorie selon laquelle les troubles mentaux résultent d'un déséquilibre chimique dans le cerveau demeure répandue au sein du public et parmi les cliniciens (Pilkington et coll., 2013; Read et coll., 2015). Selon ce postulat, les troubles mentaux sont dus à des déséquilibres chimiques dans le cerveau, plutôt qu'aux interrelations complexes entre facteurs biologiques et facteurs environnementaux. Les tenants de la théorie du déséquilibre chimique prétendent que le fait de considérer les troubles mentaux comme le résultat de causes purement biologiques réduit le niveau de stigmatisation dont font l'objet les personnes atteintes de troubles mentaux. Dans le

présent article, les preuves qui appuient cette affirmation seront examinées et les conséquences de la conceptualisation des troubles mentaux résultant de perturbations chimiques seront analysées. Les conséquences qui seront étudiées sont les suivantes : comment les personnes atteintes de maladie mentale sont touchées par cette conception et l'influence qu'a celle-ci sur la façon de rechercher de l'aide; comment les perceptions du public à l'égard des personnes atteintes de troubles mentaux peuvent différer en fonction de la conception des troubles mentaux partagée par le public; comment les décisions cliniques peuvent être influencées par les conceptualisations du clinicien et du patient. Une vision multidimensionnelle de l'étiologie des troubles mentaux sera privilégiée en prenant en compte les facteurs biologiques, psychologiques et sociaux qui peuvent contribuer à l'apparition des troubles mentaux.



## The Chemical Imbalance Explanation

If your doctor offered you a happy pill, would you take it? This topic has had substantial implications for the field of psychology in recent decades (Barondes & Wood, 2004; McBride, 1994). Prozac (fluoxetine) is a popular antidepressant that was originally coined as “the happy pill” (McBride, 1994), but it is not the only psychiatric drug that has been distributed with the intent to reduce symptoms of depression or other mental disorders. With advancing psychopharmacology and the demonstrated ability of antidepressants to reduce symptoms associated with depression (Kessler et al., 2003), conceptualization of mental disorders has partially shifted to a more biologically-based representation among medical and public populations. This notion is supported by evidence from France et al. (2007) in which they found that approximately nine in 10 individuals in their sample of American university students had heard the claim that depression results from a chemical imbalance in the brain. Participants also rank ordered what they believed to be the top five probable causes of depression, and the researchers found that chemical imbalance was most



frequently listed as the top probable cause (reported by 16.3% of participants), followed by psychosocial causes such as death of a family member or loved one (14.7%) and relationship problems (13.5%). Similarly, studies done with adults in Australia have shown that the emphasis on the biological aspects of mental disorders has increased in addition to psychosocial aspects which are still seen as important contributors to the development of mental disorders (Pilkington et al., 2013). The conceptualization of mental disorders that incorporates biological, psychological, and social factors reflects a more holistic understanding of mental disorders and their etiology compared to the psychosocial model on its own. However, when the contributions of psychological and social factors are reduced in favor of a purely biological explanation of mental disorders, new difficulties for those affected by mental illness arise. In this article, the origin of a popular biological conceptualization of mental disorders - the chemical imbalance viewpoint - will be described and the impact that this viewpoint has on individuals with mental disorders, clinicians, and the public will be discussed.

### **Pharmacotherapy and Psychotherapy**

In order to understand the origin of the chemical imbalance explanation of mental disorders, the popularization of pharmacotherapy for treatment of mental disorders must first be reviewed. Before the development of psychiatric drugs for treatment of mental disorders, psychotherapy was one of the limited options available for individuals seeking treatment. Following the emergence of psychiatric drugs for treatment, the adoption of psychotherapy as a treatment option has declined and some have voiced that they believe psychotherapy to be a fading treatment method, even claiming that psychotherapy is “an expensive luxury for a minority of patients” (Iversen, 2003, p. 617). From 1998 to 2007, individuals using outpatient psychotherapy decreased from 15.9% of individuals to 10.5%, while use of psychotropic medication increased from 44.1% to 57.4% (Olfson & Marcus, 2010). Additionally, the combination of outpatient use of psychotherapy and psychotropic medication together has decreased from 40.0% to 32.1% (Olfson & Marcus, 2010). Following the increase in provision of pharmacotherapy, some researchers have brought into question whether pharmacological treatments are as effective as originally claimed. In a review including participants from four English-speaking countries, it was found that despite the increase in provision of treatments for mental disorders, there has not been a decrease in prevalence of common mental disorders from 1990 to 2015

(Jorm et al., 2017). The discrepancy between increased provision of outpatient psychotropic medication and absence of a decrease in prevalence of common mental disorders supports the skepticism surrounding the clinical utility of pharmacological treatments.

The effectiveness of pharmacotherapy in alleviating mental health issues may also be overestimated in the public. Many of the adult student participants in France and colleagues' study (2007) falsely believed doctors' knowledge concerning the relationship between chemical functioning in the brain and mental illness to be more advanced than reality. 45.0% of the participants indicated that they believe that doctors understand the specific brain chemicals that are involved in the development of depression, 24.0% endorsed that doctors can measure brain chemicals to differentiate depressed from non-depressed individuals, and 22.1% supported that doctors can precisely determine the extent of an individual's depression through measuring brain chemicals. These misunderstandings may inflate public confidence in physician-prescribed medications to solve mental health issues.

Clearly, the public requires a more accurate education on mental disorders and what the scientific and medical community currently understand and do not understand. This raises concerns regarding how these inaccurate notions were engrained in the first place. The dissemination of the original concept of chemical imbalance contributing to mental disorders can be largely traced to pharmaceutical companies and the media. For example, 88.6% of individuals in France and colleagues' 2007 study indicated that they were exposed to the chemical imbalance explanation through television, which was the most highly endorsed route of exposure, followed by friend/family member or other acquaintances. Direct-to-consumer (DTC) advertising of prescription medications has played a large role in informing individuals of the effectiveness of psychiatric drugs (France et al., 2007). This advertising is not always unbiased, as it is frequently presented by pharmaceutical companies that serve to gain from profiting off of sales of their prescription medications. The growing pharmaceutical industry has increased their investment in DTC advertising, with rates skyrocketing from approximately \$12 million in 1989 to over \$3 billion in 2003 (France et al., 2007). Considering the stakeholders is imperative when contemplating the perspectives of how mental disorders arise and how they should be treated. Ultimately, what is best for the affected individual should take precedence, regardless of who else may come to benefit as a result of the selected clinical decision.

## Public Perceptions of Mental Illness

The essentialist framework suggests that disorders that are biologically based are a deeply rooted component of the individual and are relatively unresponsive to external influences (Kemp et al., 2014). This viewpoint suggests an innate difference between clinical and non-clinical individuals. According to attribution theory, the chemical imbalance perspective should reduce stigma towards individuals with mental disorders by reducing perceptions of responsibility for - and ability to - change their disorder (Corrigan, 2000). Though this outcome would be ideal, it is inconsistent with evidence found within the research community. In fact, researchers have found that among those who endorse a biogenetic explanation of mental disorders stigma is not reduced and may instead be heightened (Angermeyer et al., 2011; Kvaale et al., 2013). This relationship between biogenetic conceptualization and increased stigma may depend on the sample, as shown in a meta-analysis published by Kvaale and colleagues including lay individuals from different regions in the world. When separating their sample by college and community populations, they found that students showed a more “positive” orientation towards those with a mental disorder when viewed through a biogenetic lens, including reduced blame towards the individual for their own disorder. Oppositely, the community sample viewed those with a mental disorder in a more “negative” way, exhibiting heightened negative stereotyping and an increase in desire for social distance from individuals with mental disorders. A systematic review of 32 representative population studies also investigated biological and genetic causal attributions of mental illness and the public’s perception of individuals with mental illness and found that the relation between public beliefs of biogenetic causes of mental illness and desire for social distance from affected individuals was largely insignificant, but varied by diagnosis (Angermeyer et al., 2011). People with higher levels of belief in the biogenetic explanation had a significantly stronger desire for social distance from those with schizophrenia in particular, one of the most biologically and genetically rooted mental disorders (McCutcheon et al., 2019). The authors argue that this result is consistent with the idea that the public may see more biogenetically rooted disorders as more stable, less likely to be affected by external factors, and less likely to resolve over time, which may in turn increase stigma.

## Treatment Implications

Various certified mental health professionals are available to assist the general public with mental

health concerns, including family physicians, psychiatrists, psychologists, counsellors, and psychotherapists. When seeking professional help, a likely first point of contact is the family physician (France et al., 2007). Lebowitz and Ahn (2014) were interested in seeing how a clinicians’ endorsement of treatment might differ when patient profiles were presented in a biological versus psychosocial manner. When a patient’s symptomatology was presented in a primarily biological context clinicians were more likely to strongly endorse medication over psychotherapy and clinicians rated their level of empathy towards the patient significantly lower in this context than in the psychosocial context. This finding translated across all four disorders examined in the study including schizophrenia, social phobia, depression, and OCD. The decrease in clinician empathy for patients whose symptoms are presented in a biological manner is concerning as it could weaken the relationship between the clinician and patient, affecting treatment outcomes (Elliott et al., 2011).

The result of the clinician’s increased endorsement of medication over psychotherapy can create a cycle that perpetuates the unidimensional chemical imbalance theory of mental disorders. If the patient presents symptoms in a biological way to the physician, the physician will be more likely to recommend medication over psychotherapy, which can in turn alter the patient’s view of their own disorder. Even ineffective drugs may still lead to a reduction of symptoms through a placebo effect (Kirsch et al., 2002), which may then affirm the clinician and patient’s beliefs in the effectiveness of the drug. This may cause the patient not to seek psychotherapy alongside medication, or the physician not to mention the option of seeking both pharmacotherapy and psychotherapy simultaneously, even though psychotherapy in combination with pharmacotherapy has been shown to be the optimal treatment strategy for certain disorders, such as depression (Cuijpers et al., 2014; 2020).

If a patient holds biogenetic causal attributions for their disorder, they are also more likely to seek medical treatment alone rather than psychotherapy (Kemp et al., 2014). As Kemp and colleagues demonstrated, individuals suffering from depression who are led to believe that their disorder results from a chemical imbalance (lack of serotonin) may have elevated beliefs that the problem is more resistant to change and unlikely to respond to attempts to remediate the problem - in other words they may exhibit elevated prognostic pessimism. Since these individuals think that their disorder stems from a chemical imbalance, they may be more resistant to psychotherapy which

does not target chemicals directly as psychopharmacology does. The individuals who were led to believe that their disorder results from a chemical imbalance also demonstrated significantly lower anticipations for their ability to regulate their own mood states. By telling the participants that their problem results from a chemical imbalance, the researchers have decreased the individuals' beliefs that they are an active agent in their situation and can take actions to reduce their symptoms.

### **Suggestions for Patients, Clinicians, and the Public**

Though the discussion presented here highlights some of the potential consequences of the viewing mental disorders as arising exclusively from biological factors, its purpose is not to deny the effectiveness of various biologically-based treatments for mental disorders. Rather, the intent of discussing the presented research findings is to bring to attention the need for inclusion of psychological and social components in addition to their biological counterparts when discussing etiology and treatment of mental disorders. By ensuring that the public and clinicians understand the importance of psychological and social factors in addition to biological factors for the etiology of mental disorders, stigma towards individuals with mental disorders can be reduced. Additionally, by providing individuals with mental disorders with unbiased information about treatment options available for them, clinicians and patients can work together towards implementing the treatment option with the most clinical utility for the patient and their particular circumstance.

Another essential component in order to reduce stigma towards individuals with mental disorders is to address the misconceptions that are present within the public about what the medical and research communities currently understand about how chemicals are associated with mental disorders. To combat these misunderstandings from biased or incorrect information, a similar strategy using DTC advertising could be employed. Television may be an effective way for information about mental disorders to reach a majority of the general public seeing as this was largely how the misinformation was originally spread. With advancing technology, a novel approach to advertising which includes social networking sites may be more practical to educate the public about the effectiveness of psychotherapy and pharmacotherapy, but this method must take advantage of the interactive capabilities of these sites in order to be sufficiently engaging for the audience (Knoll, 2016). Specifically, video clips targeting these misunderstandings may reduce the consequential effects of the chemical imbalance

model (Lebowitz et al., 2013). In Lebowitz and colleagues' study, individuals with depression viewed a clip explaining the malleability of their disorder and the interaction of biological and psychosocial factors that may contribute to their disorder and the researchers found that this intervention reduced prognostic pessimism. This method of psychoeducation through video clips to reverse select negative impacts of the chemical imbalance viewpoint may be possible to adapt for use on social networking websites and television to reach a wider audience including individuals other than those affected by depression, but this would require further research with a more diverse sample before implementation.

In the future, continuing the discussion of the negative implications of framing mental disorders as a result of chemical imbalances can help decrease stigma towards individuals with mental disorders and improve their treatment recommendations. As Haslam and Kvaale (2015) noted, the most important step in addressing the negative implications of the chemical imbalance model is to first be mindful of them regardless of whether we are the patient, the public, or the clinician.



### **References**

- Angermeyer, M. C., Holzinger, A., Carta, M. G., & Schomerus, G. (2011). Biogenetic explanations and public acceptance of mental illness: Systematic review of population studies. *The British Journal of Psychiatry: The Journal of Mental Science*, 199(5), 367. <https://doi.org/10.1192/bjp.bp.110.085563>
- Barondes, S., & Wood, W. (2004). [Review of Better than Prozac: Psychopharmacology then and now [Better than Prozac: Creating the next generation of psychiatric drugs]]. *CrossCurrents*, 7(3), 19. <http://search.proquest.com/docview/218652530/>
- Corrigan, P. (2000). Mental health stigma as social attribution: Implications for research methods and attitude change. *Clinical Psychology: Science and Practice*, 7(1), 48–67. <https://doi.org/10.1093/clipsy.7.1.48>
- Cuijpers, P., Noma, H., Karyotaki, E., Vinkers, C., Cipriani, A., & Furukawa, T. (2020). A network meta-analysis of the effects of psychotherapies, pharmacotherapies and their combination in the treatment of adult depression. *World Psychiatry*, 19(1), 92–107. <https://doi.org/10.1002/wps.20701>
- Cuijpers, P., Sijbrandij, M., Koole, S. L., Andersson, G., Beekman, A. T., & Reynolds, C. F., 3rd (2014). Adding psychotherapy to antidepressant medication in depression and anxiety disorders: a meta-analysis. *World psychiatry: official journal of the World Psychiatric Association (WPA)*, 13(1), 56–67. <https://doi.org/10.1002/wps.20089>
- Elliott, R., Bohart, A., Watson, J., & Greenberg, L. (2011). Empathy. *Psychotherapy*, 48(1), 43–49. <https://doi.org/10.1037/a0022187>

- France, C. M., Lysaker, P. H., & Robinson, R. P. (2007). The “Chemical imbalance” explanation for depression: Origins, lay endorsement, and clinical implications. *Professional Psychology: Research and Practice*, 38(4), 411–420. <https://doi.org/10.1037/0735-7028.38.4.411>
- Haslam, N., & Kvaale, E. (2015). Biogenetic explanations of mental disorder: The mixed-blessings model. *Current Directions in Psychological Science*, 24(5), 399–404. <https://doi.org/10.1177/0963721415588082>
- Iversen, L. The next happy pill. *Nature*, 424(6949), 617–618 (2003). <https://doi.org/10.1038/424617a>
- Jorm, A., Patten, S., Brugha, T., & Mojtabai, R. (2017). Has increased provision of treatment reduced the prevalence of common mental disorders? Review of the evidence from four countries. *World Psychiatry*, 16(1), 90–99. <https://doi.org/10.1002/wps.20388>
- Kemp, J. J., Lickel, J. J., & Deacon, B. J. (2014). Effects of a chemical imbalance causal explanation on individuals’ perceptions of their depressive symptoms. *Behaviour Research and Therapy*, 56(1), 47–52. <https://doi.org/10.1016/j.brat.2014.02.009>
- Kessler, R., Berglund, P., Demler, O., Jin, R., Koretz, D., Merikangas, K., Rush, A. John, Walters, E., & Wang, P. (2003). The epidemiology of major depressive disorder: Results from the national comorbidity survey replication (NCS-R). *Journal of the American Medical Association*, 289, 3095–3105. <https://doi.org/10.1001/jama.289.23.3095>
- Kirsch, I., Scoboria, A., & Moore, T. (2002). Antidepressants and placebos: Secrets, revelations, and unanswered questions. *Prevention & Treatment*, 5(1). <https://doi.org/10.1037/1522-3736.5.1.533r>
- Knoll, J. (2016). Advertising in social media: a review of empirical evidence. *International Journal of Advertising*, 35(2), 266–300. <https://doi.org/10.1080/02650487.2015.1021898>
- Kvaale, E. P., Gottdiener, W. H., & Haslam, N. (2013). Biogenetic explanations and stigma: A meta-analytic review of associations among laypeople. *Social Science & Medicine*, 96, 95–103. <https://doi.org/10.1016/j.socscimed.2013.07.017>
- Lebowitz, M., Ahn, W. (2014). Effects of biological explanations for mental disorders on clinicians’ empathy. *Proceedings of the National Academy of Sciences, USA*, 111(50), 17786–17786. <https://doi.org/10.1073/pnas.1414058111>
- Lebowitz, M., Ahn, W., & Nolen-Hoeksema, S. (2013). Fixable or fate? Perceptions of the biology of depression. *Journal of Consulting and Clinical Psychology*, 81(3), 518–527. <https://doi.org/10.1037/a0031730>
- McBride, G. (1994). America goes crazy for “the happy pill.” (Prozac). *British Medical Journal*, 308(6929).
- McCutcheon, R., Abi-Dargham, A., & Howes, O. (2019). Schizophrenia, Dopamine and the Striatum: From Biology to Symptoms. *Trends in Neurosciences*, 42(3), 205–220. <https://doi.org/10.1016/j.tins.2018.12.004>
- Olfson, M., Marcus, S. C. (2010). National trends in outpatient psychotherapy. *American Journal of Psychiatry*, 167, 1456–1463. [doi:10.1176/appi.ajp.2010.10040570](https://doi.org/10.1176/appi.ajp.2010.10040570)
- Pilkington, P., Reavley, N., & Jorm, A. (2013). The Australian public’s beliefs about the causes of depression: Associated factors and changes over 16 years. *Journal of Affective Disorders*, 150(2), 356–362. <https://doi.org/10.1016/j.jad.2013.04.019>
- Read, J., Cartwright, C., Gibson, K., Shiels, C., & Magliano, L. (2015). Beliefs of people taking antidepressants about the causes of their own depression. *Journal of Affective Disorders*, 174, 150–156. <https://doi.org/10.1016/j.jad.2014.11.009>



# Examining the Non-Traditional Treatment of Psychedelic Psychotherapy for Major Depressive Disorder

Sridevi Kundurthi, University of Waterloo, B.Sc. Student

## Abstract

Major Depressive Disorder (MDD) is a significant mental health condition with considerable personal, as well as socioeconomic costs. Antidepressant medications are the most common treatments administered for MDD; however, these treatments may cause multiple side-effects and are not universally effective. Thus, clinicians and their patients might consider alternative treatments, such as psychedelic drugs, to mitigate depressive symptoms. This paper will discuss some of the issues surrounding traditional MDD treatments and the controversial use of psychedelics in psychotherapy. Further, this paper explores the efficacy and risk factors associated with the use of psychedelics—particularly ketamine and psilocybin—as an alternative treatment for MDD. Finally, the limitations of psychedelic psychotherapy studies, and ways to integrate traditional and alternative therapies for MDD are highlighted.

## Résumé

Le trouble dépressif caractérisé (TDC) est un problème de santé mentale grave, qui a des coûts personnels et socio-économiques considérables. Les antidépresseurs sont les traitements les plus couramment administrés pour soigner le TDC; cependant, ces traitements causent parfois de multiples effets secondaires et ne sont pas efficaces dans tous les cas. Ainsi, les cliniciens et leurs patients pourraient envisager des traitements de deuxième intention, comme les drogues psychédéliques, pour atténuer les symptômes dépressifs. Le présent article examinera certaines questions entourant les traitements traditionnels du TDC et l'utilisation controversée des hallucinogènes en psychothérapie. Nous explorerons, en outre, l'efficacité et les facteurs de risque associés à l'utilisation de drogues psychédéliques, en particulier la kétamine et la psilocybine, comme traitement de deuxième intention du TDC. Enfin, les limites des études sur la psychothérapie assistée par les psychédéliques et les moyens d'intégrer les thérapies traditionnelles et de deuxième intention pour traiter le TDC sont mis en évidence.



Major Depressive Disorder (MDD) involves the occurrence of one or more major depressive episodes (MDEs), which are characterized by depressed mood, loss of interest or pleasure, changes in sleep and appetite, difficulties with concentration, loss of energy, worthlessness, and/or suicidal ideation (American Psychiatric Association, [APA], 2013). MDD is a leading cause of disability worldwide (World Health Organization, 2020), and has cost the Canadian economy over 32.3 billion dollars in lost gross domestic product, due to its impacts on employee productivity (Conference Board of Canada, 2016).

Approximately 8% of Canadian men and 14 % of Canadian women have experienced MDD in their lifetime (Knoll & MacLennan, 2017). Further, compared to women without MDD, women experiencing a recent MDE have shorter life expectancies by approximately 15 years (Steensma et al., 2016). During an MDE, individuals report less involvement in leisure activities, increased interpersonal difficulties, and an overall decrease in quality of life (Godard et al., 2012). Taken together, these statistics highlight the overall economic, health and psychosocial burden caused by MDD.

At present, antidepressants are the most common treatment prescribed for MDD; however, only 30% of individuals taking antidepressants for MDD achieve complete remission (Al-Qahtani et al., 2018). Individuals with MDD often do not adhere to medication guidelines, worsening treatment outcomes (Sawada et al., 2009; Roberson et al., 2016). Additionally, side effects like emotional blunting and sexual dysfunction are reported in over 50% of adult antidepressant users (Read & Williams, 2018), and 46% of patients experiencing withdrawal from antidepressants describe severe withdrawal reactions (Davies & Read, 2019). Wu et al. (2007) found that women seeking alternative treatments for depression cite the aforementioned negative side-effects and ineffectiveness of traditional treatments as major motivators. It follows that some clinicians believe in the need for alternative MDD treatments that are fast-acting, with fewer side effects and withdrawal reactions (Greenway et al., 2020).

An alternative treatment for MDD is psychedelic drugs utilized in conjunction with psychotherapy (Greenway et al., 2020). A psychedelic drug causes distinct changes in one's thoughts, perception, and mood that are otherwise only encountered during dreams, involuntary flashbacks of memory, instances of religious euphoria and acute psychoses (Grinspoon & Bakalar, 1979). The use of psychedelics in ceremonies and rituals has been traced to at least 300BC (Stafford, 2013). After the synthesis of Lysergic acid diethylamide (LSD) in the 1950s, it was widely administered to patients as a part of their psychiatric treatment (Carhart-Harris & Goodwin, 2017). However, due to the growing association of these drugs with counter-culture movements, and lack of reliably conducted studies on their effects, psychedelics were criminalized in 1970 (Moscone & Prpa, 2020). The modern-day revival of research on psychedelics has led experts to suggest that psychedelic-assisted psychotherapy will be legalized in Canada by 2021 (Moscone & Prpa 2020). In fact, at present, there is a clinic in Toronto that administers the psychedelic ketamine for treatment-resistant depression (Krishnan, 2020). Thus, psychedelics are gaining popularity as an alternative treatment for MDD, but given their complicated history with research and legalization, a review of psychedelics is needed. This paper examines the evidence for the efficacy of psychedelics as an alternative treatment for MDD and their associated risk factors. Additionally, limitations associated with psychedelic studies and potential future directions in the field will be discussed.

## Ketamine

One commonly examined psychedelic is ketamine – a legal medical substance that is often used as an anesthetic when administered at high doses. At lower doses, ketamine causes a psychedelic experience (Krupitsky & Grinenko, 1997). Numerous clinical trials have examined ketamine as a treatment for MDD (Schenberg, 2018). One meta-analysis of clinical trials showed that ketamine administration significantly reduces depression scores in individuals with MDD, regardless of whether they are concurrently undergoing non-pharmacological treatment or receiving antidepressant medication (Fond et al., 2014). Notably, this meta-analysis demonstrated that individuals with treatment-resistant depression showed significant reductions in depressive symptoms only 24 hours after ketamine administration. However, individuals with a history of substance abuse or psychotic episodes were excluded from most studies examined, thus limiting the generalizability of these findings to individuals with comorbid challenges. Nonetheless, two other

meta-analyses corroborated these findings, indicating that ketamine's effects are rapid and significant, but short-lived (McGirr et al., 2014; Coyle & Laws, 2015). Indeed, Coyle and Laws (2015) state that a single infusion of ketamine shows rapid antidepressant effects for up to 2 weeks. Thus, ketamine appears to be effective at reducing symptoms immediately and in the short-term, which may be helpful for those in emergency settings or those receiving palliative care.

Ketamine's antidepressant effects could be attributed to many different mechanisms of action. From a biological perspective, exposure to chronic stress has been linked to dendritic retraction and a loss of dendritic spines in the brain among individuals with mood disorders (Mathews et al., 2012). Given that ketamine administration promotes synaptic potentiation and dendritic spine growth, it could exert its antidepressant effects by mitigating stress-related neural disruption (Kyrstal et al., 2013; Wilkinson et al., 2017). Further, Ionescu et al. (2018) indicate that ketamine administration decreases hyperconnectivity in the Default Mode Network (DMN) of the brain. DMN hyperconnectivity is linked with increased rumination, which is a cognitive state of elevated self-focus commonly found in individuals with MDD (Berman et al., 2014; Michl et al., 2013). By decreasing DMN hyperconnectivity, ketamine could shift focus away from internal states, thereby decreasing reactivity to negative experiences (Ionescu et al., 2018; Scheidegger et al., 2016).

Additionally, the dissociative effects of ketamine are important to note. Compared to its somatic effects (e.g. increased blood pressure), studies have shown that the dissociative or 'psychedelic' effects of ketamine are better predictors of a reduction in depressive symptoms (Luckenbaugh et al., 2014; Wilkinson et al., 2017). It is argued that the dissociative effects of ketamine provide temporary relief from negative thoughts, which enhances an individual's ability to engage in psychotherapy (Dore et al., 2019). Indeed, studies using compounds that chemically resemble ketamine, but have fewer dissociative effects, show only moderate effectiveness in therapeutic settings (Iadarola et al., 2015). Similarly, in a study examining participants undergoing ketamine infusion therapy and concurrent cognitive behavioural therapy (CBT) for treatment-resistant depression, only 25% of patients receiving combined therapy relapsed after 8 weeks, compared to 55% of patients who received ketamine therapy alone (Wilkinson et al., 2017). These findings show support for the concurrent use of ketamine and psychotherapy.

Together, the above findings indicate that ketamine may provide short-term symptom relief among pa-

tients with treatment-resistant depression and those with a history of antidepressant use. However, more research is needed, as most studies reviewed administered different analogs and doses of ketamine and thus, lack consistency.

### Associated Risks

Short et al. (2018) state that short-term side-effects of ketamine, which resolve less than one hour after administration, include increased blood pressure, light-headedness, dizziness, headaches, blurred vision, nausea, memory loss and poor concentration. In older populations, the repeated use of ketamine as an *anesthetic* is associated with toxic effects on the urinary system (e.g., bladder dysfunction and renal injury), liver injury, as well as short-term and long-term memory impairments (Short et al., 2018).

Caution is therefore recommended for studies using ketamine, especially in elderly populations. Another risk associated with ketamine administration is ketamine addiction, which can lead to memory and learning impairments (Zhu et al., 2016; Schwartz, Murrough, & Iosifescu, 2016). As a result, Zhu et al. (2016) suggest administering ketamine at low doses and only in settings where the patient can be continuously monitored for side-effects. Moreover, Fond et al. (2014) suggest that blood and urine tests, and electrocardiograms (ECG) be administered to patients to determine their eligibility for ketamine administration. In summary, research on the long-term side-effects of ketamine treatment is limited, since most clinical trials do not measure these participants over a long period of time. Thus, the potential therapeutic benefits of ketamine treatment should be carefully weighed against its associated risks.

### Psilocybin

In contrast to the risks associated with ketamine use, psilocybin poses a much lower risk of addiction and withdrawal, even when its use is not supervised, bolstering its utility as a treatment modality (Tylš et al., 2014). Psilocybin is a psychoactive component found in over 100 mushroom species, and its behavioural effects are hypothesized to be due to agonist activity at the 5-HT<sub>2A</sub> serotonin receptor (Johnson & Griffiths, 2017). Depending on its dosage, psilocybin's effects can last between 2 to 6 hours, and often include feelings of relaxation and euphoria, visual enhancement, an altered perception of faces and images; auditory and visual hallucinations (Amsterdam et al., 2011). Psilocybin administration in a therapeutic setting is associated with the reduction of cancer-related depressive symptoms and treatment-resistant depression (Schenberg, 2018). For instance,

in two randomized clinical trials examining the effect of psilocybin and psychotherapy on depressive symptoms in cancer patients, high doses of psilocybin were associated with a greater reduction in depressive symptoms on the Hamilton Depression Rating Scale (Hamilton, 1960) and the Beck Depression Inventory (Beck et al., 1996), compared to low doses (Johnson & Griffiths, 2017). Importantly, these treatment gains were also found to persist in 80% of patients at the 6-month follow-up; providing support for the concurrent use of psilocybin and psychotherapy to reduce cancer-related depressive symptoms.

In another study combining psychological support with low and high doses of psilocybin among adults with treatment-resistant MDD (Carhart-Harris et al., 2016), it was found that 67% of patients responded to treatment within a week by showing a significant reduction in symptoms on the Quick Inventory of Depressive Symptoms (Rush et al., 2003). Further, 58% of these patients maintained these effects at a 3-month follow-up. Considering that many of the participants in this study had been depressed for most of their lives, these results indicate that psilocybin can have a therapeutic effect on chronic depression. Nonetheless, given that this investigation was an open-label study (wherein the patients, facilitators and researchers were aware of the treatment conditions) and did not employ a control group, the decrease in depressive symptoms could be inflated due to researcher bias or demand characteristics. Taken together, these results provide evidence for psilocybin's ability to relieve depressive symptoms, although further research is required.

Multiple mechanisms have been proposed to explain psilocybin's therapeutic effects. For instance, in a neuroimaging investigation by Carhart-Harris et al. (2017), decreased activity in the DMN of the brain was observed during psilocybin administration, followed by *increased* DMN activity one-day post psilocybin treatment. The researchers hypothesize that this pattern of disintegration and reintegration in brain activity is involved in psilocybin's antidepressant effects. Additionally, psilocybin use is associated with decreased reactivity to negative stimuli, increased positive mood, decreased hopelessness, and facilitation of therapeutic bonds (Kraehenmann et al., 2015; Majić et al., 2015), resulting in an 'afterglow' effect. Carhart-Harris et al. (2017) hypothesize that altered brain activity along with the 'afterglow' effect associated with psilocybin use could help clinicians deliver therapeutic strategies that are more meaningfully interpreted.

Thus, to improve the efficacy of psilocybin as a treatment for MDD, clinicians need to be appropriately

trained in their role before, during and after administration of the drug (Belser et al., 2017; Schenberg, 2018). Schenberg (2018) recommends that clinicians carefully monitor the ‘set’ and ‘setting’ of patients during the psychedelic experience. Broadly, ‘set’ refers to the patient’s beliefs, attitudes, and motivations, while ‘setting’ refers to the environment (e.g., location, therapist support, context) in which the psychedelic is consumed (Eisner, 1997). In summary, psilocybin administered by trained clinicians could lead to a fast-acting and sustained reduction in depressive symptoms.

### Associated Risks

Amsterdam et al. (2011) indicate that patients report highly varied psychedelic experiences when taking psilocybin; leading to difficulties in characterizing its acute and long-term side effects. Regardless, they list high rates of anxiety and paranoia as the most common side effects of psilocybin use. They mention that sometimes serious negative effects culminate in a ‘bad trip’, characterized by extreme paranoia, a loss of reality and in some cases, self-harm. Physical symptoms of nausea, vomiting, increased heart rate and gastrointestinal problems have been recorded, and after-effects, such as depression and paranoia, can persist beyond the duration of use (Gouzoulis-Mayfrank et al., 1999). Individuals with cardiovascular problems could also experience a greater rise in blood pressure (Hasler et al., 2004). Perhaps the most controversial risk associated with psilocybin use is that it temporarily induces a psychological state that mimics early-stage psychosis in disorders like schizophrenia (Amsterdam et al., 2011). Due to concerns that psilocybin use can influence the development of psychosis in vulnerable populations, Nielen et al. (2004) advise patients with a genetic history of psychiatric disease to not partake in this form of treatment. Further, concurrent use of psilocybin and alcohol has been linked to negative outcomes, including hospitalization (Bienenmann et al., 2020). Thus, safe psilocybin use requires psychological support and close monitoring of the patient for at least 6 hours after psilocybin administration, until all perceptual effects subside (O’Donnell, Mennenga & Bogenschutz, 2019).

### Future Directions

Many questions remain regarding the combination of psychedelic and traditional MDD treatments, optimal dosage and frequency, and licensing procedures for psychedelic administration.

The complex nature of a psychedelic experience requires a supportive environment; however, evidence for supplementing psychedelic therapy with traditional

therapies is limited. Walsh and Thiessen (2018) note that third-wave therapies like Mindfulness-Based Cognitive Therapy (MBCT), Dialectical Behaviour Therapy (DBT) and Acceptance and Commitment Therapy (ACT) are effective in reducing acute depression. Importantly, these therapies, similar to psychedelic psychotherapy, attempt to enhance mindfulness, regulate emotions and increase tolerance of distress. Due to these shared treatment mechanisms, Walsh and Thiessen (2018) suggest that MBCT, DBT and ACT could supplement psychedelic therapy, with therapy type depending on individual differences and the client’s treatment goals.

To answer questions related to dosage, regulation and administration of psychedelic therapy, Haden, Emerson and Tupper (2016) published a public-health based model for the management of psychedelic substances, if they were to be legalized. They detail the creation of a Psychoactive Substance Commission, to oversee the production and trade of psychedelics, as well as a College of Psychedelic Supervisors, to regulate health professionals who receive licensing in psychedelic administration. They also note important steps in the psychedelic therapy process—educating the client about a psychedelic experience, establishing an appropriate dose by collaborating with the client, and ensuring therapeutic support before, during and after drug administration.

### Conclusions

Overall, the psychedelic drugs ketamine and psilocybin are associated with reductions in depressive symptoms. However, most studies in this field are limited by small sample sizes that lack diversity (Micheals et al., 2018). For instance, Carhart-Harris et al. (2016) administered psilocybin to only 12 individuals and the average sample size for the studies examined in McGirr et al.’s (2015) meta-analysis is 26. Additionally, given that the dissociative effects of ketamine and psilocybin are highly apparent for participants, it seems unlikely that participants can be truly blind to their treatment condition in clinical trials. In addition to these issues with study design, there is limited research exploring the long-term side effects of psychedelics, which poses a barrier to the implementation of psychedelic psychotherapy. Nonetheless, if psychedelic drugs are accepted as a mainstream treatment in the future, we can rest assured that there are models in place for their ethical and safe management.





## References

- American Psychiatric Association. (2013). Depressive Disorders. *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: American Psychiatric Association. doi: 10.1176/appi.books.9780890425596.dsm04.
- Amsterdam, J. V., Opperhuizen, A., & Brink, W. V. D. (2011). Harm potential of magic mushroom use: A review. *Regulatory Toxicology and Pharmacology*, 59(3), 423–429. doi:10.1016/j.yrtph.2011.01.006
- Al-Qahtani, A. M., Shaikh, M. A. K., & Shaikh, I. A. (2018). Exercise as a treatment modality for depression: A narrative review. *Alexandria Journal of Medicine*, 54(4), 429–435. doi: 10.1016/j.ajme.2018.05.004
- Beck, A. T., Steer, R. A., & Brown, G. K. (1996). *Manual for the Beck Depression Inventory–II*. Psychological Corporation.
- Belser, A. B., Agin-Liebes, G., Swift, T. C., Terrana, S., Devenot, N., Friedman, H. L., ... Ross, S. (2017). Patient Experiences of Psilocybin-Assisted Psychotherapy: An Interpretative Phenomenological Analysis. *Journal of Humanistic Psychology*, 57(4), 354–388. doi: 10.1177/0022167817706884
- Berman, M. G., Masic, B., Buschkuhl, M., Kross, E., Deldin, P. J., Peltier, S., ... & Jonides, J. (2014). Does resting-state connectivity reflect depressive rumination? A tale of two analyses. *Neuroimage*, 103, 267–279. doi: 10.1016/j.neuroimage.2014.09.027
- Bienemann, B., Ruschel, N. S., Campos, M. L., Negreiros, M. A., & Mograbi, D. C. (2020). Selfreported negative outcomes of psilocybin users: A quantitative textual analysis. *PLoS ONE*, 15(2), 1–15. doi: 10.1371/journal.pone.0229067
- Carhart-Harris, R. L., & Goodwin, G. M. (2017). The Therapeutic Potential of Psychedelic Drugs: Past, Present, and Future. *Neuropsychopharmacology*, 42(11), 2105–2113. <https://doi.org/10.1038/npp.2017.84>
- Carhart-Harris, R. L., Bolstridge, M., Rucker, J., Day, C. M. J., Erritzoe, D., Kaelen, M., ... Nutt, D. J. (2016). Psilocybin with psychological support for treatment-resistant depression: An open-label feasibility study. *The Lancet Psychiatry*, 3(7), 619–627. doi: 10.1016/s2215-0366(16)30065-7
- Carhart-Harris, R. L., Roseman, L., Bolstridge, M., Demetriou, L., Pannekoek, J. N., Wall, M. B., ... & Leech, R. (2017). Psilocybin for treatment-resistant depression: fMRI-measured brain mechanisms. *Scientific Reports*, 7(1), 1–11. doi: 10.1038/s41598-017-13282-7
- Chekroud, A. M., Foster, D., Zheutlin, A. B., Gerhard, D. M., Roy, B., Koutsouleris, N., ... & Paulus, M. (2018). Predicting barriers to treatment for depression in a US national sample: a cross-sectional, proof-of-concept study. *Psychiatric services*, 69(8), 927–934. doi: 10.1176/appi.ps.201800094
- Conference Board of Canada (2016, September 1). *Unmet Mental Health Care Needs Costing Canadian Economy Billions*. Retrieved from [https://www.conferenceboard.ca/press/newsrelease/16-09-01/Unmet\\_Mental\\_Health\\_Care\\_Needs\\_Costing\\_Canadian\\_Economy\\_Billions.aspx](https://www.conferenceboard.ca/press/newsrelease/16-09-01/Unmet_Mental_Health_Care_Needs_Costing_Canadian_Economy_Billions.aspx)
- Cooper, A. A., & Conklin, L. R. (2015). Dropout from individual psychotherapy for major depression: A meta-analysis of randomized clinical trials. *Clinical Psychology Review*, 40, 57–65. doi: 10.1016/j.cpr.2015.05.001
- Coyle, C. M., & Laws, K. R. (2015). The use of ketamine as an antidepressant: A systematic review and meta-analysis. *Human Psychopharmacology: Clinical and Experimental*, 30(3), 152–163. doi: 10.1002/hup.2475
- Davies, J., & Read, J. (2019). A systematic review into the incidence, severity and duration of antidepressant withdrawal effects: Are guidelines evidence-based? *Addictive Behaviors*, 97, 111–121. doi: 10.1016/j.addbeh.2018.08.027
- Dore, J., Turnipseed, B., Dwyer, S., Turnipseed, A., Andries, J., Ascani, G., ... & Wolfson, P. (2019). Ketamine assisted psychotherapy (KAP): Patient demographics, clinical data and outcomes in three large practices administering ketamine with psychotherapy. *Journal of psychoactive drugs*, 51(2), 189–198. doi: 10.1080/02791072.2019.1587556
- Eisner, B. (1997). Set, setting, and matrix. *Journal of Psychoactive Drugs*, 29(2), 213–216. doi: 10.1080/02791072.1997.10400190.
- Fond, G., Loundou, A., Rabu, C., Macgregor, A., Lançon, C., Brittner, M., ... & Roger, M. (2014). Ketamine administration in depressive disorders: A systematic review and meta-analysis. *Psychopharmacology*, 231(18), 3663–3676. doi: 10.1007/s00213-014-3664-5
- Godard, J., Baruch, P., Grondin, S., & Lafleur, M. F. (2012). Psychosocial and neurocognitive functioning in unipolar and bipolar depression: A 12-month prospective study. *Psychiatry Research*, 196(1), 145–153. doi: 10.1016/j.psychres.2011.09.013
- Gouzoulis-Mayfrank, E., Thelen, B., Habermeyer, E., Kunert, H. J., Kovar, K. A., Lindenblatt, H., ... & Sass, H. (1999). Psychopathological, neuroendocrine and autonomic effects of 3, 4-methylenedioxyethylamphetamine (MDE), psilocybin and d-methamphetamine in healthy volunteers Results of an experimental double-blind placebo-controlled study. *Psychopharmacology*, 142(1), 41–50.
- Greenway, K. T., Garel, N., Jerome, L., & Feduccia, A. A. (2020). Integrating psychotherapy and psychopharmacology: psychedelic-assisted psychotherapy and other combined treatments. *Expert Review of Clinical Pharmacology*, 1–15. doi: 10.1080/17512433.2020.1772054
- Grinspoon, L., & Bakalar, J. B. (1979). *Psychedelic drugs reconsidered* (pp. 221–223). New York: Basic Books.
- Haden, M., Emerson, B., & Tupper, K. W. (2016). A public-health-based vision for the management and regulation of psychedelics. *Journal of Psychoactive Drugs*, 48(4), 243–252. doi: 10.1080/02791072.2016.1202459
- Hasler, F., Grimberg, U., Benz, M. A., Huber, T., & Vollenweider, F. X. (2004). Acute psychological and physiological effects of psilocybin in healthy humans: a double-blind, placebo-controlled dose-effect study. *Psy-*

- chopharmacology, 172(2), 145-156. doi: 10.1007/s00213-003-1640-6
- Hamilton, M. (1960). A rating scale for depression. *Journal of Neurology Neurosurgery and Psychiatry*, 23(1), 56-62. doi: 10.1136/jnnp.23.1.56
- Iadarola, N. D., Niciu, M. J., Richards, E. M., Vande Voort, J. L., Ballard, E. D., Lundin, N. B., Nugent, A. C., Machado-Vieira, R., & Zarate, C. A., Jr (2015). Ketamine and other N-methyl-D-aspartate receptor antagonists in the treatment of depression: A perspective review. *Therapeutic advances in chronic disease*, 6(3), 97-114. doi: 10.1177/2040622315579059
- Ionescu, D. F., Felicione, J. M., Gosai, A., Cusin, C., Shin, P., Shapero, B. G., & Deckersbach, T. (2018). Ketamine-associated brain changes. *Harvard Review of Psychiatry*, 1. doi: 10.1097/hrp.0000000000000179
- Johnson, M. W., & Griffiths, R. R. (2017). Potential Therapeutic Effects of Psilocybin. *Neurotherapeutics*, 14(3), 734-740. doi: 10.1007/s13311-017-0542-y
- Knoll, A. D., & MacLennan, R. N. (2017). Prevalence and correlates of depression in Canada: Findings from the Canadian Community Health Survey. *Canadian Psychology/Psychologie Canadienne*, 58(2), 116-123. doi: 10.1037/cap0000103
- Kraehenmann, R., Preller, K. H., Scheidegger, M., Pokorny, T., Bosch, O. G., Seifritz, E., & Vollenweider, F. X. (2015). Psilocybin-Induced Decrease in Amygdala Reactivity Correlates with Enhanced Positive Mood in Healthy Volunteers. *Biological Psychiatry*, 78(8), 572-581. doi: 10.1016/j.biopsych.2014.04.010
- Krishnan, M. (2020, March 5). Toronto just opened a ketamine clinic to help people with depression. Retrieved from [https://www.vice.com/en\\_ca/article/qjdxqb/toronto-just-opened-a-ketamine-clinic-field-trip-health-to-help-people-with-depression](https://www.vice.com/en_ca/article/qjdxqb/toronto-just-opened-a-ketamine-clinic-field-trip-health-to-help-people-with-depression)
- Krupitsky, E. M., & Grinenko, A. Y. (1997). Ketamine Psychedelic Therapy (KPT): A Review of the Results of Ten Years of Research. *Journal of Psychoactive Drugs*, 29(2), 165-183. doi: 10.1080/02791072.1997.10400185
- Krystal, J. H., Sanacora, G., & Duman, R. S. (2013). Rapid-acting glutamatergic antidepressants: the path to ketamine and beyond. *Biological psychiatry*, 73(12), 1133-1141. doi: 10.1016/j.biopsych.2013.03.026
- Luckenbaugh, D. A., Niciu, M. J., Ionescu, D. F., Nolan, N. M., Richards, E. M., Brutsche, N. E., ... Zarate, C. A. (2014). Do the dissociative side effects of ketamine mediate its antidepressant effects? *Journal of Affective Disorders*, 159, 56-61. doi: 10.1016/j.jad.2014.02.017
- Mathews, D. C., Henter, I. D., & Zarate, C. A. (2012). Targeting the glutamatergic system to treat major depressive disorder. *Drugs*, 72(10), 1313-1333. doi: 10.2165/11633130-000000000-00000
- Majumdar, T., Schmidt, T. T., & Gallinat, J. (2015). Peak experiences and the afterglow phenomenon: When and how do therapeutic effects of hallucinogens depend on psychedelic experiences? *Journal of Psychopharmacology*, 29(3), 241-253. doi: 10.1177/0269881114568040
- McGirr, A., Berlim, M. T., Bond, D. J., Fleck, M. P., Yatham, L. N., & Lam, R. W. (2014). A systematic review and meta-analysis of randomized, double-blind, placebo-controlled trials of ketamine in the rapid treatment of major depressive episodes. *Psychological Medicine*, 45(4), 693-704. doi: 10.1017/s0033291714001603
- Michaels, T. I., Purdon, J., Collins, A., & Williams, M. T. (2018). Inclusion of people of color in psychedelic-assisted psychotherapy: A review of the literature. *BMC psychiatry*, 18(1), 245. doi: 10.1186/s12888-018-1824-6
- Michl, L. C., McLaughlin, K. A., Shepherd, K., & Nolen-Hoeksema, S. (2013). Rumination as a mechanism linking stressful life events to symptoms of depression and anxiety: longitudinal evidence in early adolescents and adults. *Journal of abnormal psychology*, 122(2), 339-352. doi: 10.1037/a0031994
- Mortillaro, N. (2016, September 2). Anxiety and depression cost the Canadian economy almost \$50 billion a year. Retrieved from <https://globalnews.ca/news/2917922/anxiety-and-depression-cost-the-canadian-economy-almost-50-billion-a-year/>
- Moscone, R., & Prpa, T. (2020, March 9). Getting Psychedelic In Canada: Legalities of psychedelic therapies. Retrieved from <https://www.mondaq.com/canada/Food-Drugs-Health-care-Life-Sciences/901482/Getting-Psychedelic-In-Canada-Legalities-Of-Psychedelic-Therapies>
- Nielen, R. J., Heijden, F. M. V. D., Tuinier, S., & Verhoeven, W. M. (2004). Khat and mushrooms associated with psychosis. *The World Journal of Biological Psychiatry*, 5(1), 49-53. doi: 10.1080/15622970410029908
- O'Donnell, K. C., Mennenga, S. E., & Bogenschutz, M. P. (2019). Psilocybin for depression: Considerations for clinical trial design. *Journal of Psychedelic Studies*, 3(3), 269-279. doi: 10.1556/2054.2019.026
- Read, J., & Williams, J. (2018). Adverse Effects of Antidepressants Reported by a Large International Cohort: Emotional Blunting, Suicidality, and Withdrawal Effects. *Current drug safety*, 13(3), 176-186. doi: 10.2174/1574886313666180605095130
- Roberson, A. M., Castro, V. M., Cagan, A., & Perlis, R. H. (2016). Antidepressant nonadherence in routine clinical settings determined from discarded blood samples. *The Journal of clinical psychiatry*, 77(3), 359. doi: 10.4088/JCP.14m09612
- Rush, A. J., Trivedi, M. H., Ibrahim, H. M., Carmody, T. J., Arnow, B., Klein, D. N., ... & Thase, M. E. (2003). The 16-Item Quick Inventory of Depressive Symptomatology (QIDS), clinician rating (QIDS-C), and self-report (QIDS-SR): A psychometric evaluation in patients with chronic major depression. *Biological psychiatry*, 54(5), 573-583. doi: 10.1016/S0006-3223(02)01866-8
- Sawada, N., Uchida, H., Suzuki, T., Watanabe, K., Kikuchi, T., Handa, T., & Kashima, H. (2009). Persistence and compliance to antidepressant treatment in patients with depression: A chart review. *BMC psychiatry*, 9(1), 38. doi: 10.1186/1471-244X-9-38

- Scheidegger, M., Henning, A., Walter, M., Lehmann, M., Kraehenmann, R., Boeker, H., Seifritz, E., & Grimm, S. (2016). Ketamine administration reduces amygdalo-hippocampal reactivity to emotional stimulation. *Human brain mapping*, 37(5), 1941–1952. doi:10.1002/hbm.23148
- Schenberg, E. E. (2018). Psychedelic-Assisted Psychotherapy: A Paradigm Shift in Psychiatric Research and Development. *Frontiers in Pharmacology*, 9. doi: 10.3389/fphar.2018.00733
- Schwartz, J., Murrough, J. W., & Iosifescu, D. V. (2016). Ketamine for treatment-resistant depression: recent developments and clinical applications. *Evidence-based Mental Health*, 19(2), 35–38. doi: 10.1136/eb-2016-102355
- Short, B., Fong, J., Galvez, V., Shelker, W., & Loo, C. K. (2018). Side-effects associated with ketamine use in depression: A systematic review. *The Lancet Psychiatry*, 5(1), 65–78. doi: 10.1016/s2215-0366(17)30272-9
- Stafford, P. (2013). *Psychedelics encyclopedia*. Ronin Publishing.
- Steensma, C., Loukine, L., Orpana, H., Vachon, J., Mo, F., Boileau-Falardeau, M., ... Choi, B. (2016). Describing the population health burden of depression: Health-adjusted life expectancy by depression status in Canada. *Health Promotion and Chronic Disease Prevention in Canada*, 36(10), 205–213. doi: 10.24095/hpcdp.36.10.01
- Thomas, K., Malcolm, B., & Lastra, D. (2017). Psilocybin-Assisted Therapy: A Review of a Novel Treatment for Psychiatric Disorders. *Journal of Psychoactive Drugs*, 49(5), 446–455. doi: 10.1080/02791072.2017.1320734
- Tylš, F., Páleníček, T., & Horáček, J. (2014). Psilocybin—summary of knowledge and new perspectives. *European College of Neuropsychopharmacology*, 24(3), 342–356. doi: 10.1016/j.euroneuro.2013.12.006
- Walsh, Z., & Thiessen, M. S. (2018). Psychedelics and the new behaviourism: Considering the integration of third-wave behaviour therapies with psychedelic-assisted therapy. *International Review of Psychiatry*, 30(4), 343–349. doi: 10.1080/09540261.2018.1474088
- Wilkinson, S. T., Wright, D., Fasula, M. K., Fenton, L., Griep, M., Ostroff, R. B., & Sanacora, G. (2017). Cognitive Behavior Therapy May Sustain Antidepressant Effects of Intravenous Ketamine in Treatment-Resistant Depression. *Psychotherapy and Psychosomatics*, 86(3), 162–167. doi: 10.1159/000457960
- World Health Organization (2020, January 30). *Depression*. Retrieved from <https://www.who.int/news-room/fact-sheets/detail/depression>
- Wu, P., Fuller, C., Liu, X., Lee, H.-C., Fan, B., Hoven, C. W., ... Kronenberg, F. (2007). Use of complementary and alternative medicine among women with depression: Results of a national survey. *Psychiatric Services*, 58(3), 349–356. doi: 10.1176/ps.2007.58.3.349
- Zhu, W., Ding, Z., Zhang, Y., Shi, J., Hashimoto, K., & Lu, L. (2016). Risks associated with misuse of ketamine as a rapid-acting antidepressant. *Neuroscience Bulletin*, 32(6), 557–564. doi: 10.1007/s12264-016-0081-2

# Examining Relationships between Personality and Mental Health on Exercise Behaviours, Motivation and Adherence

Megan Bolt, Laurentian University, M.A.

## Abstract

Regular exercise is an effective strategy for the treatment and prevention of various psychological symptoms and/or chronic illnesses. Individuals with mental illness are uniquely vulnerable to experiencing co-morbid chronic illness due to physical inactivity. Personality traits and mental health variables have shown to influence engagement in exercise, motivations for exercising, and adherence to exercise programs, however, research examining these complex relationships has been inconsistent. Given the intricate and often undulating nature of mental and physical health, informed and supportive clinicians may be key to helping us better understand and modify individual differences in exercise behaviours to promote physical health. This review paper examines the influence of personality traits and mental health variables on exercise engagement, motivation and adherence. The essential role of the clinician in promoting physical health at an individual and client-centered level is explored.

Nous explorons également le rôle essentiel que joue le clinicien en matière de promotion de la santé physique à l'échelle individuelle et en préconisant une approche axée sur le client.



Regular exercise is a critical behavioural health practice (Pedersen & Saltin, 2015; Rosenbaum et al., 2020). In addition to reducing the risk of various chronic illnesses (e.g., cardiovascular disease, diabetes; Arnett et al., 2019; Moxley & Desale, 2019), regular exercise plays a role in the prevention and treatment of symptoms for various psychological disorders, such as depression, anxiety, and schizophrenia (Béland et al., 2020; Firth et al., 2016; Sabe et al., 2020). Individuals with mental illness often engage in less exercise than the general population and are more likely to experience comorbid chronic illness, contributing to an increased risk of death, irrespective of mental health disorder diagnosis (Rosenbaum et al., 2020). Given that mental health professionals will likely encounter clients who could benefit from exercise, an understanding of individual factors which can influence exercise behaviour (i.e., personality traits and illness characteristics) is necessary.

Meta-analytic findings suggest that both personality traits and mental health disorder characteristics help to explain individual variations in exercise behaviour (Allen et al., 2017; Sutin et al., 2016; Wilson & Dishman, 2015), as well as reported relationships between exercise and various mental health diagnoses (Béland et al., 2020; Biddle, 2016; Vincent et al., 2020). Certain personality traits (e.g. neuroticism) and illness characteristics (e.g., depression) have influenced exercise participation and adherence, however, the findings have been inconsistent (Chan et al., 2018; Nagata et al., 2019; Sato et al., 2018). According to Self-Determination Theory (SDT), individual factors such as self-determination and autonomy influence motivation and behaviour change (Sheeran et al., 2020). Given the intricate nature of the relationships between personality, mental health variables and exercise behaviour, individualized support from a mental health clinician may be critical for the establishment of long-term exercise patterns among individuals with

## Résumé

La pratique d'une activité physique régulière est une stratégie efficace pour traiter et prévenir divers symptômes psychologiques et/ou maladies chroniques. Les personnes atteintes de maladie mentale sont particulièrement vulnérables aux maladies chroniques concomitantes causées par l'inactivité physique. Il a été démontré que les traits de personnalité et les variables de santé mentale influencent la pratique de l'exercice, la motivation à faire de l'activité physique et l'adhésion aux programmes d'activité physique; cependant, les études qui se penchent sur ces relations complexes sont contradictoires. Compte tenu de la nature complexe et souvent ondulante de la santé mentale et physique, nous avons besoin de cliniciens informés et spécialisés pour nous aider à mieux comprendre et à modifier les différences individuelles relatives aux habitudes d'activité physique dans l'objectif de promouvoir la santé physique. Le présent article de synthèse examine l'influence des traits de personnalité et des variables de santé mentale sur la pratique de l'exercice, la motivation et l'adhésion.



mental illness. This paper examines the relationships between personality traits and mental health variables on exercise engagement, motivation, and adherence through the lens of SDT. The role of the clinician as essential to the successful integration of these components for the purpose of supporting sustainable behavioural change is also discussed.

### **Personality, Mental Health and Exercise**

The Five Factor Model of personality describes five overarching personality traits – extraversion, agreeableness, openness, conscientiousness, and neuroticism – which have been linked to exercise (Lewis & Sutton, 2011). While some researchers report positive relationships between exercise and the traits of extraversion and conscientiousness (Chan et al., 2018; Möttus et al., 2017; Nagata et al., 2019), other researchers found that extraversion (McEachan et al., 2010) and conscientiousness did not predict (Wolf & Hopko, 2008), or partially predicted exercise (i.e., in women, but not men; Allen et al., 2017). Neuroticism also demonstrates mixed associations with exercise, with some researchers reporting a negative relationship (Bowen et al., 2013; Sutin et al., 2016), and other researchers finding no relationship (Allen et al., 2017; Villaron et al., 2017). The traits of agreeableness and openness are less consistently linked to exercise behaviour (Kroencke et al., 2019; Sutin et al., 2016).

Associations between personality traits and illness characteristics may explain the inconsistent relationships between personality traits and exercise behaviour (Rhodes & Pfaeffli, 2012; Yeatts et al., 2017). For example, neuroticism has been linked to greater levels of depression, anxiety, and self-consciousness (Allen & Walter, 2016; Yeatts et al., 2017); experiences which are used to explain the propensity for those higher in neuroticism to engage in less exercise (Bowen et al., 2013; Sutin et al., 2016). However, individuals higher in neuroticism have also engaged in obligatory exercise to mitigate appearance-related concerns (Bowen et al., 2013; Sutin et al., 2016). Additionally, Costa and Oliva (2012) found that emotional stability (i.e., low neuroticism) negatively predicted exercise dependence, suggesting that those higher in neuroticism may develop an exercise dependence in an attempt to mitigate negative emotions. These incongruent findings highlight the complex relationships that exist between personality traits, illness characteristics and exercise (Allen & Walter, 2016; Costa & Oliva, 2012; Yeatts et al., 2017).

Despite associations between neuroticism, mental health variables and lower exercise (Allen et al., 2017; Villaron et al., 2017), exercise can reduce depressive symptomology in individuals with higher

trait neuroticism. Yeatts et al. (2017) found that, when compared to adolescents with lower cardiorespiratory fitness (CRF), adolescents with higher CRF expressed a weaker relationship between neuroticism and depression. Additionally, Bowen et al. (2013) found that neuroticism moderated the effects of barrier self-efficacy (i.e., the belief that one can overcome perceived exercise barriers; BSE) and exercise in adults. Specifically, individuals in the high neuroticism/low BSE group reported less exercise than those in the low neuroticism/low BSE group. However, as BSE increased, exercise also increased for both groups, with a more pronounced change noted in the high neuroticism group. Given the findings above, individuals higher in neuroticism may experience relief from depressive symptomology when exercise is increased, and increasing exercise-related self-efficacy may be a helpful strategy for clinicians to consider (Bowen et al., 2013; Yeatts et al., 2017).

In a study examining relationships between personality, mental well-being and exercise behaviour among college students, Kroencke et al. (2019) found that conscientiousness and extraversion were associated with greater exercise frequency at the start of a semester. The authors also found that significant associations between exercise, increased happiness and decreased anxiety disappeared when controlling for extraversion, suggesting that the relationship between exercise and mental health variables may be partly explained by variations in personality. Indeed, extraversion was linked to greater exercise levels (Möttus et al., 2017; Nagata et al., 2019), as well as decreased anxiety and more frequent positive emotions (Allen & Walter, 2016). However, Kroencke et al. (2019) did not assess the type of exercise students engaged in, which may be relevant given that extraverted individuals tend to experience strong sensory stimulation and positive emotions when engaging in exercise that is social in nature (Nagata et al., 2019; Wilson & Dishman, 2015). Considering that extraverted individuals benefit more from certain activities (Nagata et al., 2019; Wilson & Dishman, 2015), the relationship between exercise and positive mental health may be strengthened when exercise activities are tailored to individual personality traits and preferences.

### **Exercise Interventions and Adherence**

Cognitive Behaviour Therapy (CBT) and exercise interventions are empirically validated treatments for various psychological disorders and chronic illnesses (Bernard et al., 2018; Pedersen & Saltin, 2015). A meta-analysis conducted by Bernard et al. (2018), revealed that the combination of CBT and exercise intervention (i.e., CBTE<sub>x</sub>) significantly reduced symptoms of depression and anxiety (small effect

sizes), as well as fatigue (large effect size) in those with chronic illness. The researchers also reported that greater reductions in symptoms of anxiety and depression were associated with longer interventions. Herring et al.'s (2010) meta-analysis also found that exercise interventions reduced anxiety among individuals with various chronic illnesses. However, unlike Bernard et al.'s (2018) findings regarding CBTE<sub>x</sub>, larger effect sizes were found in studies with shorter exercise programs (i.e., < 12 weeks) when compared to programs longer than 12 weeks.

Greater exercise adherence may explain why shorter exercise programs were associated with greater improvements in anxiety. Prior to increasing exercise (e.g., frequency), the successful completion of smaller, more manageable exercise goals can improve adherence, as self-efficacy is increased (Picha & Howell, 2018; Ryan, 2015). As such, shorter exercise programs may result in greater adherence. However, for individuals with depression and anxiety, the relationship between larger effect sizes and longer CBTE<sub>x</sub> interventions (Bernard et al., 2018) may highlight the added benefit of a therapeutic relationship.

Despite the effectiveness of exercise interventions in preventing and alleviating symptoms associated with psychological disorders (Rosenbaum et al., 2020; Yeatts et al., 2017) and chronic illnesses (Pedersen & Saltin, 2015; Youssef, 2019), exercise adherence is a reoccurring issue among individuals in these populations (Jansons et al., 2017; Pedersen & Saltin, 2015). In a meta-analysis examining exercise adherence in adults with chronic illness who successfully completed a supervised exercise program, Jansons et al. (2017) found that only 33% of participants reported full adherence in an independent follow-up exercise program. Given that certain personality traits (e.g., neuroticism), mental health disorders, and chronic illnesses are related to various symptoms such as pain, depression and fatigue (Herring et al., 2010; Linden-Carmichael et al., 2015; Pedersen & Saltin, 2015), it is unsurprising that individuals with these conditions struggle to adhere to an exercise program without support. However, even low levels of exercise (e.g., daily walking) have been shown to reduce symptoms of depression and anxiety (Kim et al., 2020; Song et al., 2019; Youssef, 2019). Given this pattern of exercise program non-adherence, perhaps exercise motivation contributes to engagement in regular exercise.

### Exercise Motivation

SDT posits that human behaviour is influenced by various motivations that exist along a continuum of self-determination (i.e., autonomy), which may help to clarify why some individuals exercise and others do

not (Gillison et al., 2019; Lewis & Sutton, 2011). Intrinsically motivated individuals exercise for enjoyment, which contrasts sharply with those reporting amotivation (i.e., no motivation; Vicent et al., 2020). Between these forms of motivation lie four extrinsically motivated regulations (i.e., external, introjected, identified, integrated), which help explain why individuals choose to engage in certain behaviour (Vicent et al., 2020). As noted by Lewis and Sutton (2011), external regulation (i.e., exercising to gain reward/avoid punishment) signifies the least autonomous form of extrinsic motivation, whereas integrated regulation (i.e., exercise is perceived as consistent with personal values and identities) is the most autonomous. In terms of introjected regulation, exercise is experienced as obligatory and utilized to mitigate negative emotions (e.g., guilt), while identified regulation refers to when the individual recognizes and values certain aspects of exercise, but may not necessarily enjoy the behaviour (i.e., not motivated by negative emotions; Benau et al., 2019).

Lewis and Sutton (2011) suggest that initial exercise engagement typically involves more extrinsic motivation (e.g., exercising for a reward/incentive). Given that extraverted individuals may engage in exercise with others as a means of seeking out positive emotions (Kroencke et al., 2019), clinicians may consider suggesting group exercise (e.g., exercise classes) for clients higher in extraversion. To sustain exercise over time, more self-directed forms of regulation such as identified regulation (i.e., exercising because certain aspects are valued), are critical (Lewis & Sutton, 2011). This can be seen in the tendency of highly conscientious individuals to adhere to health behaviours that align with personal goals (e.g., good health), to achieve a sense of competency (Allen & Walter, 2016; Sato et al., 2018). Thus, by identifying and understanding client values, clinicians may experience greater long-term success with exercise adherence among conscientious individuals.

Lewis and Sutton's (2011) theory suggests that, while extrinsic motivation can generate initial action to exercise (e.g., to rehabilitate an injury), long-term adherence may require a different form of motivation. From a clinical perspective, difficulties with exercise adherence may be addressed through motivational interviewing to help a client reframe their conceptualization of exercise, such as exercising to prevent future injuries or mobility issues. Additionally, given that certain psychological disorders (e.g., depression, anxiety) and/or associated co-morbid physical illnesses (e.g., diabetes) are often chronic and fluctuate in symptom severity (Linden-Carmichael et al., 2015; Singh et al., 2016; Versteeg et al., 2016), individuals with these

conditions may benefit from learning how to modify their exercise as needed. For example, a client with depression and trait neuroticism may exercise more consistently in the long-term when they understand how to modify their exercise (e.g., walking instead of weightlifting) based on symptom fluctuations (e.g., fatigue); these are valuable skills that mental health clinicians are equipped to teach.

## Conclusion

This review affirms exercise as a cornerstone in the prevention and treatment of psychological symptoms and co-morbid chronic illnesses, highlighting the unique position of clinicians to support clients through behavioural change. Specifically, personality traits and illness characteristics may explain some of the individual variation in exercise behaviour, and considering these factors through the perspective of self-determination may help clinicians support clients to improve exercise adherence. Overall, the complex relationships between personality traits, mental health variables and exercise provides clinicians with an opportunity to collaborate with clients in the identification and modification of behavioural risk factors (i.e., physical inactivity), which could lead to meaningful improvements in quality of life and well-being.



## References

- Allen, M. S., Magee, C. A., Vella, S. A., & Laborde, S. (2017). Bidirectional associations between personality and physical activity in adulthood. *Health Psychology, 36*(4), 332-336. <https://doi.org/10.1037/hea0000371>
- Allen, M. S., & Walter, E. E. (2016). Personality and body image: A systematic review. *Body Image, 19*, 79-88. <https://doi.org/10.1016/j.bodyim.2016.08.012>
- Arnett, D., Blumenthal, R. S., Albert, M. A., Buroker, A. B., Goldberger, Z. D., Hahn, E. J., Himmelfarb, C. D., Khera, A., Lloyd-Jones, D., McEvoy, J. W., Michos, E. D., Miedema, M. D., Muñoz, D., Smith, S. C., Virani, S. S., Williams, K. A., Yeboah, J., & Ziaeian, B. (2019). 2019 ACC/AHA guideline on the primary prevention of cardiovascular disease: A report of the American college of cardiology/American heart association task force on clinical practice guidelines, *Journal of the American College of Cardiology, 74*(10), e177-e232. <https://doi.org/10.1016/j.jacc.2019.03.010>
- Béland, M., Lavoie, K. L., Briand, S., White, U. J., Gemme, C., & Bacon, S. L. (2020). Aerobic exercise alleviates depressive symptoms in patients with a major non-communicable chronic disease: A systematic review and meta-analysis. *British Journal of Sports Medicine, 54*(5), 272 - 278. <http://dx.doi.org/10.1136/bjsports-2018-099360>
- Benau, E. M., Plumhoff, J., & Timko, C. A. (2019). Women's dieting goals (weight loss, weight maintenance, or not dieting) predict exercise motivation, goals, and engagement in undergraduate women: A self-determination theory framework. *International Journal of Sport and Exercise Psychology, 17*(6), 553-567. <https://doi.org/10.1080/1612197X.2017.1421683>
- Bernard, P., Romain, A., Caudroit, J., Chevance, G., Carayol, M., Gurlan, M., Needham-Dancause, K., & Moullec, G. (2018). Cognitive behavior therapy combined with exercise for adults with chronic diseases: Systematic review and meta-analysis. *Health Psychology, 37*(5), 433-450. <https://doi.org/10.1037/hea0000578>

# You're lagging – Can You Hear Me Now?: Challenges with Implementing Online Therapy During COVID-19

Veerpal Bambrah, York University, M.A.

Vivian F. Zhang, University of Toronto, M.S.W.

## Abstract

The world changed overnight with the coronavirus disease (COVID-19) pandemic, which resulted in the implementation of self-isolation, quarantine, and social distancing measures by government bodies to reduce further transmission of the disease and the burden on healthcare professionals. These measures had repercussions on the mental health system, most notably by making traditional in-person therapy inaccessible for many clients. Mental health providers quickly responded by adjusting and adopting online psychotherapy in order to address the demands for services. Clinicians are learning the benefits and costs of this type of service delivery—especially early career clinicians who are in the process of learning how to implement traditional in-person therapy. The current paper describes the experiences of two early career clinicians during the pandemic as they navigated the use of online therapy to serve clients, the unforeseen lessons learned, and recommendations to other clinicians who are practicing online therapy during this unprecedented time.

## Résumé

Le monde a changé du jour au lendemain avec la pandémie de coronavirus (COVID-19), qui a entraîné la mise en œuvre de mesures d'auto-isollement, de quarantaine et de distanciation physique par les organismes gouvernementaux afin de réduire la transmission de la maladie et la charge imposée aux professionnels de la santé. Ces mesures ont eu des répercussions sur le système de santé mentale, notamment en rendant la thérapie traditionnelle en personne inaccessible à de nombreux clients. Les fournisseurs de soins de santé mentale ont réagi rapidement en s'adaptant et en adoptant la psychothérapie en ligne afin de répondre aux besoins de la population en matière de services. Les cliniciens dé-

couvrent les avantages et les coûts de ce mode de prestation de services, en particulier les cliniciens en début de carrière, qui sont en train de se former pour pratiquer la thérapie traditionnelle en personne. Le présent article décrit l'expérience de deux cliniciens en début de carrière, qui, pendant la pandémie, ont appris à utiliser la thérapie en ligne pour offrir des services à leurs clients; il présente également les leçons imprévues tirées de leur expérience ainsi que des recommandations à l'intention des autres cliniciens qui pratiquent la thérapie en ligne pendant cette période sans précédent.



Governments worldwide have adopted non-pharmaceutical containment measures, such as mandating self-isolation, quarantine, and physical distancing, in order to reduce transmission of the coronavirus disease (COVID-19) and reduce the burden on the public health system. As there is currently no drug licensed for the treatment or prevention of COVID-19 (World Health Organization, 2020), these containment measures are deemed optimal for protecting oneself against COVID-19 (Kucharski et al., 2020).

However, the current pandemic and restrictions of people's movements have created a paradox within the context of mental health care. Widespread confinement has led to a higher need of support for increased stress, anxiety, isolation, and depression (Brooks et al., 2020)—and yet, those mental health resources are inaccessible in person.

Accordingly, the past several months have wrought a change in the national mental health care landscape—a big shift of psychological services from in-person meetings to virtual meetings. Mental health professionals might be unable to provide psychological support through traditional means, but never before have we been a part of such widespread provision of services online.



## Defining ‘Online Therapy’

Online therapy is defined by Rochlen and colleagues (2004) as any type of professional therapeutic interaction provided synchronously (happening in real time; e.g., videoconferencing) or asynchronously (not happening in real time; e.g., email), via Internet by qualified mental health professionals. As early career therapists with no more than 5 years of experience implementing psychotherapy in person, we have observed that providing individual therapy through online platforms comes with certain costs and a steep learning curve. In this paper, we share the challenges that we experienced when providing online therapy to our clients during the COVID-19 outbreak. We discuss synchronous online therapy in the format of videoconferencing and refer to it as *online therapy*. This paper provides lessons that we want to share with other novice therapists when transitioning in-person clients to online therapy.

## Benefits of Online Therapy

Before discussing the challenges that we encountered, it is important to acknowledge some of the empirically-supported advantages of online therapy. First, numerous studies support the efficacy of online therapy, including a review of 26 trials showing improvement in anxiety symptoms after therapist-facilitated internet-based cognitive behaviour therapy (versus unguided therapy) in as little as four-to-eight weeks (Olthuis et al., 2016). Further, online therapy makes treatment accessible and affordable. For individuals in rural or remote areas, commuting long distances can act as a barrier to therapy. Online therapy provides quicker and easier access to treatment that might not have been readily available otherwise (MacDonell & Prinz, 2016).

Online therapy also provides accessibility to individuals who are disabled or housebound. Individuals who are unable to leave their home due to mental or medical illnesses may find online therapy useful to receiving support (Kumar et al., 2017). Additionally, given the increased accessibility to treatment, we have observed that our retained clients show up to sessions more consistently and on time. Finally, online therapy may reduce social stigma associated with receiving mental health support, as it allows access to services in private without being seen by others in a private practice office or mental health clinic. We have observed that fears related to social embarrassment in a waiting room have vanished among select clients that have transitioned from in-person to online therapy. Thus, online therapy offers clients a degree of anonymity that reduces social stigma and therefore may prompt them to seek assistance.

## Challenges Experienced with Online Therapy

The challenges that came with moving from in-person therapy to online therapy appeared in three identifiable stages.

### Transition

The initial stage included explaining to clients the transition from in-person to online therapy and the requirements of accessing therapy online, which included having a smartphone or computer device and access to the Internet. These conversations created challenges for some clients who expressed that they were unable to access certain devices or the Internet or who would not have a private space to partake in sessions. Furthermore, some clients expressed concerns related to privacy leaks and the loss of confidentiality since information is being transmitted online and potentially susceptible to hacks. Client attrition occurred during this period, especially for clients who did not have access to appropriate devices, clients with difficulty using technology (e.g., people who are elderly or visually impaired), and clients who resided in spaces that are not secure for private discussion. These initial concerns were primarily technology- and environment-related issues that clients believed could not be addressed outside of a private office space. Although this was not personally experienced, not having a secure space to implement therapy can hinder therapists’ own ability to transition to online platforms. Finally, although we did not have clients who terminated therapy because their insurance provider did not cover teletherapy fees, this, too, could legitimately deter clients’ transition to online therapy.

### Adjustment

The next set of concerns included adjusting and helping clients adjust to online therapy. This included re-establishing informed consent and confidentiality and setting expectations around potential technical issues. For example, an initial learning curve was understanding how to access and use applications for videoconferencing and clearly articulating information about accessing a videoconference session to clients. One of the biggest and unforeseen challenges we experienced pertained to troubleshooting sudden technical issues (e.g., internet lags or disconnection from the session) promptly without sacrificing a large amount of the session time and therapeutic work. As social distancing has bounded people to their homes, internet usage has surged across Canada, and as such, congestion and connectivity issues are frequent among users of major internet networks (McLeod & Jackson, 2020). A recent study found that delays on

phone and conferencing systems shape participants' views of responders negatively; delays of even 1.2 seconds make people perceive the responder as less friendly or focused (Schoenenberg, et al., 2014). In the context of online therapy, this means that brief delays can negatively shape clients' and therapists' perceptions of one another, potentially rupturing their working relationship.

## Maintenance

As we (and our clients) adjusted to accessing and using videoconferencing for therapy, we experienced challenges in maintaining core “common factors” in psychotherapy (Wampold, 2015) and in implementing specific and time-sensitive interventions.

For example, two common factors that were difficult to maintain during online therapy were *empathic attunement* and the *client's in-session emotional awareness and experiencing*. Both verbal and non-verbal interactions are considered essential for gauging what a client is thinking and feeling and for identifying the discrepancies between verbal and non-verbal behaviours. In-person therapy relies heavily on verbal and non-verbal cues to communicate and gain insights into the client's inner experiences. Online therapy, however, does not give a clear indication of characteristics such as vocal tone, facial expression, eye contact, and especially body language (e.g., Pelling, 2009)—as, at most, only the client's face and upper-half of his/her torso are visible. For us, difficulties with observing and interpreting such cues not only precluded opportunities for conveying empathy (via conjectures, etc.; Watson, 2001) and deepening a client's emotional awareness and experiencing (Klein et al., 1986), but navigating these difficulties was enervating: greater mental work was required to attend to and process non-verbal cues. The discrepancy between a client's words and non-verbal behaviours and our interpretation of these made it difficult to relax into the conversation naturally, and thus, each session felt more exhausting than it likely would have in person. This experience is supported by research that finds that it is harder to follow what is being said when it is delivered via videoconferencing rather than face-to-face (Ferran & Watts, 2008), highlighting the cognitively taxing nature of online interactions.

Additionally, we believe fatigue also made it more difficult to engage with each client as the work-day progressed and nurture the *therapeutic alliance* with clients, another common factor in psychotherapy. We believe that this may be due to the fact that aspects of our lives that used to be separate—therapy clients, therapy supervision, friends, family, etc.—were now all happening in the same space. This is corroborated by

the *self-complexity theory*, which posits that people have multiple context-dependent social roles, relationships, activities and goals, and that such ‘variety’ can be healthy. When these context-dependent aspects are reduced, people become more vulnerable to negative feelings towards their surrounding environment and others (Linville, 1985). Some of our clients also appeared distracted by other windows on their devices or computer, and thus, less motivated to engage with us during session.

Another challenge pertained to the use of interventions from specific therapeutic modalities. For example, whereas the first author has implemented emotional-focused therapy (EFT) two chair work with clients in person, it was difficult to introduce and direct this technique over video (i.e., instructing the client to switch between chairs). One client reported afterwards that she felt “silly and stupid” for switching between chairs on her own and that the intervention did not feel as authentic as it previously had with the therapist's physical presence.

Finally, we found that it was difficult to respond quickly and effectively and to provide direct assistance in the presence of a crisis, such as when a client endorsed suicidal thoughts or urges towards self-harm. As safety-planning is a critical step in mitigating the risk of suicide or self-harm (e.g., Matarazzo et al., 2014), the current restriction of people's movements and reduced options for engagement made it more challenging for us to help clients plan for avoiding triggers and for engaging in healthier coping strategies.

## Conclusions: Tips for Novice Online Therapists

In the midst of the current global health-crisis, online therapy has grown rapidly, but it poses some unique challenges. As such, both mental health practitioners and clients who wish to engage in such services must be informed of both the benefits and limitations of this style of therapeutic approach.

Below, we list tips—garnered from our personal experiences—for novice therapists learning to navigate online therapy with clients:

### Transition:

If a client chooses to opt out of online therapy, then encourage one online/phone session to discuss other mental health resources that the client can access (e.g., self-help books, crisis-helplines, etc.) and to co-create a safety plan. Invite the client to contact you should they wish to resume online therapy at a later date.

Disseminate a detailed worksheet to each participating client about the technical requirements for online therapy (e.g., devices that are compatible), the

environmental requirements for online therapy (e.g., a secure space), how to access an online therapy session (e.g., clicking a link and inputting a password), and appropriate etiquette for online therapy (e.g., explicitly asking clients to not look at other windows on their device/computer during the session).

Collaboratively create a “back-up” plan with clients about what to do in case either/both of you are disconnected from the therapy session and/or if there are consistent delays during the session (e.g., switching to phone if you or your client has been unable to rejoin the therapy session after 2-3 minutes).

Collaboratively create a crisis plan with each client that outlines how the client wishes to be supported should a crisis arise, including emergency contacts that you have permission to access, a list(s) of places that the client can go to for safety, and activities that the client can engage in to help manage distress.

### Adjustment & Maintenance:

Be transparent with your clients: Provide some psychoeducation and explain that it will be initially more challenging to be empathically attuned and to help clients deepen their emotional awareness and experiencing over a screen than it would be during an in-person session.

Let clients know that in order to navigate this challenge, you will continuously check in with them during the session to assess their attention and engagement (e.g., “What was the last thing you heard me say?”) and to ensure that you have correctly integrated verbal and non-verbal cues (e.g., “Am I correct when I assume that you think/thought and/or feel/felt...?”). Let clients know that you will be doing this often, clearly provide your rationale for doing so (i.e., to maintain empathic attunement so that you are better able to help them deepen, process, and alter problematic experiences), and explain that doing so may slow down the pace of therapy.

Consult with your clinical supervisor(s) or peers on ways to adapt interventions from specific therapeutic modalities (e.g., EFT) for an online platform. For the first author, instead of having her client switch between chairs to speak to (and as) an ‘inner-critic’ or imagined attachment figure, she eventually asked her client to hold an object when speaking as themselves and to put down the object when speaking as the other.

Build transition periods in between online sessions to help refresh yourself – try stretching, looking away from the screen, or doing a bit of exercise. Create buffers that allow you to put one identity aside and then go to another as you move between therapeutic and other roles.

Shifting in-person therapy to online platforms was an unforeseen consequence of the COVID-19 pandemic, and one that, as the current paper suggests, entailed several challenges. However, there is tremendous personal and pedagogical value in knowing how to implement therapy in various formats and, more importantly, learning how to navigate the demands of such formats. This paper serves to encourage all therapists to lean into—not away from—the learning curve that accompanies the novel ways in which they can support their clients.



### References

- Brooks, S. K., Webster, R. K., Smith, L. E., Woodland, L., Wessely, S., Greenberg, N., & Rubin, G. J. (2020). The psychological impact of quarantine and how to reduce it: Rapid review of the evidence. *The Lancet*, 395(10227), 912-920. [https://doi.org/10.1016/s0140-6736\(20\)30460-8](https://doi.org/10.1016/s0140-6736(20)30460-8)
- Ferran, C., & Watts, S. (2008). Videoconferencing in the Field: A Heuristic Processing Model. *Management Science*, 54(9), 1565-1578. <https://doi.org/10.1287/mnsc.1080.0879>
- Klein, M. H., Mathieu-Coughlan, P., & Kiesler, D. J. (1986). The experiencing scales. In W. M. Pinsof, & L. S. Greenberg (Eds.), *Guilford clinical psychology and psychotherapy series* (pp. 21-71). Guilford Press.
- Kumar, V., Sattar, Y., Bseiso, A., Khan, S., & Rutkofsky, I. H. (2017). The effectiveness of internet-based cognitive behavioral therapy in treatment of psychiatric disorders. *Cureus*, 9(8), 1-14. <https://doi.org/10.7759/cureus.1626>
- Kucharski, A. J., Russell, T. W., Diamond, C., Liu, Y., Edmunds, J., & Funk, S. (2020). Early dynamics of transmission and control of COVID-19: A mathematical modelling study. *The Lancet Infectious Diseases*, 20(5), 553-558. [https://doi.org/10.1016/S1473-3099\(20\)30144-4](https://doi.org/10.1016/S1473-3099(20)30144-4)
- Linville, P. W. (1985). Self-complexity and affective extremity: Don't put all of your eggs in one cognitive basket. *Social Cognition*, 3(1), 94-120. <https://doi.org/10.1521/soco.1985.3.1.94>
- MacDonell, K. W., & Prinz, R. J. (2016). A review of technology-based youth and family-focused interventions. *Clinical Child and Family Psychology Review*, 20(2), 185-200. <https://doi.org/10.1007/s10567-016-0218-x>
- Matarazzo, B. B., Homaifar, B. Y., & Wortzel, H. S. (2014). Therapeutic risk management of the suicidal patient: Safety planning. *Journal of Psychiatric Practice*, 20(3), 220-224. <https://doi.org/10.1097/01.pra.0000450321.06612.7a>
- McLeod, J., & Jackson, E. (2020 April 3). *My internet seems slow: How is the coronavirus affecting internet providers?* Financial Post. <https://business.financialpost.com/telecom/my-internet-seems-slow-how-is-the-coronavirus-af>

fecting-internet-providers

- Olthuis, J. V., Watt, M. C., Bailey, K., Hayden, J. A., & Stewart, S. H. (2016). Therapist-supported Internet cognitive behavioural therapy for anxiety disorders in adults. *Cochrane Database of Systematic Reviews*, 3(5), 1-192. <https://doi.org/10.1002/14651858.cd011565.pub2>
- Pelling, N. (2009). The use of email and the internet in counselling and psychological service: What practitioners need to know. *Counselling, Psychotherapy, and Health*, 5(1), The Use of Technology in Mental Health Special Issue, 1-25.
- Rochlen, A. B., Zack, J. S., & Speyer, C. (2004). Online therapy: Review of relevant definitions, debates, and current empirical support. *Journal of Clinical Psychology*, 60(3), 269-283. <https://doi.org/10.1002/jclp.10263>
- Schoenenberg, K., Raake, A., & Koeppe, J. (2014). Why are you so slow? – Misattribution of transmission delay to

- attributes of the conversation partner at the far-end. *International Journal of Human-Computer Studies*, 72(5), 477-487. <https://doi.org/10.1016/j.ijhcs.2014.02.004>
- Wampold, B. E. (2015). How important are the common factors in psychotherapy? An update. *World Psychiatry*, 14(3), 270-277. <https://doi.org/10.1002/wps.20238>
- Watson, J. C. (2001). Re-visioning empathy. In D. J. Cain & J. Seeman (Eds.), *Humanistic psychotherapies: Handbook of research and practice* (pp.445-472). American Psychological Association.
- World Health Organization. (2020). Coronavirus disease (COVID-19) advice for the public: Myth busters. World Health Organization. [https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public/myth-busters?gclid=CjwKCAjwxLH3BRApEiwAqX9arWy10f6kgdb7HY\\_I5x0Cvw6\\_CMyOGy7Bib\\_Vc7sU9gVF-bCy42oYKIRoC\\_-sQAvD\\_BwE#medicines](https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public/myth-busters?gclid=CjwKCAjwxLH3BRApEiwAqX9arWy10f6kgdb7HY_I5x0Cvw6_CMyOGy7Bib_Vc7sU9gVF-bCy42oYKIRoC_-sQAvD_BwE#medicines)



# Edifying Empathy in Forensic Psychology Students: The Role of Experiential Learning

Jessie N. Doyle, University of New Brunswick, B.A.

MacGillivray M. Smith, St. Francis Xavier University, B.Sc.

## Abstract

The present paper argues that forensic psychology undergraduate students should engage in experiential learning-based programs due to its distinctive ability to foster empathy (Best et al., 2018) – a quality that is imperative when working with vulnerable populations (Waisel, 2013). Experiential learning involves undergoing and reflecting on a practical experience (Peterson & Kolb, 2018), and yields benefits beyond that which traditional didactic teaching can provide (Tyler & Guth, 1997). In pursuing careers in forensic psychology, students will inevitably work with vulnerable populations. Experiential learning is one effective way that students can prepare for working with vulnerable populations by developing empathy capacities (Best et al., 2018). The authors delineate benefits that could arise for students; facilitators; future clients; and the discipline due to the edification of empathy resulting from experiential learning. Due to the potential benefits associated with experiential learning, we argue that it should be widely implemented into forensic psychology programs.

## Résumé

Le présent article soutient que les étudiants de premier cycle en psychologie judiciaire devraient participer à des programmes d'apprentissage par l'expérience car ce type de programmes favorise l'apprentissage de l'empathie (Best et coll., 2018), une qualité essentielle lorsque l'on travaille avec des populations vulnérables (Waisel, 2013). L'apprentissage par l'expérience consiste à se soumettre et à réfléchir à une expérience concrète (Peterson et Kolb, 2018) et offre des avantages supérieurs à ceux qu'apporte l'approche didactique traditionnelle (Tyler & Guth, 1997). Lorsqu'ils feront carrière en psychologie judiciaire, les futurs diplômés travailleront inévitablement avec des populations vulnérables. L'apprentissage par l'expérience est un moyen efficace de préparer les étudiants à travailler avec des populations vulnérables car il permet de développer la capacité d'empathie (Best et coll., 2018). Les auteurs décrivent les avantages que

pourrait apporter l'apprentissage par l'expérience aux étudiants, aux animateurs, aux futurs clients et à la discipline, du fait du développement de l'empathie découlant de cette modalité d'apprentissage. En raison des avantages potentiels associés à l'apprentissage par l'expérience, nous soutenons que celui-ci devrait être largement utilisé dans les programmes de psychologie judiciaire.



Forensic psychology encompasses everything at the interface of psychology and law (Pozzulo, et al., 2017), and provides a broad and diverse range of career opportunities (e.g., psychology, corrections) for students interested in the field. Regardless of the pursued career path, a commonality is the likelihood of working with vulnerable populations (e.g., offenders). Vulnerable populations are, by definition, the most in need of quality care (Waisel, 2013); thus, working with vulnerable populations requires sufficient capacity for empathy, which reflects one's ability to be sensitive to, and understanding of, others' mental and emotional states (Parra, 2013). Both anecdotal and empirical evidence suggest experiential learning is one method whereby students can ascertain and develop empathy (Best et al., 2018).

Experiential learning is a learning process wherein individuals undergo and reflect on a practical experience (Peterson & Kolb, 2018). Experiential learning is conducive to training for work with vulnerable populations, and delivers benefits for all involved, including students, facilitators, future clients, and the discipline wherein adherents serve. Research suggests that experiential learning is often preferred over a traditional didactic approach (Tyler & Guth, 1997); however, it is seldom discussed in terms of forensic psychology undergraduate students. Furthermore, its potential effect on empathy within this context has yet to be considered. The present paper argues that one benefit of experiential learning is the edification of empathy in students, and the resulting ripple effects of empathy in their chosen careers.

## Benefits for Students

Experiential learning involves both experiential and reflective components (Peterson & Kolb, 2018) and encompasses myriad activities, including formal learning (e.g., field trips), or long-term components (e.g., internships; Carleton University, 2018). Pursuant to the experiential learning integrant associated with reflecting on recently acquired knowledge, students are encouraged to contemplate their experience (e.g., reflection papers; Bailey et al., 2017). When experiential learning is implemented in the classroom, students perform better on relevant subjects and rate them as more helpful than lecture components (Zelechowski et al., 2017). As active (vs. passive) learners, students are more motivated to invest effort into their education, thereby increasing their engagement and learning (Zelechowski et al., 2017). Indeed, Clements' (1995) found that students in a developmental psychology class rated the experiential (vs. lecture) sections as higher in value, and displayed greater mastery of content. Furthermore, experiential learning equips undergraduate students with skills for further education and the workforce (Falgaras et al., 2017).

Experiential learning practices, including direct and purposeful reflection, may be useful for forensic psychology undergraduate students via their contribution to personal and professional development (Bailey, et al., 2017). Chickering and Reisser's (1993) theory of student development posits the main goals for development include increasing self-awareness and developing a sense of purpose. Reflection papers and group discussions promote personal development and self-awareness (Bailey et al., 2017), which may help undergraduate students accomplish these goals and elucidate the processes underlying *how* they learn (Peterson & Kolb, 2018).

Self-awareness is valuable for individuals working with vulnerable populations due to its relationship with higher-order perspective-taking processes, including empathy (Preston & de Waal, 2002). Research suggests students tend to have an insufficient understanding of the necessity for empathy in community-based correction treatment (Courtright et al., 2005), which might subsequently influence public perceptions of corrections personnel as 'cynical' and 'uncaring' (Giovannoni et al., 2015). Self-awareness ostensibly fosters the development of cultural empathy, which reflects a "profound understanding of the internal 'gut-level' response to one's own [and others' cultures]" (Sodowsky et al., 1997, p. 12). Achenbach and Arthur (2002) suggest experiential learning is imperative in elevating therapist trainees' self-awareness and cultural empathy.

Experiential learning may be a useful tool for fostering requisite empathy when working with vulnerable populations. Indeed, it has been proposed to enhance empathy in addiction counsellors, who work in settings not readily amenable to empathy development given inherent negative attitudes surrounding addiction (Giordano et al., 2015). Similarly, negative attitudes and societal stigma are often directed towards vulnerable populations, including offenders (Batastini et al., 2018). Based on previous research, it is conceivable that experiential learning in forensic psychology classes would be conducive to fostering empathy for the vulnerable populations that students may encounter in the future.

## Benefits for Facilitators

Experiential learning facilitators can include professors, or supervisors of practica, co-ops or internships (Carleton, 2018). For professors, experiential learning increases class engagement and enhances student learning (Zelechowski et al., 2017). As a facilitator, observing and mentoring students' personal and professional growth (Eby et al., 2006) holds unique benefits. For instance, Vandermaas-Peeler and colleagues (2015) found that the majority of professors studied cited collaboration with students as a benefit experienced when mentoring students in research. Other short-term benefits of being a mentor (e.g., enhanced job performance) are also positively related to job satisfaction (Eby, et al., 2006). Personal development experienced by students in experiential learning-based programs could yield benefits for facilitators who embody mentorship roles.

When experiential learning involves long-term placements, facilitators may additionally benefit from administrative and research assistance. For instance, clinical psychologists are trained in both clinical practice and research production, however, the average clinician spends only 5% of their professional time on research (Hunsley et al., 2013). Clinicians with student research assistants could benefit by furthering their advancement of the discipline pedagogically, while simultaneously focusing on their clinical practice. Through mentoring, facilitators see their work through an alternative lens, and consequently engage in self-reflection; increase their own self-awareness; and cultivate empathy in a similar fashion as with students (Bailey et al., 2017).

## Benefits for Future Clients

Experiential learning could enhance students' future interactions with vulnerable populations. Canada's criminal justice system is largely comprised

of vulnerable populations (Correctional Service of Canada, 2013a; CSC), including an overrepresentation of Indigenous persons, and individuals with mental health issues (CSC 2013b; CSC 2014). Moreover, involvement in the criminal justice system is associated with being socio-economically disadvantaged (CSC, 2013a). Offenders themselves are considered vulnerable due to loss of freedoms (University of North Carolina, n.d.). Encountering vulnerable populations is inevitable for individuals working in forensic psychology-related fields.

Edifying empathy is particularly important when working with offender populations given widespread public perceptions of stigma and societal punitiveness towards offenders, particularly those with mental health issues (Batastini et al., 2018). Increased empathy has the potential to reduce discrimination and stigmatization of offenders (Posick et al., 2014), which could foster a more successful integration into society (Moak, et al., 2019). Higher levels of empathy are associated with lower likelihood of endorsing capital punishment (Unnever & Cullen, 2009), less punitive attitudes, and being less discriminative towards another person or out-group (Batson et al., 2002). Similarly, when students simulated being an offender reintegrating into society, and subsequently completed a reflection paper about the experience, they had a more humanized perspective of, and greater empathy towards, offenders (Moak et al., 2019). Furthermore, Batson et al. (1997) found that, after listening to a murderer's circumstances surrounding their offence, participants were more empathetic towards the offender. It has since been suggested that social situations and mechanisms (e.g., hearing offenders' narratives) are important in the development of empathy and public perceptions of offenders (Posick et al., 2014).

Experiential learning is conceivably one social mechanism whereby empathy development occurs. Unnever and colleagues (2005) suggest social environments are most conducive to learning how to empathize with an offender. Experiential learning is likely a method wherein students can enhance empathy towards offenders and vulnerable populations generally. Since the insights of Carl Rogers (1957), empathy is consistently demonstrated as essential for therapeutic change to occur (Feller & Cottone, 2003), and predicts the success of therapeutic outcomes (Elliott et al., 2011). If forensic psychology students' empathy capacities grow during their program due to experiential learning, then future clients could benefit from stronger therapeutic relationships, which, by extension, could positively impact therapeutic outcome (Strekalova et al., 2017),

## Benefits for the Discipline

Research suggests that having students who will work with vulnerable populations undergo experiential learning may benefit their future disciplines (Spanjaard, et al., 2018). Not only might these individuals become better professionals, but they might also be better prepared to enter the field upon graduation. For instance, following experiential learning, clinical psychology graduate students developed a better idea of what their future profession would involve (Falgaras et al., 2017). By better understanding their future profession, experiential learning prepares students to work in their respective fields, inspires greater self-efficacy and confidence, and may thus yield more substantive contributions earlier in students' career (Spanjaard, et al., 2018). Furthermore, Keena and Krieger-Sample (2018) found that, following a one semester undergraduate Community-Based Corrections course that included criminal justice-related, empathy-focused projects, students demonstrated a statistically significant increase in empathy levels, as measured by the Interpersonal Reactivity Index (Davis, 1998), a valid self-report measure of empathy, and individual interviews with the students (see Keena & Krieger-Sample (2018) for greater discussion of course content and analytical strategies). Thus, presumably, the sooner students engage in experiential learning (e.g., during their undergraduate degree), the more pronounced these benefits will be, including in forensic psychology fields.

If experiential learning cultivates empathy in students, then benefits for forensic psychology-related fields may exist in terms of having more competent and resilient professionals working with vulnerable populations. Empathy is negatively linked to burnout (Wilkinson et al., 2017), a condition encompassing emotional exhaustion, depersonalization, and reduced personal accomplishment (Maslach & Jackson, 1981). Burnout is prevalent across many forensic psychology-related professions, including correctional officers (Klinoff et al., 2018); police officers (Violanti & Gehrke, 2004); lawyers (Otey, 2015); forensic practitioners (Pirelli et al., 2020); and psychologists (Di Benedetto & Swadling, 2014).

Concerningly, burnout can pose harmful outcomes for clients/patients. Psychologists' mental health difficulties, including burnout, can lead to emotional disengagement (Thériault & Gazzola, 2006); is associated with clients' early termination (Piselli et al., 2011); and an inability to establish a strong therapeutic alliance (Enochs & Etzbach, 2004). Reduced ability to form a therapeutic alliance can compromise the therapeutic process and outcome, and psychologists' burnout can result in negative changes in clients (Holmqvist & Jean-



neau, 2006). Cultivating empathy in forensic psychology students via experiential learning may have the potential to mitigate or prevent burnout and subsequent ramifications, thereby leaving forensic psychology-related fields with resilient prospective professionals.

## Conclusion

Experiential learning is a valuable tool for undergraduates pursuing a forensic psychology-related career, as they will inevitably work with vulnerable populations. Past research demonstrates the value of experiential learning for students across education levels and settings (Best et al., 2018). Experiential learning adds interest and value to the classroom (Zelechowski et al., 2017), while helping students better understand their future profession (Falgaras et al., 2017). This learning approach not only benefits the students, but facilitators; future clients; and the discipline as a whole.

In addition to tangible benefits occurring in relative isolation, benefits common to all involved are those that arise from the edification of empathy. Forensic psychology students who engage in experiential learning conceivably experience an increase in their capacity to empathize, which could have widespread benefits for their future clients (Feller & Cottone, 2003). Program facilitators, through their mentorship roles, may see similar growth in empathy via self-reflection (Eby et al., 2006). Current and future clients of those with greater empathy resulting from experiential learning may receive more effective treatment and benefit from swifter rehabilitation (Elliott et al., 2011). Finally, through its effect on empathy, experiential learning may foster resilient future forensic psychology professionals (Spanjaard, et al., 2018). Notably, empathy should be considered in conjunction with related constructs, such as cultural responsiveness (i.e., the ability to learn from one's own and other cultures; Simpkins et al., 2017) in order to mitigate the impact of negative biases and raise awareness of privilege and inequalities frequently inherent to professional relationships with vulnerable populations.

When reviewing literature for the present paper, we noticed gaps concerning empirical evidence on experiential learning and empathy, specifically in forensic psychology undergraduate students. Future research should evaluate the benefits of experiential learning and whether it leads to empathy development in forensic psychology undergraduate students. Given the known and speculated benefits of experiential learning-based programs, we argue that the development, implementation, and evaluation of experiential learning opportunities should be prioritized in forensic psychology programs.

## References

- Achenbach, K., & Arthur, N. (2002). Experiential learning: Bridging theory to practice in multicultural counseling. *Guidance and Counseling, 17*, 39-4.
- Bailey, S.F., Barber, L.K. & Nelson, V.L. (2017). Undergraduate internship supervision in psychology departments: Use of experiential learning best practices. *Psychology Learning and Teaching, 16*(1), 74-83. <https://doi.org/10.1177/1475725716671234>
- Batastini, A.B., Lester, M.E., & Thompson, R.A. (2018). Mental illness in the eyes of the law: Examining perceptions of stigma among judges and attorneys. *Psychology, Crime & Law, 24*(7), 673-686. <https://doi.org.proxy.hil.unb.ca/10.1080/1068316X.2017.1406092>
- Batson, C. D., Chang, J., Orr, R., & Rowland, J. (2002). Empathy, attitudes, and action: Can feeling for a member of a stigmatized group motivate one to help the group? *Personality and Social Psychology Bulletin, 28*, 1656-1666. <https://doi.org/10.1177/014616702237647>
- Batson, C. D., Polycarpou, M. P., Harmon-Jones, E., Imhoff, H. J., Mitchener, E. C., Bednar, L. R., & Highberger, L. (1997). Empathy and attitudes: Can feeling for a member of a stigmatized group improve feelings toward the group? *Journal of Personality and Social Psychology, 72*, 105-118. <https://doi.org/10.1037/0022-3514.72.1.105>
- Best, H., Bommel, M. & Adriaansen, M. (2018). Nursing student as patient: Experiential learning in a hospital simulation to improve empathy of nursing students. *Scandinavian Journal of Caring Sciences, 32*, 1390-1397. <https://doi.org/10.1111/scs.12584>
- Carleton, (2018). *Experiential learning*. <https://carleton.ca/edc/teachingresources/high-impact-practices/experiential-learning/>
- Clements, A.D. (1995). Experiential-learning activities in undergraduate developmental psychology. *Teaching of Psychology, 22*(2), 115-118. [https://doi.org/10.1207/s15328023top2202\\_5](https://doi.org/10.1207/s15328023top2202_5)
- Chickering, A. W., & Reisser, L. (1993). Education and identity (2nd ed.). San Francisco: Jossey-Bass.
- Correctional Service of Canada. (2013a). *Demographic Overview of Aboriginal Peoples in Canada and Aboriginal Offenders in Federal Corrections*. <https://www.csc-scc.gc.ca/aboriginal/002003-1008-eng.shtml>
- Correctional Service of Canada. (2013b). *Mental health needs of federal women offenders*. <https://www.csc-scc.gc.ca/research/005008-0267-eng.shtml>
- Correctional Service of Canada. (2014). *Prevalence of Mental Health Disorders Among Incoming Federal Offenders: Atlantic, Ontario, & Pacific Regions*. <https://www.csc-scc.gc.ca/research/005008-err13-3-eng.shtml>
- Courtright, K. E., Mackey, D. A., & Packard, S. H. (2005). Empathy among college students and criminal justice majors: Identifying predispositional traits and the role of education. *Journal of Criminal Justice Education, 16*(1), 125-144.



- <https://doi.org/10.1080/1051125042000333514>  
Di Benedetto, M., & Swadling, M. (2014). Burnout in Australian psychologists: Correlations with work setting, mindfulness and self-care behaviours. *Psychology, Health and Medicine*, 19(6), 705–715.  
<https://doi.org/10.1080/13548506.2013.861602>
- Eby, L. T., Durley, J.R., Evans, S.C. & Ragins, B.R. (2006). The relationship between short-term mentoring benefits and long-term mentor outcomes. *Journal of Vocational Behaviour*, 69(3), 424–444.  
<https://doi.org/10.1016/j.jvb.2006.05.003>
- Enochs, W. K., & Etzbach, C. A. (2004). Impaired student counselors: Ethical and legal considerations for the family. *The Family Journal*, 12(4), 396–400.  
<https://doi.org/10.1177/1066480704267240>
- Elliott, R., Bohart, A. C., Watson, J. C., & Greenberg, L. S. (2011). Empathy. *Psychotherapy: Theory, Research, and Practice*, 48, 43–49.
- Feller, C. P., & Cottone, R. R. (2003). The importance of empathy in the therapeutic alliance. *Journal of Humanistic Counseling, Education, and Development*, 42, 53–61.  
<https://doi.org/10.1002/j.2164-490X.2003.tb00168.x>
- Giordano, A.L., Clarke, P.B., & Stare, B.G. (2015). Overcoming obstacles to empathy: The use of experiential learning in Addictions Counseling courses. *Journal of Creativity in Mental Health*, 10, 100–113.  
<https://doi.org/10.1080/15401383.2014.947011>
- Giovannoni, J., McCoy, K. Y., Mays, M., & Watson, J. (2015). Probation officers reduce their stress by cultivating the practice of loving-kindness with self and other. *International Journal of Caring Sciences*, 8(2), 325–332.
- Falgaras, G., Venza, G. & Guarccia, C. (2017). Learning psychology and becoming psychologists: Developing professional identity through experiential learning. *Psychology Learning and Teaching*, 16(2), 232–247.  
<https://doi.org/10.1177/1475725717695148>
- Keena, L., & Krieger-Sample, L. (2018) Empathy-focused learning: Teaching criminal justice students to care. *American Journal of Criminal Justice*, 43, 389–410.  
<https://doi.org/10.1007/s12103-017-9385-7>
- Holmqvist, R., & Jeanneau, M. (2006). Burnout and psychiatric staff's feelings towards patients. *Psychiatry Research*, 145(2-3), 207–213.  
<https://doi.org/10.1016/j.psychres.2004.08.012>
- Hunsley, J., Ronson, A. & Cohen, K.R. (2013). Professional psychology in Canada: A survey of demographic and practice characteristics. *Professional Psychology: Research and Practice*, 44(2), 118–126.  
<https://doi.org/10.1037/a0029672>
- Klinoff, V. A., Hasselt, V. B. V., Black, R. A., Masias, E. V., & Couwels, J. (2018). The Assessment of Resilience and Burnout in Correctional Officers. *Criminal Justice and Behavior*, 45(8), 1213–1233.  
<https://doi.org/10.1177/0093854818778719>
- Maslach, C. & Jackson, S. E. (1981a). The measurement of experienced burnout. *Journal of Occupational Behavior*, 2, 99–113. <https://doi.org/10.1002/job.4030020205>
- Moak, S. C., Walker, J. T., Earwood, M., & Towery, G. (2019). Using reentry simulations to promote changes in attitude toward offenders: Experiential learning to promote successful reentry. *American Journal of Criminal Justice*, 45, 126–144.  
<https://doi.org/10.1007/s12103-019-09500-9>
- Otey, B. S. (2015). Buffering burnout: Preparing the online generation for the occupational hazards of the legal profession. *Southern California Interdisciplinary Law Journal*, 24, 147–201.
- Parra, A. (2013). Cognitive and emotional empathy in relation to five paranormal/anomalous experiences. *North American Journal of Psychology*, 15(3), 405–612.
- Peterson, K. & Kolb, D.A. (2018). Expanding awareness and contact through experiential learning. *Gestalt Review*, 22(2), 226–248.  
<https://www.jstor.org/stable/10.5325/gestaltreview.22.2.0226>
- Pirelli, G., Formon, D. L., & Maloney, K. (2020). Preventing vicarious trauma (VT), compassion fatigue (CF), and burnout (BO) in forensic mental health: Forensic psychology as exemplar. *Professional Psychology: Research and Practice*. <https://doi.org/10.1037/pro0000293>
- Piselli, A., Halgin, R. P., & Macewan, G. H. (2011). What went wrong? Therapists' reflections on their role in premature termination. *Psychotherapy Research*, 21(4), 400–415.  
<https://doi.org/10.1080/10503307.2011.573819>
- Posick, C., Rocque, M., & Rafter, N. (2014) More than a feeling: Integrating empathy into the study of lawmaking, lawbreaking, and reactions to law-breaking. *International Journal of Offender Therapy and Comparative Criminology*, 58(1), 5–26.  
<https://doi.org/10.1177/0306624X12465411>
- Pozzulo, J., Bennell, C., & Forth, A. (2017). *Forensic Psychology* (5th ed.). Pearson Canada.
- Preston, S.D., & de Waal, F. B. (2002). Empathy: Its ultimate and proximate bases. *Behavioural and Brain Sciences*, 25, 1–72.  
<https://doi.org/10.1017/S0140525X02430014>
- Rogers, C. R. (1957). The necessary and sufficient conditions of therapeutic personality change. *Journal of Consulting Psychology*, 21, 95–103.  
<https://doi.org/10.1037/h0045357>
- Sodowsky, G. R., Kuo-Jackson, P. Y, & Loya, C.J. (1997). Outcome of training in the philosophy of assessment: Multicultural counseling competencies. In D. B. Pope-Davis & H. L. K. Coleman (Eds.), *Multicultural counseling competencies: Assessment, education*
- Spanjaard, D., Hall, T., & Stegemann, N. (2018). Experiential learning: Helping students to become 'career-ready'. *Australasian Marketing Journal*, 26, 163–171.  
<https://doi.org/10.1016/j.ausmj.2018.04.003>
- Simpkins, S. D., Riggs, N. R., Ngo, B., Vest Ettekal, A., & Okamoto, D. (2017) Designing culturally responsive organized after-school activities. *Journal of Adolescent Research*, 32(1), 1–26.  
<https://doi.org/10.1177/0743558416666169>
- Strekalova, Y. A., Krieger, J. L., Neil, J., Caughlin, J. P.,

- Kleinheksel, A. J., & Kotranza, A. (2017). I understand how you feel: The language of empathy in virtual clinical training. *Journal of Language and Social Psychology*, 36(1), 61-79.  
<https://doi.org/10.1177/0261927X16663255>
- Thériault, A., & Gazzola, N. (2006). What are the sources of feelings of incompetence in experienced therapists? *Counselling Psychology Quarterly*, 19(4), 313-330.  
<https://doi.org/10.1080/09515070601090113>
- Tyler, J. M., & Guth, L. J. (1999). Using media to create experiential learning in multicultural and diversity issues. *Journal of Multicultural Counseling and Development*, 27, 153-165. <https://doi.org/10.1002/j.2161-1912.1999.tb00221.x>
- University of North Carolina, (n.d.). Institutional Review Board: Vulnerable Populations.  
<https://irb.unca.edu/vulnerable-populations>
- Unnever, J. D., & Cullen, F. T. (2009). Empathetic identification and punitiveness: A middle-range theory of individual differences. *Theoretical Criminology*, 13, 283-312.  
<https://doi.org/10.1177/1362480609336495>
- Vandermaas-Peeler, M., Miller, P., C. & Peeples, T. (2015) "Mentoring is sharing the excitement of discovery:" Faculty perceptions of undergraduate research mentoring. *Mentoring & Tutoring: Partnership in Learning*, 23(5), 377-393,  
<https://doi.org/10.1080/13611267.2015.1126163>
- Violanti, J. M., & Gehrke, A. (2004). Police trauma encounters: Precursors of compassion fatigue. *International Journal of Emergency Mental Health*, 6, 75-80.
- Waisel, D. B. (2013). Vulnerable populations in health-care. *Current Opinion in Anaesthesiology*, 26(2), 186-192. <https://doi.org/10.1097/aco.0b013e32835e8c17>
- Wilkinson, H., Whittington, R., Perry, L., & Eames, C. (2017). Examining the relationship between burnout and empathy in healthcare professionals: A systematic review. *Burnout Research*, 6, 18-29.  
<https://doi.org/10.1016/j.burn.2017.06.003>
- Zelechowski, A.D., Romain, C.L. & Wolbransky, M. (2017). Teaching psychology and law: An empirical evaluation of experiential learning. *Teaching of Psychology*, 44(3), 222-231.  
<https://doi.org/10.1177/0098628317711316>

# The 2019 Novel Coronavirus: A Sleep and Mood Perspective

Maya E. Amestoy, Ryerson University, B.A.

Parky H. Lau, Ryerson University, M.A.

## Abstract

Many public health measures have been implemented in response to the outbreak of the novel coronavirus (COVID-19), such as self-isolation and social distancing, to curtail the transmission of the virus. These changes to social and environmental behaviours may have negative implications for the development of various psychological disorders. The onset of insomnia may be more likely to occur during periods of self-isolation as individuals may experience increased stress and disruptions to daily routines, which can have negative effects on both the circadian rhythm system and homeostatic sleep drive. Mood may also be affected during self-isolation as individuals may experience reductions in positive reinforcement, increased exposure to personal loss, and greater rumination, which may lead to the onset of depression. In consideration of these changes, this review discusses the efficacy of empirically supported theories that may assist individuals in reducing the development and exacerbation of both insomnia and depression while self-isolating.

## Résumé

De nombreuses mesures de santé publique, comme l'auto-isolement et la distanciation physique, ont été mises en œuvre dans la foulée de l'éclosion du nouveau coronavirus (COVID-19) afin de limiter la transmission du virus. La modification des comportements sociaux et environnementaux qu'imposent ces mesures risque d'avoir des répercussions négatives sur le développement de divers troubles psychologiques. L'apparition de l'insomnie est plus susceptible de se produire pendant les périodes d'auto-isolement, car, pendant un isolement volontaire, les individus éprouvent parfois un stress accru et voient leur routine perturbée, ce qui peut avoir des effets négatifs à la fois sur le système de régulation du rythme circadien et le processus homéostatique. Il arrive également que l'humeur soit altérée pendant l'auto-isolement, car, dans une situation d'auto-isolement, les individus risquent d'être privés de renforcement positif, d'être plus exposés aux pertes

personnelles et de ruminer davantage, ce qui conduit, dans certains cas, à l'apparition de la dépression. En tenant compte de ces changements, la présente revue de synthèse examine l'efficacité des théories fondées sur des données empiriques qui sont susceptibles d'aider les individus à réduire le risque de développer et d'aggraver l'insomnie et la dépression pendant une période d'isolement volontaire.



## The 2019 Novel Coronavirus: A Sleep and Mood Perspective

In December of 2019, the novel coronavirus disease – more commonly known as COVID-19 – began to spread throughout the world, leading countries towards a state of uncertainty and panic. COVID-19 is a specific strain of a larger family of viruses which are known to cause respiratory infections. These infections have a wide range of severity, from mild symptoms such as a dry cough, to more severe clinical manifestations, such as acute respiratory distress syndrome, septic shock, and organ failure (Chen et al., 2020; Tan et al, 2020). By March 2020, COVID-19 was declared a global pandemic and the Canadian government implemented several public health measures, such as self-isolation and social distancing to curtail the transmission of the virus. While these actions can prevent the spread of the virus, the resulting changes to social and environmental patterns may engender various challenges that lead towards the development – or exacerbation – of psychological disorders. One example is chronic insomnia, which is a sleep disorder characterized by difficulty initiating sleep, maintaining sleep, or experiencing poor quality sleep for at least three nights per week for three months (Bootzin & Epstein, 2011). Depression is another disorder which people are at increased risk of during self-isolation, due to the possible lack of positive reinforcement and increased feelings of hopelessness (Greene, 1989; Kanter, Puspitasari, Santos, & Nagy, 2012). Accordingly, in this review, we identify the possible daily changes, as a result of the pandemic, that may increase the probability of developing chronic insomnia

and depression. After this discussion, we provide readers with empirically-supported recommendations to improve psychological well-being.

### **The Effects of Routine Disruption on Sleep**

The sleep system is regulated by two processes: the homeostatic sleep drive, known for regulating one's desire to sleep throughout the day by increasing sleep pressure, and the circadian rhythm system, which is one's internal biological clock that controls sleepiness and wakefulness over a 24-hour period (Richardson, 2005). Loss of employment, self-isolation, and social distancing can all significantly change normal day-to-day schedules (Anderson, Heesterbeek, Klinkenberg, & Hollingsworth, 2020), which can have several implications on the processes that control sleep. First, reductions in daily activities may weaken the pressure to sleep, which is concerning given that a high sleep drive is important in producing restorative sleep through increasing time spent in deep sleep stages (i.e., slow-wave sleep; Zisapel, 2007). A reduction in daily activities also increases symptoms of fatigue as a result of less restorative sleep, which may subsequently cause compensatory behaviours that further exacerbate sleep problems and reduce sleep drive (e.g., lingering in bed, napping, etc.; Deboer, 2018; Spielman, Saskin, & Thorpy, 1987).

Secondly, the loss of routine may disrupt circadian rhythm, which can create symptoms similar to "jet lag", including an inability to fall asleep at the desired clock time, excessive daytime sleepiness, multiple naps (Zee, Attarian, & Videnovic, 2013), and a disruption in hormone secretion (e.g., growth hormones; Boivin & James, 2005). This lack of input to the circadian rhythm system is further exacerbated by self-isolation given that the primary input to regulate our internal clock is via light exposure, which may be limited as a result of staying indoors (Lack, Lovato, & Micic, 2017).

Alternatively, even if an individual maintains their regular schedule without loss of activity and both the homeostatic and circadian systems are working as intended, sleep problems may still occur through the arousal system (Sforza, Chapotot, Pigeau, Paul, & Buguet, 2004). Extant research suggests an association between stress and insomnia as the onset of stress stimulates the release of cortisol and adrenaline throughout the body, which can disrupt sleep (Lo Martire, Caruso, Palagini, Zoccoli, & Bastianini, 2019). In addition, individuals may be more prone to watch the news on television to access information about the current state of the virus. This behaviour can be detrimental to sleep as the information pro-

jected in the media may increase arousal and stress reactivity prior to sleep (Exelmans & Van den Bulck, 2016).

Similarly, the state of the pandemic can lead to increased worry and rumination about the health of oneself, family, and friends; financial and social well-being; and the uncertainty of when (or whether) life will return to a state of normalcy. Rumination is a process of repetitive thinking surrounding causes, symptoms, and consequences of distress (Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008). These repetitive thinking behaviours can be another cause of heightened arousal during the pre-sleep period and can lead to prolonged sleep-onset latency and decreased sleep quality (Tousignant, Taylor, Suvak, & Fireman, 2019).

### **The Effects of Routine Disruption on Mood**

The current pandemic may also negatively impact individual mood due to the possible increased exposure to death, unemployment, and loss of hope. The virus outbreak has led to a spike in global death rates as The World Health Organization (2020) reports over 800,000 COVID-19 fatalities as of August 2020, with numbers increasing each day. Dealing with death is challenging, stressful, and has been associated with the development of various psychiatric disorders (Kaplow, Saunders, Angold, & Costello, 2010). Moreover, dealing with death during COVID-19 is significantly more complex as these deaths may be unexpected and individuals are unable to socially gather to commemorate one's life. Indeed, previous literature has found unexpected death and lack of social support to be associated with depression (Keyes et al., 2014).

Likewise, the pandemic has caused many individuals to lose their jobs or be laid-off, which may initiate various other secondary stressors (i.e., loss of control, status, and identity) that may negatively influence mood and increase vulnerability to mental health issues (Andreeva et al., 2015). Depression has been commonly associated with unemployment, wherein rates of depression are nearly two times greater among unemployed individuals than their employed counterparts (Stolove, Galatzer-Levy, & Bonanno, 2017).

The experience of self-isolation may also have an effect on mood by minimizing levels of positive reinforcement from the environment. Given the lack of social contact and reduced engagement with activities that provide pleasure (e.g., traveling) and mastery (e.g., going to work), some individuals may be more susceptible to follow an adverse pathway by which



mood disorders develop and are maintained (Kanter et al., 2012). In conjunction with a lack of positive reinforcement, individuals may experience significant stress as a result of financial difficulties or feelings of loneliness, which in turn may increase their tendency to ruminate, and subsequently impact mood by increasing pessimism and dysfunctional attitudes (Nolen-Hoeksema et al., 2008).

The current unpredictability and sometimes uncontrollability of the pandemic may also increase one's vulnerability to thoughts of hopelessness about the future of the virus. Extant research suggests hopelessness has a significant role in the development of depression, as persistent negative expectations about the future can lead to many of the symptoms that characterize depression (i.e., loss of pleasure, impaired cognition; Greene, 1989). Huang and Zhao (2020) recently found the prevalence of depression in a Chinese population during COVID-19 to be 21.1%, using The Center for Epidemiology Scale for Depression. Although this finding is limited to a specific sample, this conclusion may have implications for the global increase of depression in the wake of COVID-19.

### **The Relationship Between Sleep and Mood**

As the possible development of both insomnia and depression may be more likely during the current pandemic, it is important to discuss the bidirectional relationship of these disorders. While evidence suggests that depression predicts the onset of insomnia symptoms (Sivertsen et al., 2012), insomnia can also exist years prior to the onset of an episode of depression. Indeed, insomnia is associated with various negative outcomes, including decreased daytime functioning, mood disturbances, lack of motivation, and impairment of concentration and/or memory (Gillam, 2009). Baglioni et al. (2011) found that non-depressed subjects diagnosed with insomnia had a two-fold risk of later development of depression, in comparison to subjects with no reported sleep difficulties. Thus, it is important to consider both disorders in tandem.

### **Recommendations to Improve Sleep and Mood**

Due to the increased susceptibility to developing insomnia and depression during COVID-19, recommendations based on empirically-supported theories can be employed to mitigate the severity and chronicity of these disorders. A leading treatment method for insomnia is the use of cognitive-behavioural strategies, which includes the dissemination of sleep hygiene information; relaxation-based techniques; stimulus con-

trol strategies to re-associate the bedroom with sleep; sleep restriction; and cognitive therapy (Edinger & Means, 2005; Morin et al., 2006). Research has also demonstrated the effectiveness of these strategies in improving depression severity (Blom et al., 2015; Tanaka, Kusaga, Nyamathi, & Tanaka, 2019), thus making it an appropriate treatment option to mitigate the exacerbation of both these disorders.

The use of self-help interventions for insomnia have also received empirical support. Morin, Beaulieu-Bonneau, Leblanc, and Savard (2005) found that six booklets developed from chapters of the self-help book *Relief From Insomnia* (Morin, 1996) were effective in alleviating insomnia symptoms after 4-to-6 weeks and at a 6-month follow-up. Moreover, evidence supports the notion that self-help treatments and cognitive behavioural therapy are comparable in terms of their efficacy and effect size, especially on outcomes such as number of awakenings ( $d$ 's = 0.26 and 0.25, respectively) and total sleep time ( $d$ 's = 0.23 and 0.15, respectively; Morin et al., 2005; Morin & Benca, 2012).

In regard to repetitive negative thinking, several practices have also proven to be effective in reducing rumination. For instance, research suggests mindfulness techniques (e.g., Mindfulness-Based Cognitive Therapy and Mindfulness-Based Stress Reduction) can have significant effects on alleviating ruminating and depressive symptoms (Hawley et al., 2014). These mindfulness-based practices have also demonstrated long-term positive effects on sleep quality (Rusch et al., 2019). This success is likely due to the techniques increasing one's ability to disengage from ruminating thoughts and increase experiential awareness (Hawley et al., 2014).

Another way to decrease the possible onset of these disorders is through behavioural changes which target the problematic behaviours enforced by the pandemic. Specifically, it is important to maintain a routine in order to mitigate disruptions in circadian rhythm and the further development of insomnia symptoms (Sharma & Andrade, 2012). For instance, individuals should strive to set proper sleep and rise times along with scheduled activities throughout the day, such as exercising and reading, to strengthen the homeostatic sleep system and produce restorative sleep (Markwald, Iftikhar, & Youngstedt, 2018).

Scheduling activities may also serve to improve mood according to the behavioural activation theory of depression, which posits that increased engagement in certain activities that provide pleasure and mastery can be an effective antidepressant (Dimidjian et al., 2006). These activities can increase instances of positive reinforcement while self-isolating and sub-

sequently, increase future engagement in such activities (Furukawa et al., 2018). Engagement in pleasurable activities may also assist individuals in identifying and removing environmental situations that negatively influence mood and constitute the usage of avoidance behaviours (Carvalho & Hopko, 2011). By utilizing these techniques, individuals may be able to better manage their problems and improve the way they feel, which can possibly decrease the likelihood of developing these disorders.

## Conclusion

The significant changes put forth by the pandemic, such as self-isolation and social distancing have led to various challenges from a social and environmental perspective. Therefore, it is essential to understand how these changes may impact individuals from a mental health standpoint. Research shows that these daily changes may increase the likelihood of developing chronic insomnia and depression. Specifically, there may be negative effects on one's ability to maintain a routine and engage in pleasurable activities, which can affect both mood and sleep (Kanter et al., 2012; Zisapel, 2007). Individuals may also experience high levels of stress due to these behavioural, social, and environmental changes, which may cause mood and sleep disturbances by way of the arousal system, the use of avoidant coping styles, and increased rumination (Nolen-Hoeksema et al., 2008; Sforza et al., 2004). Thus, it is important to maintain a routine and engage in pleasurable and relaxing activities to strengthen the sleep systems, reduce stress, and increase positive reinforcement in one's environment. Future research should continue to investigate how populations may be affected by the pandemic from a mental health perspective and evaluate the effectiveness of psychological and behavioural treatments in reducing symptoms of psychological disorders.



## References

- Anderson, R. M., Heesterbeek, H., Klinkenberg, D., & Hollingsworth, T. D. (2020). How will country-based mitigation measures influence the course of the COVID-19 epidemic? *The Lancet*, 395(10228), 931-934. doi:10.1016/S0140-6736(20)30567-5
- Andreeva, E., Magnusson Hanson, L. L., Westerlund, H., Theorell, T., & Brenner, M. H. (2015). Depressive symptoms as a cause and effect of job loss in men and women: Evidence in the context of organisational downsizing from the Swedish longitudinal occupational survey of health. *BMC Public Health*, 15(1), 1045. doi:10.1186/s12889-015-2377-y
- Baglioni, C., Battagliese, G., Feige, B., Spiegelhalter, K., Nissen, C., Voderholzer, U., . . . Riemann, D. (2011). Insomnia as a predictor of depression: A meta-analytic evaluation of longitudinal epidemiological studies. *Journal of Affective Disorders*, 135(1), 10-19. doi:10.1016/j.jad.2011.01.011
- Blom, K., Jernelöv, S., Kraepelien, M., Bergdahl, M. O., Jungmarker, K., Ankartjärn, L., . . . Kaldo, V. (2015). Internet treatment addressing either insomnia or depression, for patients with both diagnoses: A randomized trial. *Sleep*, 38(2), 267-277. doi:10.5665/sleep.4412
- Boivin, D. B., & James, F. O. (2005). Light treatment and circadian adaptation to shift work. *Industrial Health*, 43(1), 34-48. doi:10.2486/indhealth.43.34
- Bootzin, R. R., & Epstein, D. R. (2011). Understanding and treating insomnia. *Annual Review of Clinical Psychology*, 7(1), 435-458. doi:10.1146/annurev.clinpsy.3.022806.091516
- Carvalho, J. P., & Hopko, D. R. (2011). Behavioral theory of depression: Reinforcement as a mediating variable between avoidance and depression. *Journal of Behavior Therapy and Experimental Psychiatry*, 42(2), 154-162. doi:10.1016/j.jbtep.2010.10.001
- Chen, N., Zhou, M., Dong, X., Qu, J., Gong, F., Han, Y., . . . Zhang, L. (2020). Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: A descriptive study. *The Lancet*, 395(10223), 507-513. doi:10.1016/S0140-6736(20)30211-7
- Coronavirus disease (COVID-19): Weekly Epidemiological Update (2020, August 30). Retrieved from <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports>
- Deboer, T. (2018). Sleep homeostasis and the circadian clock: Do the circadian pacemaker and the sleep homeostat influence each other's functioning? *Neurobiology of Sleep and Circadian Rhythms*, 5, 68-77. doi:10.1016/j.nbscr.2018.02.003
- Dimidjian, S., Hollon, S. D., Dobson, K. S., Schmaling, K. B., Kohlenberg, R. J., Addis, M. E., . . . Jacobson, N. S. (2006). Randomized trial of behavioral activation, cognitive therapy, and antidepressant medication in the acute treatment of adults with major depression. *Journal of Consulting and Clinical Psychology*, 74(4), 658-670. doi:10.1037/0022-006X.74.4.658
- Edinger, J. D., & Means, M. K. (2005). Cognitive-behavioral therapy for primary insomnia. *Clinical Psychology Review*, 25(5), 539-558. doi:10.1016/j.cpr.2005.04.003
- Exelmans, L., & Van den Bulck, J. (2016). Bedtime mobile phone use and sleep in adults. *Social Science & Medicine*, 148, 93-101. doi:10.1016/j.socscimed.2015.11.037
- Furukawa, T. A., Imai, H., Horikoshi, M., Shimodera, S., Hiroe, T., Funayama, T., . . . FLATT Investigators. (2018). Behavioral activation: Is it the expectation or achievement, of mastery or pleasure that contributes to improvement in depression? *Journal of Affective Disorders*, 238, 336-341. doi:10.1016/j.jad.2018.05.067
- Gillam, T. (2009). Understanding primary insomnia in

- older people. *Nursing Older People*, 21(3), 30-33. doi:10.7748/nop2009.04.21.3.30.c7014
- Greene, S. (1989). The relationship between depression and hopelessness implications for current theories of depression. *The British Journal of Psychiatry*, 154(5), 650-659. doi:10.1192/bjp.154.5.650
- Hawley, L. L., Schwartz, D., Schwartz, D., Bieling, P. J., Bieling, P. J., . . . Segal, Z. V. (2014). Mindfulness practice, rumination and clinical outcome in mindfulness-based treatment. *Cognitive Therapy and Research*, 38(1), 1-9. doi:10.1007/s10608-013-9586-4
- Huang, Y., & Zhao, N. (2020). Generalized anxiety disorder, depressive symptoms and sleep quality during COVID-19 outbreak in china: A web-based cross-sectional survey. *Psychiatry Research*, 288, 112954. doi:10.1016/j.psychres.2020.112954
- Kanter, J. W., Puspitasari, A. J., Santos, M. M., & Nagy, G. A. (2012). Behavioural activation: History, evidence and promise. *British Journal of Psychiatry*, 200(5), 361-363. doi:10.1192/bjp.bp.111.103390
- Kaplow, J. B., Saunders, J., Angold, A., & Costello, E. J. (2010). Psychiatric symptoms in bereaved versus non-bereaved youth and young adults: A longitudinal epidemiological study. *Journal of the American Academy of Child and Adolescent Psychiatry*, 49(11), 1145-1154. doi:10.1016/j.jaac.2010.08.004
- Keyes, K. M., Pratt, C., Galea, S., McLaughlin, K. A., Koenen, K. C., & Shear, M. K. (2014). The burden of loss: Unexpected death of a loved one and psychiatric disorders across the life course in a national study. *American Journal of Psychiatry*, 171(8), 864-871. doi:10.1176/appi.ajp.2014.13081132
- Lack, L. C., Lovato, N., & Micic, G. (2017). Circadian rhythms and insomnia. *Sleep and Biological Rhythms*, 15(1), 3-10. doi:10.1007/s41105-016-0072-8
- Lo Martire, V., Caruso, D., Palagini, L., Zoccoli, G., & Bastianini, S. (2019). Stress & sleep: A relationship lasting a lifetime. *Neuroscience and Biobehavioral Reviews*, S0149-7634(19), 30149-6. doi:10.1016/j.neubiorev.2019.08.024
- Markwald, R. R., Iftikhar, I., & Youngstedt, S. D. (2018). Behavioral strategies, including exercise, for addressing insomnia. *ACSM's Health & Fitness Journal*, 22(2), 23-29. doi:10.1249/FIT.00000000000000375
- Morin, C. M. (1996). *Relief from insomnia: getting the sleep of your dreams*. New York: Doubleday.
- Morin, C. M., Beaulieu-Bonneau, S., LeBlanc, M., & Savard, J. (2005). Self-help treatment for insomnia: A randomized controlled trial. *Sleep*, 28(10), 1319-1327. doi:10.1093/sleep/28.10.1319
- Morin, C. M., & Benca, R. (2012). Chronic insomnia. *The Lancet*, 379(9821), 1129-1141. doi:10.1016/S0140-6736(11)60750-2
- Morin, C. M., Bootzin, R. R., Buysse, D. J., Edinger, J. D., Espie, C. A., & Lichstein, K. L. (2006). Psychological and behavioral treatment of insomnia: Update of the recent evidence (1998-2004). *Sleep*, 29(11), 1398-1414. doi:10.1093/sleep/29.11.1398
- Nolen-Hoeksema, S., Wisco, B. E., & Lyubomirsky, S. (2008). Rethinking rumination. *Perspectives on Psychological Science*, 3(5), 400-424. doi:10.1111/j.1745-6924.2008.00088.x
- Richardson, G. S. (2005). The human circadian system in normal and disordered sleep. *The Journal of Clinical Psychiatry*, 66(9), 3-43.
- Rusch, H. L., Rosario, M., Levison, L. M., Olivera, A., Livingston, W. S., Wu, T., & Gill, J. M. (2019). The effect of mindfulness meditation on sleep quality: A systematic review and meta-analysis of randomized controlled trials. *Annals of the New York Academy of Sciences*, 1445(1), 5-16. doi:10.1111/nyas.13996
- Sharma, M. P., & Andrade, C. (2012). Behavioral interventions for insomnia: Theory and practice. *Indian Journal of Psychiatry*, 54(4), 359-366. doi:10.4103/0019-5545.104825
- Sivertsen, B., Salo, P., Mykletun, A., Hysing, M., Pallesen, S., Krokstad, S., . . . Øverland, S. (2012). The bidirectional association between depression and insomnia: The HUNT study. *Psychosomatic Medicine*, 74(7), 758-765. doi:10.1097/PSY.0b013e3182648619
- Sforza, E., Chapotot, F., Pigeau, R., Paul, P. N., & Buguet, A. (2004). Effects of sleep deprivation on spontaneous arousals in humans. *Sleep*, 27(6), 1068-1075. doi:10.1093/sleep/27.6.1068
- Spielman, A. J., Saskin, P., & Thorpy, M. J. (1987). Treatment of chronic insomnia by restriction of time in bed. *Sleep*, 10(1), 45-56. doi:10.1093/sleep/10.1.45
- Stolove, C. A., Galatzer-Levy, I. R., & Bonanno, G. A. (2017). Emergence of depression following job loss prospectively predicts lower rates of reemployment. *Psychiatry Research*, 253, 79-83. doi:10.1016/j.psychres.2017.03.036
- Tan, L., Wang, Q., Zhang, D., Ding, J., Huang, Q., Tang, Y., . . . Miao, H. (2020). Lymphopenia predicts disease severity of COVID-19: A descriptive and predictive study. *Signal Transduction and Targeted Therapy*, 5(33). doi:10.1038/s41392-020-0148-4
- Tanaka, M., Kusaga, M., Nyamathi, A. M., & Tanaka, K. (2019). Effects of brief cognitive behavioral therapy for insomnia on improving depression among Community-Dwelling older adults: A randomized controlled comparative study. *Worldviews on Evidence-Based Nursing*, 16(1), 78-86. doi:10.1111/wvn.12342
- Tousignant, O. H., Taylor, N. D., Suvak, M. K., & Fireman, G. D. (2019). Effects of rumination and worry on sleep. *Behavior Therapy*, 50(3), 558-570. doi:10.1016/j.beth.2018.09.005
- Zee, P. C., Attarian, H., & Videnovic, A. (2013). Circadian rhythm abnormalities. *Continuum*, 19(1), 132-147. doi:10.1212/01.CON.0000427209.21177.aa
- Zisapel, N. (2007). Sleep and sleep disturbances: Biological basis and clinical implications. *Cellular and Molecular Life Sciences : CMLS*, 64(10), 1174-1186. doi:10.1007/s00018-007-6529-9

# Is It Time to Take Psychedelic-Assisted Therapies to Mental Illness More Seriously?

Emily Bernier, University of Calgary, B.A. Student

## Abstract

With the predicted increase of mental illnesses, it is important to be well informed of current therapeutic and pharmacological treatments. Present treatments comprise of a combination of pharmacotherapy and psychotherapy; however, several mental illnesses show evidence of pharmacological treatment resistance. Most alternatives to pharmacological treatment such as electroconvulsive therapy or transcranial magnetic stimulation carry risks for unpleasant side effects or entail long-time commitments. Research into psychedelic use within the therapeutic context to alleviate previously treatment-resistant mental illnesses has gained traction. Despite the inherent risks associated with psychedelic drug use and the lack of longitudinal studies assessing long-term effects, evidence suggests that psychedelic-assisted treatments can be efficacious in treating previously resistant mental illnesses. As such, the field of clinical psychology should consider further research and implementation of psychedelic-assisted therapy to treatment-resistant individuals. This paper aims to examine the current state of literature within the area.

## Résumé

Avec l'augmentation prévue des maladies mentales, il est important d'être bien informé des traitements thérapeutiques et pharmacologiques actuels. Les traitements proposés actuellement sont, entre autres, une combinaison de pharmacothérapie et de psychothérapie; cependant, plusieurs personnes souffrant de maladie mentale montrent une résistance aux traitements pharmacologiques. La plupart des traitements non pharmacologiques, comme les électrochocs ou la stimulation magnétique transcrânienne, présentent des risques d'effets secondaires désagréables ou sont des traitements de longue durée. La recherche sur l'utilisation des drogues psychédéliques dans le contexte thérapeutique pour soulager les personnes qui présentent une résistance au traitement gagne du terrain. Malgré les risques inhérents à l'utilisation de drogues psychédéliques et l'absence d'études longitudinales qui en évaluent les

effets à long terme, les données indiquent que les traitements assistés par les psychédéliques sont, dans certains cas, efficaces chez les personnes atteintes de maladie mentale résistantes au traitement. Ainsi, le domaine de la psychologie clinique devrait continuer à faire de la recherche sur le sujet et envisager d'utiliser la thérapie assistée par les psychédéliques chez les personnes résistantes au traitement. Le présent article vise à examiner l'état actuel de la littérature dans le domaine.



Over the recent decade, million-dollar corporations like Bell have funded large campaigns to educate the public on mental health issues (Bell Let's Talk, 2020). As such, we've often heard of the harrowing statistics on mental health concerns – that in a given year 1 in 5 people will experience a mental illness (Mental Health Commission of Canada [MHCC], 2013). By the age of 40, nearly half of people will have had or have a mental illness. The consequences of mental health problems are plentiful, including potential harm to the individual, but also a financial burden on a country's economy and health care system (MHCC, 2013). Of further concern, the Mental Health Commission of Canada (2013) has projected an increase of mental health concerns within the next 20 years. Approximately 70% of people with mental illnesses do not access mental health services such as medication and psychological therapy (Thorncroft, 2007). Access to mental health services can be hindered by stigma and beliefs of low perceived treatment effectiveness (Motjabai et al., 2011). Further, it has been found that treatment resistance (i.e., poor response to treatment) may influence treatment adherence which can be a barrier to improved outcomes by convincing individuals to discontinue treatment (Bull et al., 2002; Lipkens & Mackenzie, 2011; Liu-Seifert et al., 2005;). Motivated by these barriers, this paper seeks to review the current literature on psychedelic-assisted therapy as a potential alternative to traditional treatments.

Current treatments for mental illness primarily include pharmacotherapy, psychotherapy, or a combination of both (Mayo-Wilson et al., 2014; Skapinakis et al., 2016; Wolf & Hopko, 2008). While psychother-



apy alone is considered largely effective (Chorpita et al., 2011; Shedler, 2010) it may not work for everyone (Beutler et al., 2002) as individuals are unique and respond differently to various treatments (American Psychological Association, 2017). Broadly speaking, treatment resistance is defined as an inadequate response to at least two different suitable pharmacological treatments (with an appropriate dose lasting for at least six weeks), whereby the individual exhibits an absence of symptom relief (Demyttenaere, 2019). An inadequate response is typically characterized on the basis of symptom severity and the percentage of change from baseline or absolute threshold (Howes et al., 2017). Regrettably, the criteria for treatment resistance is yet to be concretely established due to varying definitions of treatment response in different mental illnesses (Demyttenaere, 2019).

Treatment resistance is typically seen in therapies having a pharmacological component (i.e., pharmacotherapy or pharmacotherapy with psychotherapy; Demyttenaere, 2019). For a significant percentage of individuals, the search for the alleviation of debilitating symptoms is a constant battle. Research has found that many mental illnesses may be resistant to pharmacological treatment - including depression (treatment resistance at about 33%; Rush et al., 2006), anxiety (10-40%; Bystritsky, 2006; Cowley et al., 1997), schizophrenia (20-60%; McIlwain et al., 2011; Solanki et al., 2009), and posttraumatic stress disorder (PTSD; ~ 33%; Foa et al., 2009; Green, 2013; Pérez Benitez et al., 2012). Individuals may experience treatment resistance to pharmacological treatments for several reasons. For one, the scope of impact on underlying brain structures associated with particular mental illnesses may differ between individuals (i.e., HPA axis disturbances, reduced hippocampal volume; Carvalho et al., 2012; Sheline, 2011). Other contributing factors to treatment resistance are personality traits (higher neuroticism, lower openness; Mulder, 2002; Takahashi et al., 2013), psychological correlates (severity of illness, number of episodes; Souery et al., 2007), and neurotransmitter dysfunction (i.e., deficits or surplus; Kugaya & Sanacora, 2005). Due to the heterogeneity of mental illness symptoms (Fu et al., 2019; Hamner et al., 2004), pharmacological therapies may not always function as expected – or at all. The notion of treatment-resistant mental illness is concerning as options for alternative treatments to traditional pharmacotherapy are limited and less desirable (i.e., electroconvulsive therapy; unpleasant side effects such as amnesia or cardiovascular complications; Datto, 2000 or transcranial magnetic stimulation; lengthy process; Yip et al.,

2017). Within the last decade or so research has investigated the potential for the use of psychedelics in conjunction with psychotherapy to address this problem.

The use of psychedelics within the therapeutic context dates back to the early 1950's beginning with the study of lysergic acid diethylamide (LSD) as a treatment for alcoholism (Carhart-Harris & Goodwin, 2017). At the time, research found that a single dose of LSD was effective in treating alcoholism, with 40-45% of patients remaining abstinent after a year (Dyck, 2006). Following this, between 1950 and 1965, many individuals were prescribed LSD in conjunction with psychotherapy for ailments like neuroses, schizophrenia, psychopathy, and autism (Sandison et al., 1954; Sandison & Whitelaw, 1957; Simmons et al., 1966). Findings were deemed exciting and thought to warrant further investigation, despite the lack of methodological rigour. In the 1970s, the use of LSD for therapeutic purposes was banned due to political and cultural upheavals regarding the status of psychedelics (Byock, 2018).

The recent opening of Canada's first psychedelic therapy clinic (Field Trip) in Toronto highlights the resurgence of research into the use of psychedelics to treat mental illnesses. This landmark event probes the question of whether psychedelics (ketamine, MDMA, psilocybin, etc.) should be seriously considered as a viable treatment option, and an alternative to traditional pharmacological drugs for individuals with treatment-resistant mental illness. Numerous studies have tested the use of psychedelics in conjunction with psychotherapy (for systematic reviews; see Fuentes et al., 2020; Reiff et al., 2020; Trope et al., 2019), but the aforementioned clinic is one of the first to translate research in psychedelic-assisted therapy to practice by offering it as a treatment plan to eligible individuals. Typically, in psychedelic-assisted therapy, clients are administered a dosage (varying by person and drug; 2-3 sessions) of a psychedelic drug under therapeutic supervision and are given eye-shades or headphones while they converse about their feelings with the therapist (Garcia-Romeu & Richards, 2018). The psychedelic sessions are followed with stand-alone psychotherapy appointments. Field Trip, for example, uses doses of ketamine to enhance psychotherapy in previously resistant cases of diagnosed depression; effects of the treatment seem quite promising, with the company claiming that individuals experience a reduction of symptoms in as little as one session (Field Trip, 2020). While Field Trip only uses ketamine in treatment, some other substances such as MDMA (3,4-mthylenedioxymethamphetamine) and

psilocybin are currently being trialled as psychedelic-assisted therapies in research settings.

MDMA-assisted psychotherapy is another type of psychedelic-assisted therapy that is currently being heavily researched. Although not falling under the classical definition of a psychedelic like LSD or psilocybin, the Multidisciplinary Association of Psychedelic Studies (MAPS, 2020) classifies MDMA as a psychedelic due to its hallucinogenic properties (Grob & Poland, 1996). Primarily investigated for its use in treating treatment-resistant posttraumatic stress disorder (PTSD), MDMA functions by increasing the amounts of serotonin released into the synaptic cleft (Danforth et al., 2016), which alters mood, cognition, and perception (slightly; Dumont & Verkes, 2006). The use of MDMA alone generally produces experiences of increased responsiveness to emotions, heightened openness, and closeness to others (Vollenweider et al., 1998; Wagner et al., 2017). Using MDMA alongside psychotherapy allows for the confrontation of emotionally intense memories or feelings through changes in mood and increases in empathy and compassion (Bouso et al., 2008; Mithoefer et al., 2010; Slomski, 2018). Preliminary results are encouraging – evidence from a randomized double-blind controlled study of individuals ( $N = 28$ ) with chronic PTSD suggests that the use of MDMA in therapeutic settings may be effective in eliminating and/or diminishing symptoms of PTSD, with 76% of participants no longer meeting DSM-5 clinical criteria at 12-month follow-ups (Ot'alora et al., 2018). MDMA-assisted psychotherapy has also been applied to other instances, such as social anxiety in adults with autism (Danforth et al., 2018), anxiety in individuals with life-threatening illnesses (MAPS, 2020), and depression (Patel & Titheradge, 2015). Results from research using a randomized double-blind placebo-controlled design on the use of MDMA for the treatment of severe social anxiety in individuals with autism have yielded extremely positive results, with improvements in social anxiety showing very large effect sizes ( $N = 12$ ,  $d = 1.4$ ). These improvements remained after active treatment while some individuals' symptoms continued to improve (Danforth et al., 2018). In terms of MDMA use for individuals with depression, conclusions are mixed and further research is required (Patel & Titheradge, 2015).

Another psychedelic treatment for depression is psilocybin-assisted psychotherapy (street name "magic mushroom"). Psilocybin is a substance that alters thoughts, perceptions, and emotions (Halberstadt, 2015; Nichols, 2016); however, the mechanism by which psilocybin works is still poorly understood

(Carhart-Harris et al., 2017). Some preliminary findings suggest that psilocybin reduces cerebral blood flow in the amygdala which correlates with reduced depressive symptoms (Carhart-Harris et al., 2017). It has garnered substantial support for effective depressive symptom relief in those who are treatment-resistant (Carhart-Harris et al., 2018; Erritzoe et al., 2018; Roseman et al., 2018), despite the uncertainty around its therapeutic mechanism of action. A small ( $N = 12$ ) open-label feasibility study with no control group investigated the effects of psilocybin-assisted psychotherapy on individuals with unipolar, treatment-resistant depression (Carhart-Harris et al., 2016). Findings showed that after two sessions of psilocybin administration participants' depressive symptoms decreased. These decreases remained at both one week and three-month follow-ups. Furthermore, 66% of participants experienced complete remission and no adverse effects. Additionally, the use of psilocybin to treat depression and anxiety in individuals with life-threatening diagnoses has resulted in numerous improved clinical outcomes as well (dos Santos et al., 2019; Griffiths et al., 2016; Grob et al., 2011). A randomized controlled trial with a cross-over design comparing the efficacy of low-dose of psilocybin to a moderately high dose in patients with cancer ( $N = 56$ ) in supportive settings found encouraging results (Griffiths et al., 2016). Regardless of group allocation, participants experienced sustained clinical improvements from baseline to six-month follow-up, with medium to large effect sizes across various measures of depression, anxiety, quality of life and well-being ( $0.66 \leq |d| \leq 3.40$ ). About 80% of participants maintained clinically significant decreases in depression (clinical response: 78%, symptom remission: 65%) and anxiety (clinical response: 83%, symptom 57%) at six months. Further, 60% of participants were deemed to be in remission from depression or anxiety as defined by a 50% decrease in measures relative to baseline.

Preliminary evidence has highlighted psychedelic-assisted therapy as a treatment option with the capacity to alleviate symptoms in notoriously difficult to treat mental illnesses such as chronic treatment-resistant depression, anxiety, and PTSD. Psychedelic-assisted therapy has also been employed in other instances such as with substance use disorders (Noller et al., 2017; Thomas et al., 2013). The range of mental illnesses being treated by this novel approach is currently limited as some mental health concerns may not be appropriately suited for psychedelic use (i.e., bipolar disorder, psychosis-related disorders, schizophrenia; Johnson et al., 2008). Despite this, the

idea of psychedelic-assisted therapies can be enticing due to the notion of rapid symptom relief, with some of the discussed studies showing significant improvements after one session. For individuals with long-standing depression, this rapid relief may assuage persistently debilitating symptoms. As mentioned, some of the effects of symptom relief have been found to last at least six months; however future research should employ longer follow-ups to examine the extent of lasting symptom reduction. Additionally, future research should investigate a broader range of mental illnesses such as personality, conduct, or impulse disorders and address the low sample sizes in existing research.

As with all treatments, psychedelic-assisted therapy does have its pitfalls. The renewed interest in psychedelic-assisted treatments means that the field is quite novel and still in its relative infancy. Consequently, there is a paucity of longitudinal studies on the potential long-term effects of psychedelic use on the brain and body. The limited research is further exacerbated by the illicit status of most psychedelics – meaning they are not accepted for medical use and have a high risk for abuse (Nutt et al., 2013). The use of psychedelics can also harbour the risk of precipitating psychotic breaks and dissociative symptoms (van Heugten-Van der Kloet et al., 2015) in individuals with a history of or predisposition to psychotic disorders (Meyerhoefer, 2011). Though concerning, current research mitigates these risks by excluding people with family or personal histories of bipolar disorder or psychosis (Johnson et al., 2008). Some other risks include acute increases in anxiety, fear, heart rate, and blood pressure (Johnson et al., 2008); however, these adverse effects can be readily managed in clinical studies by medical staff (Doblin et al., 2014). As all pharmacological treatments have the potential for similar or even worse side effects, a risk assessment is warranted when deciding whether these alternatives are appropriate for any given individual. Particularly, some individuals with treatment-resistant mental illness experience feelings of hopelessness and suicidal ideation due to the persistence of symptoms which can be overwhelming (Papakostas et al., 2003; Phillips et al., 2019). Such cases elucidate the need for and importance of effective alternatives to current pharmacological treatments. It is important to note that other psychedelic-assisted therapies do exist (e.g., LSD, ibogaine; Schenberg, 2018), however, the substances mentioned in this paper are currently some of the most heavily researched within the field of psychopharmacology.

To conclude, I'd like to pose the question – “Is it

time to take psychedelic-assisted therapies more seriously”? Amidst the evidence presented in this paper, these types of alternative treatments warrant consideration, despite the risks. When all other treatments fail, this option can bring an inkling of hope for a person who despairs after receiving ineffective treatment. As we become increasingly educated on the repercussions of adverse mental health, it seems acceptable to give those who need it a fighting chance.



## References

- American Psychological Association. (2017). How do I choose between medication and therapy? *Society of Clinical Psychology*. <https://www.apa.org/ptsd-guideline/patients-and-families/medication-or-therapy.pdf>
- Bell Let's Talk. (2020). <https://letstalk.bell.ca/en/our-initiatives/>
- Beutler, L. E., Moleiro, C., & Talebi, H. (2002). Resistance in psychotherapy: What conclusions are supported by research. *Journal of Clinical Psychology*, 58(2), 202-217. <https://doi.org/10.1002/jclp.1144>
- Bouso, J. C., Doblin, R., Farré, M., Alcàzar, M. A., & Gómez-Jarabo, G. (2008). MDMA-assisted psychotherapy using low doses in a small sample of women with chronic posttraumatic stress disorder. *Journal of Psychoactive Drugs*, 40(3), 225-236. <https://doi.org/10.1080/02791072.2008.10400637>
- Bull, S. A., Hu, H., Hunkeler, E. M., Lee, J. Y., Ming, E. E., Markson, L. E., & Fireman, B. (2002). Discontinuation of use and switching of antidepressants: Influence of patient-physician communication. *JAMA*, 288(11), 1403-1409. <https://doi.org/10.1001/jama.288.11.1403>
- Byock, I. (2018). Taking psychedelics seriously. *Journal of Palliative Medicine*, 21(4), 417-421. <https://doi.org/10.1089/jpm.2017.0684>
- Bystritsky, A. (2006). Treatment-resistant anxiety disorders. *Molecular Psychiatry*, 11, 805-814. <https://doi.org/10.1038/sj.mp.4001852>
- Carhart-Harris, R. L., Bolstridge, M., Rucker, J., Day, C. M. J., Erritzoe, D., Kaelen, M., Bloodfield, M., Rickard, J. A., Forbes, B., Feilding, A., Taylor, D., Pilling, S., Curran, V. H., & Nutt, D. J. (2016). Psilocybin with psychological support for treatment-resistant depression: An open-label feasibility study. *The Lancet Psychiatry*, 3(7), 619-627. [https://doi.org/10.1016/S2215-0366\(16\)30065-7](https://doi.org/10.1016/S2215-0366(16)30065-7)
- Carhart-Harris, R. L., Bolstridge, M., Rucker, J., Day, C. M. J., Rucker, J., Watts, R., Erritzoe, D. E., Kaelen, M., Giribaldi, B., Bloomfield, M., Pilling, S., Rickard, J. A., Forbes, B., Feilding, A., Taylor, D., Curran, H. V., & Nutt, D. J. (2018). Psilocybin with psychological support for treatment-resistant depression: Six-month follow-up. *Psychopharmacology*, 235(2), 399-408. <https://doi.org/10.1007/s00213-017-4771-x>
- Carhart-Harris, R. L., & Goodwin, G. M. (2017). The therapeutic potential of psychedelic drugs: Past, present,

- and future. *Neuropsychopharmacology*, 42(11), 2105-2113. <https://doi.org/10.1038/npp.2017.84>
- Carhart-Harris, R. L., Roseman, L., Bolstridge, M., Demetriou, L., Pannekoek, J. N., Wall, M. B., Tanner, M., Kaelen, M., McGonigle, J., Murphy, K., Leech, R., Curran, H. V., & Nutt, D. J. (2017). Psilocybin for treatment-resistant depression: fMRI-measured brain mechanisms. *Scientific Reports*, 7(1), 13187-11. <https://doi.org/10.1038/s41598-017-13282-7>
- Carvalho, L. A., Torre, J. P., Papadopoulos, A. S., Poon, L., Juruena, M. F., Markopoulou, K., Cleare, A. J., & Pariante, C. M. (2012). Lack of clinical therapeutic benefits of antidepressants is associated overall activation of the inflammatory system. *Journal of Affective Disorders*, 148(1), 136-140. <https://doi.org/10.1016/j.jad.2012.10.036>
- Chorpita, B. F., Daleiden, E. L., Ebesutani, C., Young, J., Becker, K. D., Nakamura, B. J., Phillips, L., Ward, A., Lynch, R., Trent, L., Smith, R. L., Okamura, K., & Starace, N. (2011). Evidence-based treatments for children and adolescents: An updated review of indicators of efficacy and effectiveness. *Clinical Psychology: Science and Practice*, 18, 154-172. <https://doi.org/10.1111/j.1468-2850.2011.01247.x>
- Cowley, D. S., Ha, D. E., & Roy-Byrne, P. P. (1997). Determinants of pharmacological treatment failure in panic disorder. *Journal of Clinical Psychiatry*, 58, 555-561. <https://doi.org/10.4088/jcp.458n1208>
- Danforth, A. L., Grob, C. S., Struble, C., Feduccia, A. A., Walker, N., Jerome, L., Yazar-Klosinski, B., & Emerson, A. (2018). Reduction in social anxiety after MDMA-assisted psychotherapy with autistic adults: A randomized, double-blind, placebo-controlled pilot study. *Psychopharmacology*, 235(11), 3137-3148. <https://doi.org/10.1007/s00213-018-5010-9>
- Danforth, A. L., Struble, C. M., Yazar-Klosinski, B., & Grob, C. S. (2016). MDMA-assisted therapy: A new treatment model for social anxiety in autistic adults. *Progress in Neuropsychopharmacology & Biological Psychiatry*, 64, 237-249. <https://doi.org/10.1016/j.pnpbp.2015.03.011>
- Datto, C. J. (2000). Side effects of electroconvulsive therapy. *Depression and Anxiety*, 12(3), 130-134. [https://doi.org/10.1002/1520-6394\(2000\)12\(3\)<130::AID-DEP.10002>3.0.CO;2-1](https://doi.org/10.1002/1520-6394(2000)12(3)<130::AID-DEP.10002>3.0.CO;2-1)
- Demyttenaere, K. (2019). What is treatment resistance in psychiatry? A "difficult to treat" concept. *World Psychiatry*, 18(3), 354-355. <https://doi.org/10.1002/wps.20677>
- Doblin, R., Greer, G., Holland, J., Jerome, L., Mithoefer, M. C., & Sessa, B. (2014). A reconsideration and response to Parrott AC (2013) "Human psychobiology of MDMA or 'Ecstasy': An overview of 25 years of empirical research". *Human Psychopharmacology*, 29(2), 105-108. <https://doi.org/10.1002/hup.2389>
- dos Santos, R. G., Bouso, J. C., & Hallak, J. E. C. (2019). Serotonergic hallucinogens/psychedelics could be promising treatments for depressive and anxiety disorders in end-stage cancer. *BMC Psychiatry*, 19(1), 321-324. <https://doi.org/10.1186/s12888-019-2288-z>
- Dumont, G. J. H., & Verkes, R. J. (2006). A review of acute effects of 3,4-methylenedioxymethamphetamine in healthy volunteers. *Journal of Psychopharmacology*, 20(2), 176-187. <https://doi.org/10.1177/0269881106063271>
- Dyck, E. (2006). 'Hitting highs at rock bottom': LSD treatment for alcoholism. *Social History of Medicine*, 19(2), 313-319. <https://doi.org/10.1093/shm/hkl039>
- Erritzoe, D., Roseman, L., Nour, M. M., MacLean, K., Kaelen, M., Nutt, D. J., & Carhart-Harris, R. L. (2018). Effects of psilocybin therapy on personality structure. *Acta psychiatrica Scandinavica*, 138(5), 368-378. <https://doi.org/10.1111/acps.12904>
- Field Trip. (2020). *Frequently asked questions*. <https://www.fieldtriphealth.com/faq>
- Foa, E. B., Keane, T. M., Friedman, M. J., & Cohen, J. A. (Eds.). (2009). *Effective treatments for PTSD: Practice guidelines from the International Society for Traumatic Stress Studies* (2nd ed.). Guilford Press.
- Fu, C. H. Y., Yong, F., & Davatzikos, C. (2019). Addressing heterogeneity (and homogeneity) in treatment mechanisms in depression and the potential to develop diagnostic and predictive biomarkers. *Neuroimaging Clinical*, 24, p.101997. <https://doi.org/10.1016/j.nicl.2019.101997>
- Fuentes, J. J., Fonseca, F., Elices, M., Farré, M., & Torrens, M. (2020). Therapeutic use of LSD in psychiatry: A systematic review of randomized-controlled clinical trials. *Frontiers in Psychology*, 10, 943. <https://doi.org/10.3389/fpsy.2019.00943>
- Garcia-Romeu, A., & Richards, W. A. (2018). Current perspectives on psychedelic therapy: Use of serotonergic hallucinogens in clinical interventions. *International Review of Psychiatry*, 30(4), 291-316. <https://doi.org/10.1080/09540261.2018.1486289>
- Green, B. (2013). Post-traumatic stress disorder: New directions in pharmacotherapy. *Advances in Psychiatric Treatment*, 19(3), 181-190. <https://doi.org/10.1192/apt.bp.111.010041>
- Griffiths, R. R., Johnson, M. W., Carducci, M. A., Umbricht, A., Richards, W. A., Richards, B. D., Cosimano, M. P., & Klinedinst, M. A. (2016). Psilocybin produces substantial and sustained decreases in depression and anxiety patients with life-threatening cancer: A randomized double-blind trial. *Journal of Psychopharmacology*, 30(12), 1181-1197. <https://doi.org/10.1177/0269881116675513>
- Grob, C. S., Danforth, A. L., Chopra, G. S., Hagerty, M., McKay, C. R., Halberstadt, A. L., & Greer, G. R. (2011). Pilot study of psilocybin treatment for anxiety in patients with advanced-stage cancer. *Archives of General Psychiatry*, 68(1), 71-78. <https://doi.org/10.1001/archgenpsychiatry.2010.116>
- Grob, C. S., & Poland, R. E. (1996). MDMA. In: Lowinson, J. H., Ruiz, P., Millman, R. B., & Langrod, J. G. (Eds.), *Substance abuse: A comprehensive textbook* (pp.269-275). Williams & Wilkins.
- Halberstadt, A. L. (2015). Recent advances in the neuropsychopharmacology of serotonergic hallucinogens.



- Behavioural Brain Research*, 277, 99-120.  
<https://doi.org/10.1016/j.bbr.2014.07.016>
- Hamner, M. B., Robert, S., & Frueh, B. C. (2004). Treatment-resistant posttraumatic stress disorder: Strategies for intervention. *CNS Spectrums*, 9(10), 740-752.  
<https://doi.org/10.1017/S1092852900022380>
- Howes, O. D., McCutcheon, R., Agid, O., de Bartolomeis, A., van Beveren, N. J. M., Birnbaum, M. L., Bloomfield, M. A. P., Bressan, R. A., Buchanan, R. W., Carpenter, W. T., Castle, D. J., Citrome, L., Daskalakis, Z. J., Davidson, M., Drake, R. J., Dursun, S., Ebdrup, B. H., Elkis, H., ... Correll, C. U. (2017). Treatment-resistant schizophrenia: Treatment Response and Resistance in Psychosis (TRRIP) working group consensus guidelines on diagnosis and terminology. *American Journal of Psychiatry*, 174(3), 216-229.  
<https://doi.org/10.1176/appi.ajp.2016.16050503>
- Johnson, M., Richards, W., & Griffiths, R. (2008). Human hallucinogen research: Guidelines for safety. *Journal of Psychopharmacology*, 22(6), 603-620.  
<https://doi.org/10.1177/0269881108093587>
- Kugaya, A., & Sanacora, G. (2005). Beyond monoamines: Glutamatergic function in mood disorders. *CNS spectrums*, 10(10), 808-819.  
<https://doi.org/10.1017/s1092852900010403>
- Lippens, T., & Mackenzie, C. S. (2011). Treatment satisfaction, perceived treatment effectiveness, and dropout among older users of mental health services. *Journal of Clinical Psychology*, 67(12), 1197-1209.  
<https://doi.org/10.1002/jclp.20842>
- Liu-Seifert, H., Adams, D. H., & Kinon, B. J. (2005). Discontinuation of treatment of schizophrenic patients is driven by poor symptom response: A pooled post-hoc analysis of four atypical antipsychotic drugs. *BMC Medicine*, 3(21), 1-10. <https://doi.org/10.1186/1741-7015-3-21>
- Mayo-Wilson, E., Dias, S., Mavranzezouli, I., Kew, K., Clark, D. M., Ades, A. E., & Pilling, S. (2014). Psychological and pharmacological interventions for social anxiety disorder in adults: A systematic review and network meta-analysis. *The Lancet Psychiatry*, 1(5), 368-376.  
[https://doi.org/10.1016/S2215-0366\(14\)70329-3](https://doi.org/10.1016/S2215-0366(14)70329-3)
- Mental Health Commission of Canada. (2013). *Making the case for investing in mental health in Canada*. [https://www.mentalhealthcommission.ca/sites/default/files/2016-06/Investing\\_in\\_Mental\\_Health\\_FINAL\\_Version\\_ENG.pdf](https://www.mentalhealthcommission.ca/sites/default/files/2016-06/Investing_in_Mental_Health_FINAL_Version_ENG.pdf)
- McIlwain, M. E., Harrison, J., Wheeler, A. J., & Russell, B. R. (2011). Pharmacotherapy for treatment-resistant schizophrenia. *Neuropsychiatric Disease and Treatment*, 7, 135-149. <https://doi.org/10.2147/NDT.S12769>
- Meyerhoefer, M. M. (2011). Serotonergic hallucinogens. In: Johnson, B. A. (eds.). *Addiction Medicine: Science and Practice* (pp.585-602). Springer.
- Mithoefer, M. C., Wagner, M. T., Mithoefer, A. T., Jerome, L., & Doblin, R. (2010). The safety and efficacy of +3,4-methylenedioxymethamphetamine-assisted psychotherapy in subjects with chronic, treatment-resistant posttraumatic stress disorder: The first randomized controlled pilot study. *Journal of Psychopharmacology*, 25(4), 439-452.  
<https://doi.org/10.1177/0269881110378371>
- Mojtabai, R., Olfson, M., Sampson, N. A., Jin, R., Druss, B., Wang, P. S., Wells, K. B., Pincus, H. A., & Kessler, R. C. (2011). Barriers to mental health treatment: Results from the National Comorbidity Survey Replication. *Psychological Medicine*, 41(8), 1751-1761.  
<https://doi.org/10.1017/S0033291710002291>
- Mulder, R. T. (2002). Personality pathology and treatment outcome in major depression: A review. *American Journal of Psychiatry*, 159(3), 359-371.  
<https://doi.org/10.1176/appi.ajp.159.3.359>
- Multidisciplinary Association for Psychedelic Studies. (2020). MDMA-assisted psychotherapy.  
<https://maps.org/research/mdma>
- Nichols, D. E. (2016). Psychedelics. *Pharmacological Reviews*, 68(2), 264-355.  
<https://doi.org/10.1124/pr.115.011478>
- Noller, G. E., Frampton, C. M., & Yazar-Klosinski, B. (2017). Ibogaine treatment outcomes for opioid dependence from a twelve-month follow-up observational study. *The American Journal of Drug and Alcohol Abuse*, 44(1), 37-46.  
<https://doi.org/10.1080/00952990.2017.1310219>
- Nutt, D. J., King, L. A., & Nichols, D. E. (2013). Effects of Schedule I drug laws on neuroscience research and treatment innovation. *Nature Reviews Neuroscience*, 14(8), 577-585. <https://doi.org/10.1038/nrn3530>
- Ot'abora, M. G., Grigsby, J., Poulter, B., Van Derveer, J. W., Giron, S. G., Jerome, L., Feduccia, A. A., Hamilton, S., Yazar-Klosinski, B., Emerson, A., Mithoefer, M. C., & Doblin, R. (2018). 3, 4- methylenedioxymethamphetamine-assisted psychotherapy for treatment of chronic posttraumatic stress disorder: A randomized phase 2 controlled trial. *Journal of Psychopharmacology*, 1 – 13.  
<https://doi.org/10.1177/0269881118806297>
- Papakostas, G. I., Petersen, T., Pava, J., Masson, E., Worthington, J. J., Alpert, J. E., Fava, M., & Nierenberg, A. A. (2003). Hopelessness and suicidal ideation in outpatients with treatment-resistant depression: Prevalence and impact on treatment outcome. *The Journal of Nervous and Mental Disease*, 191(7), 444-449.  
<https://doi.org/10.1097/01.nmd.0000081591.46444.97>
- Patel, R., & Titheradge, D. (2015). MDMA for the treatment of mood disorders: All talk no substance? *Therapeutic Advances in Psychopharmacology*, 5(3), 179-188.  
<https://doi.org/10.1177/2045125315583786>
- Pérez Benítez, C. I., Zlotnick, C., Stout, R. I., Lou, F., Dyck, I., Weisberg, R., & Keller, M. (2012). A 5-year longitudinal study of posttraumatic stress disorder in primary care patients. *Psychopathology*, 45(5), 286-293.  
<https://doi.org/10.1159/000331595>
- Phillips, J. L., Norris, S., Talbot, J., Hatchard, T., Ortiz, A., Birmingham, M., Owøye, O., Batten, L. A., & Blier, P. (2019). Single and repeated ketamine infusions for reduction of suicidal ideation in treatment-resistant depression. *Neuropsychopharmacology*, 45(4), 606-612.  
<https://doi.org/10.1038/s41386-019-0570-x>

- Reiff, C. M., Richman, E. E., Nemeroff, C. B., Carpenter, L. L., Widge, A. S., Rodriguez, C. I., Kalin, N. H., & McDonald, W. M. (2020). Psychedelics and psychedelic-assisted psychotherapy. *American Journal of Psychiatry*, 177(5), 391-410.  
<https://doi.org/10.1176/appi.ajp.2019.19010035>
- Roseman, L., Nutt, D. J., & Carhart-Harris, R. L. (2018). Quality of acute psychedelic experience predicts therapeutic efficacy of psilocybin for treatment-resistant depression. *Frontiers in Pharmacology*, 8, 974.  
<https://doi.org/10.3389/fphar.2017.00974>
- Rush, A. J., Trivedi, M. H., Wisniewski, S. R., Nierenberg, A. A., Stewart, J. W., Warden, D., Niederehe, G., Thase, M. E., Lavori, P. W., Lebowitz, B. D., McGrath, P. J., Rosenbaum, J. F., Sackeim, H. A., Kupfer, D. J., Luther, J., & Fava, M. (2006). Acute and longer-term outcomes in depressed outpatients requiring one or several treatment steps: A STAR\*D report. *American Journal of Psychiatry*, 163(11), 1905-1917.  
<https://doi.org/10.1176/ajp.2006.163.11.1905>
- Sandison, R. A., Spencer, A. M., & Whitelaw, J. D. A. (1954). The therapeutic value of lysergic acid diethylamide in mental illness. *Journal of Mental Science*, 100(419), 491-507. <https://doi.org/10.1192/bjp.100.419.491>
- Sandison, R. A., & Whitelaw, J. D. A. (1957). Further studies in the therapeutic value of lysergic acid diethylamide in mental illness. *Journal of Mental Science*, 103(431), 332-343. <https://doi.org/10.1192/bjp.103.431.332>
- Schenberg, E. E. (2018). Psychedelic-assisted psychotherapy: A paradigm shift in psychiatric research and development. *Frontiers in Pharmacology*, 9, 1-11.  
<https://doi.org/10.3389/fphar.2018.00733>
- Shedler, J. (2010). The efficacy of psychodynamic psychotherapy. *American Psychologist*, 65(2), 98-109.  
<https://doi.org/10.1037/a0018378>
- Sheline, Y. I. (2011). Depression and the hippocampus: Cause or effect? *Biological Psychiatry*, 70(4), 308-309.  
<https://doi.org/10.1016/j.biopsych.2011.06.006>
- Simmons, J. Q. III., Leiken, S. J., Lovaas, O. I., Schaeffer, B., & Perloff, B. (1966). Modification of autistic behaviour with LSD-25. *The American Journal of Psychiatry*, 122, 1201-1211. <https://doi.org/10.1176/ajp.122.11.1201>
- Skapinakis, P., Caldwell, D. M., Hollingworth, W., Bryden, P., Fineberg, N. A., Salkovskis, P., Welton, N. J., Baxter, H., Kessler, D., Churchill, R., & Lewis, G. (2016). Pharmacological and psychotherapeutic interventions for management of obsessive-compulsive disorder in adults: A systematic review and network meta-analysis. *The Lancet Psychiatry*, 3(8), 730-739.  
[https://doi.org/10.1016/S2215-0366\(16\)30069-4](https://doi.org/10.1016/S2215-0366(16)30069-4)
- Slomski, A. (2018). MDMA-assisted psychotherapy for PTSD. *JAMA*, 73(4), 302-312.  
<https://doi.org/jama.2018.8168>
- Solanki, R. K., Singh, P., & Munshi, D. (2009). Current perspectives in the treatment of resistant schizophrenia. *Indian Journal of Psychiatry*, 51(4), 254-260.  
<https://doi.org/10.4103/0019-5545.58289>
- Souery, D., Oswald, P., Massat, I., Bailer, U., Bollen, J., Demyttenaere, K., Kasper, S., Lecrubier, Y., Montgomery, S., Serretti, A., Zohar, J., & Mendlewicz, J. (2007). Clinical factors associated with treatment resistance in major depressive disorder: Results from a European multicenter study. *Journal of Clinical Psychology*, 68(7), 1062-1070. <https://doi.org/10.4088/jcp.v68n0713>
- Takahashi, M., Shirayama, Y., & Muneoka, K. (2013). Low openness on the revised NEO personality inventory as a risk factor for treatment-resistant depression. *PloS one*, 8(9), p.e71964.  
<https://doi.org/10.1371/journal.pone.0071964>
- Thomas, G., Lucas, P., Capler, N. R., Tupper, K. W., & Martin, G. (2013). Ayahuasca-assisted therapy for addiction: Results from a preliminary observational study in Canada. *Current Drug Abuse Reviews*, 6, 1-13.  
<https://doi.org/10.2174/15733998113099990003>
- Thornicroft, G. (2007). Most people with mental illness are not treated. *Lancet*, 370(9590), 807-808.  
[https://doi.org/10.1016/S0140-6736\(07\)61392-0](https://doi.org/10.1016/S0140-6736(07)61392-0)
- Trope, A., Anderson, B. T., Hooker, A. R., Glick, G., Stauffer, C., & Woolley, J. D. (2019). Psychedelic-assisted group therapy: A systematic review. *Journal of Psychoactive Drugs*, 51(2), 174-188.  
<https://doi.org/10.1080/02791072.2019.1593559>
- van Heugten-Van der Kloet, D., Giesbrecht, T., van Wel, J., Bosker, W. M., Kuypers, K. P. C., Theunissen, E. L., Spronk, D. B., Jan Verkes, R., Merckelback, H., & Ramaekers, J. G. (2015). MDMA, cannabis, and cocaine produce acute dissociative symptoms. *Psychiatry Research*, 228(3), 907-912.  
<https://doi.org/10.1016/j.psychres.2015.04.028>
- Vollenweider, F. X., Gamma, A., Liechti, M., & Huber, T. (1998). Psychological and cardiovascular effects and short-term sequelae of MDMA ("Ecstasy") in MDMA-naïve healthy volunteers. *Neuropsychopharmacology*, 19(4), 241-251. [https://doi.org/10.1016/S0893-133X\(98\)00013-X](https://doi.org/10.1016/S0893-133X(98)00013-X)
- Wagner, M. T., Mithoefer, M. C., Mithoefer, A. T., MacAulay, R. K., Jerome, L., Yazar-Klosinski, B., & Doblin, R. (2017). Therapeutic effect of increased openness: Investigating mechanism of action in MDMA-assisted psychotherapy. *Journal of Psychopharmacology*, 31(8), 967-974.  
<https://doi.org/10.1177/0269881117711712>
- Wolf, N. J., & Hopko, D. R. (2008). Psychosocial and pharmacological interventions for depressed adults in primary care: A critical review. *Clinical Psychology Review*, 28(1), 131-161.  
<https://doi.org/10.1016/j.cpr.2007.04.004>
- Yip, A. G., George, M. S., Tendler, A., Roth, Y., Zangen, A., & Carpenter, L. L. (2017). 61% of unmedicated treatment resistant depression patients who did not respond to acute TMS treatment responded after four weeks of twice weekly deep TMS in the Brainsway pivotal trial. *Brain Stimulation*, 10(4), 847-849.  
<https://doi.org/10.1016/j.brs.2017.02.013>

## Submitting to *Mind Pad*



*Mind Pad* aims to publish material that is of interest to all who are practicing and studying psychology, but with a primary emphasis on articles that are of interest to students of psychology. Content is encouraged that are unique, innovative, and may catalyze discussion and debate among members and affiliates of CPA, as well as within the psychological community. *Mind Pad* accepts submissions in English or French on a rolling basis.

Submission guidelines:

All regular submissions must be between 800 and 2000 words. References are not included in the overall article submission length word count, but may be limited by the Editor-in-Chief.

Submissions must adhere to APA publishing guidelines.

Authors must be CPA members. Submissions by Student Affiliates will be given priority.

Submissions should be submitted to the Editor-in-Chief by completing the **Submission Form** available at: <https://cpa.ca/students/MindPad/>

## Join the *Mind Pad* Editorial Board

Getting involved with *Mind Pad* is an opportunity for students to experience both the writing and the formal reviewing process that every psychologist (and psychologist in training!) must go through. *Mind Pad* recruits new Associate Editors and Reviewers every year for 1-year terms.

Graduate students in psychology, either English, Francophone, or both, are eligible to apply for Associate Editor positions at *Mind Pad*. Experience in editing or peer reviewing is an asset but not required.

Reviewers can be undergraduate or graduate students in psychology.

The call for applications for both Associate Editors and Reviewers is usually in late August or early September. Make sure to join the CPA Section for Students to receive email updates on these opportunities or consult the *Mind Pad* website at <https://cpa.ca/students/MindPad/>

## Open Science Badges at MindPad

As of June 2020, articles accepted to *Mind Pad* are eligible to earn badges that recognize open scientific practices: publicly available data, material, or preregistered research plans. Open science badges ([Open Science Framework](#)) are incentives to recognize efforts of authors to engage in open science practices, namely providing open access to data, materials and preregistration of methods. The badges also serve to notify readers when supplementary materials are available and enhance their trust of the article presented. More information can be found in the *Mind Pad* editorial policy: <https://cpa.ca/students/mindpad/editorialpolicy/>

## PSYCHOLOGY IN CANADA DURING COVID-19

As the impact of COVID-19 is being felt worldwide, we recognize the pressure this evolving crisis is placing on practitioners, researchers, educators, students, employers, families and the public throughout Canada.

On behalf of the CPA, we extend our gratitude for the leadership roles so many are playing in their communities and applaud their efforts to address the needs of their colleagues, students and patients. To support these efforts, and to inform the public, we have compiled and created a variety of resources. In addition, we are working with our partners and other associations to advocate for, not only our members but, members of the Canadian public.

### Compiled and Created Resources Include:



**Webinars, Videos and Daily Audio Updates** covering issues like—Setting Up Your Practice for Online Therapy, Telepsychology and Business Interruption Insurance, and The Future of Psychology in Canada Post COVID-19, and more.



**Fact Sheets**, on a variety of topics including—The Psychological Impact of the Coronavirus, Psychological Practice and the Coronavirus, Working from Home During COVID-19 with or without children, Helping Teens Cope with the Impacts and Restrictions of COVID-19, Supporting Student Wellness During COVID-19.



Information on the **CPA's Pro-Bono Referral Program to Support Frontline Workers**—how to sign-up as a frontline health care provider or donate your time as a psychology professional.



**Resources Links** from partners and organizations like—the Mental Health Commission of Canada, the Ontario Ministry of Health, the World Health Organization and John Hopkins University.



**Privacy, Practice, and Insurance Related Articles and Resources** from BMS Insurance regarding Virtual Care, Protecting Privacy in a Pandemic and Returning to Practice.



**Press Releases**



**Messaging to our Membership**

We can see the medical and physical impact COVID-19 is having around the world, but the full extent of the psychological impact is not yet known. The discipline and profession have much to contribute.

**Thank you to all for your efforts.**

Be well and stay safe.

Any questions or concerns, please contact [executiveoffice@cpa.ca](mailto:executiveoffice@cpa.ca).

CANADIAN  
PSYCHOLOGICAL  
ASSOCIATION



SOCIÉTÉ  
CANADIENNE  
DE PSYCHOLOGIE

Find these and other,  
daily updated, resources:  
[cpa.ca/corona-virus](https://cpa.ca/corona-virus)