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# Letter From the Editors

Dear readers,

It is with great honour and enthusiasm that we present to you the eighth volume of the Simon Fraser University Undergraduate Journal of Psychology. This journal has consistently served as a vital platform for undergraduate students to share their scholarly work, gain invaluable experience in the intricacies of academic publishing, and foster a deeper appreciation for the field of psychology.

As editors, we are constantly amazed by the profound depth and remarkable breadth of talent present within our student body. Collaborating with such a dedicated and passionate group of individuals has been nothing short of inspiring, and we take immense pride in spotlighting their diligent efforts within the pages of this publication.

We owe a tremendous debt of gratitude to our team of graduate and undergraduate editors and reviewers. Their unwavering commitment and selfless dedication are the cornerstones upon which this journal stands. These individuals have dedicated countless hours to meticulously review each submission, offering their expertise and guidance to help authors refine their work. It is through their diligence that we have been able to curate a collection of exceptional articles for this volume. We extend our heartfelt thanks to each and every one of them. We also wish to express our deep appreciation to our faculty advisor, Dr. Rebecca Cobb, whose unwavering support and guidance have been invaluable throughout this entire journey.

Furthermore, we would like to thank all the authors who submitted their amazing work to our journal. This year we received 29 submissions from students at Simon Fraser University and several other Canadian institutions. We are pleased to be publishing six of the 29 submissions.

The journey of putting together this volume has not been without its difficulties, but it is in overcoming these challenges that we have truly grown as individuals and as a team. We believe that this edition of the journal is a testament to the resilience and determination of our community of scholars. We are excited to share these excellent articles with our readers, and we look forward to the continued growth and success of the journal.

With warm regards,

Spencer Chen & Kelsey Alexander

Managing editors, Simon Fraser University Undergraduate Journal of Psychology

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# An Investigation on the Relation Between Self-Esteem, Narcissism, and Instagram Use

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## **Abstract**

The impact of social networking sites on human functioning is growing immensely among the population of young adults. This study investigated whether Instagram use behaviours, such as posting, liking, commenting, and the amount of time spent on the platform would predict measures of self-esteem and narcissism in young adults. Participants were asked to complete three online self-report questionnaires assessing Instagram use, self-esteem levels, and narcissistic characteristics. Through two stepwise multiple linear regression analyses, spending time on Instagram was predictive of both self-esteem and narcissism scores, but the behaviours of posting, liking, and commenting were not. The limitations include a restricted sample, self-reported data, and a lack of a standardized measure assessing Instagram use in more depth. Future research could benefit from the assessment of various age groups and populations who use social media, as well as the creation of a reliable and valid measure to assess Instagram use behaviour.

*Keywords:* self-esteem, narcissism, behaviour, Instagram

## Background

Social media is a relatively new phenomenon, and the use of social networking sites has become increasingly prevalent today (Vaterlaus et al., 2015). Social media and networking platforms include Facebook, Instagram, Twitter, YouTube, and many others in which individuals are immersed in an environment of creating and consuming content. These platforms are highly accessible among the current generation of young adults ranging from 18 to 30 years of age and have become a normal part of young adult life, with the amount of time spent on social media surpassing the amount of time spent on other daily activities (Vaterlaus et al., 2015). Although constantly growing and changing, social media serves as an interactive online reality in which identity is constructed and controlled (Fergie et al., 2017).

In particular, Instagram is a mobile photo and video-sharing application allowing users to apply filters to their posts and share them with hashtags or location tags to reach a broader population (Sheldon & Bryant, 2016). With the platform currently growing to the highest popular rank, Instagram has over one billion active users with 65 percent being between 18 and 35 years of age (Statista, 2020). The present study investigated social media use, particularly Instagram use, and whether it could be used to predict measures of self-esteem and narcissism in young adults.

### Self-Esteem

Self-esteem is a subjective evaluation of an individual's worth as a person, involves feelings of self-acceptance and self-respect, and changes constantly in response to external events (Orth & Robins, 2014). Social media use affects self-esteem levels in both positive and negative ways. When focusing on the positive, Gonzales and Hancock (2011) demonstrated that self-esteem may be enhanced through exposure to one's profile, as individuals carefully edit their personal information and selectively present the aspects they want to emphasize. In other words, individuals are exposed to idealized versions of themselves through their personal social media accounts and interactions, and this carefully constructed online identity may be different from the reality outside of online platforms (Wilson & Ross, 2001).

On the other hand, Vogel et al. (2014) conducted several studies investigating social media and self-esteem, with the results demonstrating undergraduate students who frequently use Facebook, as well as those who view and compare themselves to admirable individuals online, have poor trait self-esteem and self-evaluations. Individuals with low self-esteem are more anxious and introverted compared to those with high self-esteem. These individuals use Facebook as a valuable outlet for self-disclosure, as the face-to-face feelings of embarrassment and awkwardness associated with being undervalued by others is removed (Forest & Wood, 2012). Additionally, appearance expectations from others may have an influence on social media usage among young adults. Those who are dissatisfied with their appearances are not likely to share personal photos on social media whereas those who are satisfied with themselves share more (Barry et al., 2019).

### Narcissism

Narcissism is a personality trait existing on a dimension across the normal population consisting of grandiosity, a need for admiration, and exaggerated views of the self (Mehdizadeh, 2010). When examining how narcissism may be manifested on Facebook and Twitter, researchers have found narcissism to be strongly correlated with behaviours relating to self-presentation, such as uploading photos of oneself, and has a significant relationship with usage intensity (Gnams & Appel, 2017). Posting photos of oneself, or selfies, on social media platforms, may serve as an innovative and unique psychological function to maintain the self-regulatory behaviours enticing to narcissists (Weiser, 2015). Also, narcissists are concerned with creating multiple short-term relationships to maintain a popular, successful demeanor and can do so via highly controlled social networking sites, as friend and follower lists can sometimes reach the thousands (Buffardi & Campbell, 2008). Instagram, in particular, is an appealing platform to narcissistic individuals, as the environment of interactions is shallow and narcissists can exercise outright control over self-presentation through photo sharing (Sheldon & Bryant, 2016).

A study conducted by Moon et al. (2016) examined three subscales of the Narcissistic Personality Inventory 13 (NPI-13) on Instagram self-promoting behaviours. These factors included Leadership/Authority,

Grandiose/Exhibitionism, and Entitlement/Exploitativeness. The sample included 212 participants, 110 of whom were female, originating in Korea with an average age of 28.8 years. The researchers hypothesized a positive relationship between narcissism and the frequency of posting photos of the self, keeping an updated profile, the rating of physical appearance, the amount of time spent on Instagram per day, the number of follower and following counts, and the total number of photos posted. The results confirmed high scores on the NPI-13 were associated with all measures of Instagram use, except the total number of photos posted. High scores on the Leadership/Authority and the Grandiose/Exhibitionism factors were predictors of Instagram self-promoting behaviour, whereas Entitlement/Exploitativeness was not (Moon et al., 2016).

### **Interactions between Self-Esteem and Narcissism with Social Media**

Self-esteem and narcissism are closely associated, as the domination of narcissism on an individual's personality leaves them susceptible to increased sensitivity, ego threats, and in turn, fluctuating self-esteem levels based on the feedback they receive from others (Pincus et al., 2014). Individuals with vulnerable narcissistic traits, such as the reliance on positive feedback from others, increased sensitivity to rejection, and disguising their weaknesses may feel insecure and disconnected from others yet frequently engage in behaviours of posting photos with others in an attempt to appear well-known and accepted (Barry et al., 2019). Individuals who seek social approval through the use of social networking sites experience constant cycles of exposure to social comparisons. In the social comparison theory proposed by social psychologist Leon Festinger, there is a drive within individuals to evaluate themselves by examining their abilities and appearances in comparison to others (Festinger, 1957). In turn, social comparisons may compromise an individual's self-esteem and compel them to further seek social approval, beginning the cycle again (Vogel et al., 2014).

When focusing on narcissism and self-esteem collectively, researchers have studied the interactions of these variables on Instagram use. Paramboukis et al. (2016) differentiated between grandiose and vulnerable narcissism, suggesting grandiose narcissism involves prestige, extraversion, and aggression whereas vulnerable

narcissism involves feelings of helplessness, shame, inadequacy, and hypervigilance when insulted. Individuals with pathological forms of narcissism display both grandiosity and vulnerability, with grandiose narcissism almost always accompanied by vulnerable aspects (Pincus & Lukowitsky, 2010). The researchers explored narcissism and self-esteem using open-ended questions related to the subjective evaluation, attitudes, and affective reactions regarding Instagram use behaviours. The results demonstrated a weak, positive correlation between grandiose narcissism and self-esteem, as well as a moderate, negative correlation between vulnerable narcissism and self-esteem. Grandiose narcissism was correlated with behaviours relating to positive self-presentation on Instagram, such as promoting personal well-being, while vulnerable narcissism was correlated to attention- and approval-seeking behaviours, such as requesting followers. Both correlations between narcissism and Instagram use were not strong, suggesting more research must be conducted in this particular area to determine whether social media use is associated with individuals at a psychological level. However, the weak relationship may imply that Instagram can be utilized by those with already existing narcissistic characteristics to maintain those driving behaviours, rather than being a platform to encourage narcissistic behaviours in any individual who would not normally have those tendencies (Paramboukis et al., 2016).

### **Gaps in the Literature**

Several gaps in the literature suggest further research should be conducted in the area of human traits and social media. For instance, studies have concluded mixed results about the relationship between social media use and self-esteem, acknowledging that self-esteem can be both enhanced and hindered through the use of social media (Gonzales & Hancock, 2012; Vogel et al., 2014). Also, previous researchers have explored the relationship between human traits and the increasing phenomenon of social media use, but have limited their focus to certain platforms, such as Facebook (e.g., Gnambs & Appel 2017; Gonzales & Hancock, 2011; Vogel et al., 2014). Research involving human traits and Instagram use behaviours has concentrated solely on subjective, open-ended constructs such as the affective attitudes and moods regarding personal Instagram use behaviours (Paramboukis et al., 2016). These open-ended constructs are not successfully operationalized

through concrete definitions and thus, do not provide insight into explicit social media use behaviours and the effects they may have on human traits. Furthermore, when using Instagram, researchers suggested studying narcissism with self-esteem levels to determine possible reasons why individuals do or do not engage in self-promotional behaviours via social media (Moon et al., 2016).

### **Current Study**

This research study was an extension of previous studies and explored the relation between Instagram and the abovementioned human traits of self-esteem and narcissism. Through the use of adapted self-report questionnaires as used by Vogel et al. (2014) to measure Facebook use, the purpose of this study was to investigate whether Instagram use was predictive of measures of self-esteem and narcissism in young adults. Instagram use behaviours were operationally defined as posting, liking, commenting, and the amount of time spent on the application, resulting in four distinct scores. If Instagram use could predict outcomes on measures of self-esteem and narcissism, then it was expected that high scores on the measure of Instagram use behaviours would predict high narcissism scores with a positive relationship between the variables, but not on the self-esteem measure, with no relationship between the variables.

### **Method**

#### **Participants**

A total of 55 participants had their data included in the study. The initial sample consisted of 60 young adults, however, data from five participants were excluded as they did not thoroughly complete all questionnaires. Participants were recruited from all programs and years of study at the University of Guelph-Humber and Humber College through posters and Facebook groups pertaining to the University of Guelph-Humber, but not affiliated with it. Of the 55 participants included in the study, 45 identified as female, and participants were 18 to 29 years of age ( $M = 29.91$ ,  $SD = 2.95$ ). All students who participated did so anonymously and consented to have their data included in the study, following course designation approval procedures by Humber College's Research Ethics Board with the code CD-0308.

### **Materials**

Instagram use. Instagram use was defined by posting, liking, commenting, and the amount of time spent on the platform with each component being a separate predictor variable. These behaviours were measured using four questions previously created by Vogel et al. (2014) to assess Facebook use, but the questions were adapted to this study. The questions included Likert scale options from one to six in which participants rated their Instagram use behaviours, resulting in four different scores. Posting behaviour was measured by the question "How frequently do you post a picture on Instagram?" (1 = never or almost never; 2 = once a year; 3 = once a month; 4 = once a week; 5 = once a day; 6 = multiple times per day). Liking behaviour was measured by the question "How often do you like the posts of others on Instagram?" (1 = never or almost never; 2 = once a year; 3 = once a month; 4 = once a week; 5 = once a day; 6 = multiple times per day). Commenting behaviour was measured by the question "How often do you comment on the posts of others on Instagram?" (1 = never or almost never; 2 = once a year; 3 = once a month; 4 = once a week; 5 = once a day; 6 = multiple times per day). Finally, the amount of time spent on the platform was measured by the question "Approximately how many hours do you spend on Instagram per day?" (1 = less than one hour; 2 = one to two hours; 3 = three to four hours; 4 = five to six hours; 5 = seven to eight hours; 6 = more than eight hours).

Self-esteem. To assess self-esteem, participants completed the Rosenberg Self-Esteem Scale (Rosenberg, 1965), (see Appendix A), which is a standard self-esteem measure in psychological research for adult populations and takes an estimated time of five minutes to complete (Bingle et al., 2004). Fleming and Courtney (1984) established good reliability of the Rosenberg Self-Esteem Scale, with an internal consistency score of .88 and a test-retest reliability score of .82. When compared with single-item self-esteem measures, the Rosenberg Self-Esteem Scale demonstrates high convergent validity in different adult populations (Robins et al., 2001). The Rosenberg Self-Esteem scale consists of 10 items assessing self-esteem. Participants responded using a four-point Likert rating scale ranging from one, strongly agree, to four, strongly disagree. Importantly, when this measure is scored, higher



scores correspond to lower self-esteem whereas lower scores indicate higher self-esteem.

**Narcissism.** The Narcissistic Personality Inventory 16 (NPI-16) is composed of 16 pairs of items originating from the Narcissistic Personality Inventory 40 (NPI-40) and measures both grandiose and vulnerable qualities of narcissists, such as self-enhancement, feelings of entitlement, and demands for admiration in a time-saving manner. The NPI-16 has evident internal, discriminant, and predictive validity and is an adequately reliable instrument (Ames et al., 2006; Gentile et al., 2013). Each pair of items in the NPI-16 consists of two statements, one considered a narcissistic response, and another considered a non-narcissistic response. Participants were asked to choose one statement from each pair best representing themselves, and scores were coded as either one for a response consistent with narcissism or zero if it was inconsistent. The overall scores were calculated by adding up each statement consistent with narcissism. High scores indicated high levels of narcissism whereas low scores indicated low levels of narcissism. The item pairs are shown in Appendix B.

### Procedure

Individuals who expressed interest in participating in this study through poster and Facebook group recruitment were provided with a link to Qualtrics through e-mail. Once participants clicked the study link, they were presented with an information letter clearly stating the nature of the study including the purpose and description of the research topic, any potential risks and benefits, confidentiality measures, and withdrawal and follow-up procedures. Upon reading the information letter online, participants were asked to provide consent displaying their understanding of the research process and the use of data. If participants refused to provide consent, they were directed out of the questionnaires and no data was collected. After participants provided informed consent, they were asked to provide their age and gender and were automatically redirected to three self-report questionnaires where they remained anonymous when answering. Following the completion of their participation in this study, participants were debriefed, and if interested, provided with a summary of the research results.

### Statistical Analyses

In this quantitative study, a correlational research strategy was used in which Instagram use behaviours served as predictor variables and were defined by posting, liking, commenting, and the amount of time spent on the platform. The measures of self-esteem and narcissism were used as the outcome variables. Each participant was asked to complete three self-report questionnaires administered online to assess their Instagram use behaviours, self-esteem levels, and narcissistic characteristics. All analyses were conducted using SPSS Statistics, Version 26. Data were analyzed using two stepwise multiple linear regression analyses to assess whether Instagram use was predictive of outcomes on measures of self-esteem and narcissism, as well as the relations between all variables. The analyses were chosen because of the ability to separate each predictor variable and analyze their possible effect on each of the outcome variables. Analyses were completed using a significance level of  $\alpha = .05$ . Table 1 presents the means, standard deviations, and maximum and minimum scores for posting, commenting, liking, and time spent on Instagram.

## Results

### Regression Model for Self-Esteem

A stepwise multiple linear regression analysis was used to predict self-esteem scores ( $M = 20.96$ ,  $SD = 5.49$ ,  $Min. = 10.00$ ,  $Max. = 40.00$ ) based on the behaviours of posting, liking, commenting, and time spent on Instagram daily. An analysis of standard residuals demonstrated that the data did not contain any outliers (Std. residual min = -2.178, Std. residual max = 2.680). The results revealed the data met the assumptions of collinearity (Posting, tolerance = .898,  $VIF = 1.113$ ; Liking, tolerance = .644,  $VIF = 1.553$ ; Commenting, tolerance = .676,  $VIF = 1.479$ ; Time spent, variance = .780,  $VIF = 1.281$ ). The data met the assumption of independent errors (Durbin-Watson value = 1.563). Data fit the characteristics of normality in reference to the histogram of standard residuals and the scatterplot of standardized predicted values. The data also met the assumption of nonzero variances.

The model demonstrated that spending time on Instagram was a significant predictor of self-esteem scores,  $\beta = 2.673$ ,  $F(1, 53) = 16.660$ ,  $p = .000$ ,  $R^2 = .239$ . There was a moderate, positive correlation between the amount of time spent on Instagram and self-esteem scores,  $r =$

.49,  $p < .05$ . Importantly, when the Rosenberg Self-Esteem Scale measure was scored, higher scores indicated lower self-esteem whereas lower scores indicated higher self-esteem. As time spent on Instagram increased, self-esteem decreased, indicated by higher scores on the Rosenberg Self-Esteem Scale. Conversely, a decreased amount of time spent on Instagram was linked with higher levels of self-esteem, as indicated by lower scores on the self-esteem questionnaire. The behaviours of posting ( $\beta = .032$ ,  $t(53) = .258$ ,  $p = .036$ ), liking ( $\beta = .144$ ,  $t(53) = 1.074$ ,  $p = .288$ ), and commenting ( $\beta = -.169$ ,  $t(53) = -1.348$ ,  $p = .183$ ) were not significant predictors of self-esteem scores and were removed from the model. Despite liking behaviour being an insignificant predictor of self-esteem scores, there was a moderate, positive correlation between the variables,  $r = .33$ ,  $p < .05$ . As liking behaviour increased, self-esteem scores also increased, indicating lower self-esteem.

### Regression Model for Narcissism

Another stepwise multiple linear regression analysis was used to predict narcissism scores ( $M = 4.00$ ,  $SD = 3.03$ ,  $Min. = .00$ ,  $Max. = 14.00$ ) based on the behaviours of posting, liking, commenting, and time spent on Instagram daily. An analysis of standard residuals revealed no outliers in the data (Std. residual min =  $-1.50$ , Std. residual max =  $3.16$ ). Multicollinearity was not a concern after testing the assumption of collinearity (Posting, tolerance =  $.898$ ,  $VIF = 1.113$ ; Liking, tolerance =  $.644$ ,  $VIF = 1.553$ ; Commenting, tolerance =  $.676$ ,  $VIF = 1.479$ ; Time spent, tolerance =  $.780$ ,  $VIF = 1.281$ ). The data met the assumption of independent errors (Durbin-Watson value =  $2.255$ ). Data fit the characteristics of normality in reference to the histogram of standard residuals and the scatterplot of standardized predicted values. The data also met the assumption of nonzero variances (Posting, variance =  $1.904$ ; Liking, variance =  $1.421$ ; Commenting, variance =  $2.211$ ; Time spent, variance =  $1.010$ ; Narcissism, variance =  $9.185$ ).

The model revealed a significant prediction of narcissism scores by the amount of time spent on Instagram,  $\beta = -.990$ ,  $F(1, 53) = 6.403$ ,  $p = .014$ ,  $R^2 = .108$ . There was a moderate, negative correlation between the amount of time spent on Instagram and narcissism scores,  $r = -.33$ ,  $p < .05$ . As time spent on Instagram increased, narcissism levels decreased, as indicated by lower scores on the narcissism

questionnaire. The behaviours of posting ( $\beta = .060$ ,  $t(53) = .453$ ,  $p = .652$ ), liking ( $\beta = .029$ ,  $t(53) = .198$ ,  $p = .844$ ), and commenting ( $\beta = .086$ ,  $t(53) = .627$ ,  $p = .534$ ) on Instagram were not significant predictors of narcissism scores, and therefore, were removed from the model.

### Discussion

With the popularity and use of social media becoming increasingly prevalent, the influence of social media on ourselves as individuals has become a growing interest. Previous attempts at uncovering the relations between social media and human traits of self-esteem and narcissism have been limited to certain platforms, such as Facebook, and have reported mixed results (e.g., Gnamb & Appel 2017, Gonzales & Hancock, 2011; Vogel et al., 2014).

The present study demonstrates the predictive nature of Instagram use, particularly time spent on the platform but not posting, liking, or commenting, on human traits as discussed further below. The positive association between time spent on Instagram and self-esteem scores, indicating lower self-esteem, may be accounted for by frequent Instagram use and engaging in social comparisons on the platform. The negative association between time spent on Instagram and narcissism scores may be a result of narcissists having no intention of creating deep relationships or willingness to engage with others online.

Focusing on self-esteem, the amount of time spent on Instagram daily was a significant predictor of self-esteem scores, whereas posting, liking, and commenting behaviours were not. This finding contradicted the original hypothesis that all Instagram use behaviours would not be predictive of self-esteem. Time spent on Instagram and self-esteem scores were positively associated, suggesting an increase in time spent on Instagram indicated an increase in self-esteem scores, meaning these individuals had lower self-esteem. A study by Forest and Wood (2012) suggested those with low self-esteem consider social media websites, like Facebook, as comfortable expression outlets. However, the findings are consistent with Vogel et al. (2014), demonstrating those who use Facebook more frequently have poor self-esteem and self-evaluations, which may be a result of endless cycles of social comparisons to admirable individuals online. Self-enhancement and maintenance of a positive self-evaluation are both

motives for social comparisons (Festinger, 1957). These motives can be achieved through likes and comments on social media, and on the other hand, those with low self-esteem may feel compelled to constantly spend time on Instagram to gain this social status, enhancing their self-view and self-evaluation.

A study conducted by Mackson et al. (2019) examined the relations between Instagram and psychological outcomes. Contrary to the present study, the results showed that individuals who have an Instagram account had higher self-esteem compared to those without an Instagram account. The researchers suggested that receiving positive feedback from others through likes and comments creates a perception of belongingness and social support in an individual (Mackson et al., 2019). If this is the case, then individuals feeling supported with relatively high and stable self-esteem may be more likely to engage in posting behaviour knowing they will receive positive feedback from others. However, there are no studies reviewing the likelihood of individuals to like and comment on the posts of others based on their self-esteem. Focusing on the post-secondary student population with Instagram accounts, the results of this study address the potential for Instagram use to impact self-esteem, and in turn, other aspects of life.

Contrary to the hypothesized association, the behaviours of posting, liking, and commenting on Instagram were not significant predictors of narcissism. The amount of time spent on Instagram was a significant predictor of narcissism scores and the results demonstrated a negative association between the variables. As time spent on Instagram increased, narcissism scores decreased, indicating lower narcissism levels. This finding contradicts previous work by Moon et al. (2016) demonstrating positive relationships between the amount of time spent on Instagram daily and scores on narcissism measures. The insignificant relations between posting, liking, and commenting behaviours with narcissism, as well as the negative association between spending time on Instagram and narcissism may be accounted for by several possibilities.

Previous studies examined a motive involving knowledge about others in which liking and commenting on posts were common and a function of the Grandiose/Exhibitionism and Entitlement/Exploitativeness factors of

narcissism (Sheldon & Bryant, 2016; Singh et al., 2018). High numbers of likes and comments are also considered as having distinguishable status and popularity (Martinez-Pecino & Garcia-Gavilán, 2019). Despite Instagram being appealing to narcissists, they are less likely to interact with others beyond surface levels (Sheldon & Bryant, 2016). With no intention of deepening online relationships, narcissists may not spend time engaging with others by scrolling through their Instagram feed, liking, or commenting on the posts of others. Although likes and comments are considered visible recognition cues, no known studies suggest narcissists are likely to engage in this behaviour for the benefit of others. Instead, narcissists tend to focus more on behaviours relating to personal benefit and self-presentation, such as posting on the platform (Moon et al., 2016).

However, posting behaviour was not a significant predictor of narcissism. Unlike previous studies conducted by Gnams and Appel (2017), as well as Moon et al. (2016), which have concluded that those high in narcissism tend to post more on Instagram, the results of this study demonstrate that posting is not necessarily predictive of narcissism. The insignificance of posting behaviour may be accounted for by the measured dimension focusing solely on the frequency of posting on Instagram, rather than the types of media being posted (i.e. selfies, group photos, photos of food, landscapes, etc.). If these dimensions were measured, it is possible there could have been a significant prediction of narcissism by posting behaviour, specifically selfies, as grandiose narcissistic traits are strong predictors of taking self-portraits (Koterba et al., 2020).

## **Strengths**

This study is one of very few conducted assessing Instagram use behaviours quantitatively. Previously, researchers have limited their focus to certain platforms, such as Facebook (e.g., Gnams & Appel 2017; Gonzales & Hancock, 2011; Vogel et al., 2014). Likewise, research involving Instagram has focused on qualitative aspects of Instagram use behaviours, such as attitudes and moods regarding the platform (Paramboukis et al., 2016). As an extension of previous research, this study aimed to quantitatively investigate Instagram use behaviours in more depth and provides a foundation for future research involving Instagram use.

## Limitations and Future Directions

Similar to other research, this study had limitations that should be taken into consideration. First, all data were collected through self-report questionnaires which have the potential to be false. Despite efforts to reduce falsely reported data through anonymity, it is possible participants answered the questionnaires in socially acceptable ways rather than truthfully, or potentially assessed their behaviours inaccurately. It is unknown whether objectively verified data would have produced different results. In addition to participants providing self-reported data, doing so online reduces the likelihood of answering in a controlled environment. Publicity and surrounding noise may influence how participants respond, such that noisy environments can result in distractions and the inability to focus and reflect on each question. A future direction of research may be assigning participants to monitored groups of low, medium, and high levels of Instagram usage activity. Then, participants can complete self-esteem and narcissism measures in which scores can be compared between groups to determine if different activity levels impact outcomes on these measures. For instance, researchers can focus on whether participants in the low-activity group have higher self-esteem compared to the high-activity group, as well as further examine narcissistic factors in relation to different levels of Instagram activity.

Next, the generalizability of the results is limited by the sample, as participation was restricted to students attending the University of Guelph-Humber or affiliated institutions. Participant recruitment through social media could potentially impact results because it does not consider individuals who do not regularly use social media. Likewise, the results may be underpowered and inaccurately reflect the behaviours of all young adults outside of the student population and Instagram users altogether, as well as individuals who do not usually use social media. Although they are among the most frequent users, young adults represent only a portion of all Instagram users. As of January 2020, 6.1 percent of Instagram users were between the ages of 13 and 17, and 24.3 percent were between 35 and 54 (Statista, 2020). The current study addressed the normal population using non-clinical measures. It is possible to employ this information within therapeutic or clinical settings for atypical

populations. A suggestion for future research involves considering different age groups. Focusing on younger populations and the period of adolescence, parents may monitor their child's behaviours to determine whether too much or too little time is spent using social media. However, this distinction remains unclear and research could benefit from distinct guidelines outlining normal and abnormal time limits. Once these are in place, findings may be used to determine indications of early abnormal psychological disorders, such as pathological forms of narcissism or any indications of anxiety, depression, or personality disorders based on self-esteem and the amount of time devoted to social media.

Additionally, the reliability and validity of the data are impacted by the instruments used for data collection. Tests of reliability and validity have not been conducted on the adapted Instagram use behaviour questionnaire as a result of this measure being created by previous researchers. In their study, Vogel et al. (2014) acknowledged the questionnaire strictly measured the frequency of Facebook use and did not take into consideration other dimensions of use, such as usage intensity, popularity on the platform, or the content that is normally engaged with. Likewise, the data in this study were constrained to only the frequency of behaviours and may not accurately reflect Instagram use altogether. A suggestion for future research is to examine Instagram use in more depth. Since Koterba et al. (2020) suggested having certain narcissistic traits are predictors of taking self-portraits, future studies can benefit from a standardized measure assessing not only the frequency of posting but the types of media being posted as well. From there, researchers can determine whether certain types of media attract more likes and comments compared to others in relation to human characteristics. Similarly, various types of media posted and the content that individuals follow could potentially impact results concerning self-esteem, such that following admirable individuals online, like models or celebrities, leads to social comparisons, and in turn, lower self-esteem compared to following those who share other types of content, such as nature photography (Vogel et al., 2014). Furthermore, participants in this study completed only one measure assessing self-esteem and one measure assessing narcissism. When choosing appropriate measures for the current study, length and time constraints were of utmost concern. In the future,

researchers should consider using various instruments assessing these traits, as well as consider longer versions with the ability to assess a wider range of each trait.

### Conclusion

The present study sought to determine the predictive capabilities Instagram use has over the human traits of self-esteem and narcissism in young adults. The amount of time spent on Instagram was predictive of self-esteem and narcissism with positive and negative relationships between the variables, respectively. However, there were no significant relations between the behaviours of posting, liking, and commenting with either trait. The limitations include a restricted sample, self-reported data, and a lack of a reliable and valid instrument assessing Instagram use. Future research would benefit from the assessment of different populations and age groups. Also, a standardized Instagram use measure that examines online behaviours at an intense and in-depth level would be beneficial, such as assessing the types of media being posted and which types of media attract likes and comments. This study is one of very few conducted in this area and provides a starting point for further research.

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**Table 1***Descriptive Data for Instagram Use Behaviours*

Factor	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>
Posting behaviour	2.85	1.38	1.00	6.00
Liking behaviour	5.36	1.19	1.00	6.00
Commenting behaviour	3.42	1.49	1.00	6.00
Time spent on Instagram	1.91	1.01	1.00	6.00

*Note.* *M* = mean score; *SD* = standard deviation; *Min* = minimum score; *Max* = maximum score



## Appendix A

### Rosenberg Self-Esteem Scale (Rosenberg, 1965)

Rate the items using the following scale:

1 = *strongly agree*    2 = *agree*    3 = *disagree*    4 = *strongly disagree*

- \_\_\_ 1. I feel that I am a person of worth, at least on an equal basis with others.
- \_\_\_ 2. I feel that I have a number of good qualities.
- \_\_\_ 3. All in all, I am inclined to feel that I am a failure. \*
- \_\_\_ 4. I am able to do things as well as most other people.
- \_\_\_ 5. I feel I do not have much to be proud of. \*
- \_\_\_ 6. I take a positive attitude toward myself.
- \_\_\_ 7. On the whole, I am satisfied with myself.
- \_\_\_ 8. I wish I could have more respect for myself. \*
- \_\_\_ 9. I certainly feel useless at times. \*
- \_\_\_ 10. At times I think I am no good at all. \*

\*Reverse-scored

## Appendix B

### Narcissistic Personality Inventory 16 (Ames, Rose, & Anderson, 2006)

Narcissistic Response	Non-Narcissistic Response	NPI-40 Item
I know that I am good because everybody keeps telling me so	When people compliment me, I sometimes get embarrassed	4
I like to be the center of attention	I prefer to blend in with the crowd	7
I think I am a special person	I am no better or worse than most people	9
I like having authority over people	I don't mind following orders	12
I find it easy to manipulate people	I don't like it when I find myself manipulating people	13
I insist upon getting the respect that is due to me	I usually get the respect that I deserve	14
I am apt to show off if I get the chance	I try not to be a show-off	20
I always know what I am doing	Sometimes I am not sure of what I am doing	21
Everybody likes to hear my stories	Sometimes I tell good stories	23
I expect a great deal from other people	I like to do things for other people	24
I really like to be the centre of attention	It makes me uncomfortable to be the center of attention	30
People always seem to recognize my authority	Being an authority doesn't mean that much to me	32
I am going to be a great person	I hope I am going to be successful	34
I can make anybody believe anything I want them to	People sometimes believe what I tell them	35
I am more capable than other people	There is a lot that I can learn from other people	39
I am an extraordinary person	I am much like everybody else	40

# The Association Between Loneliness and Depressive/Eating Disorder Symptoms Among Adolescents

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## Abstract

Loneliness involves an individual's subjective perception of their inadequate connections to others. Due to the high loneliness rates among adolescents, as well as the health consequences associated with loneliness, it is important to examine this construct among adolescents. Prior research suggests loneliness is associated with both depressive symptoms and eating disorder symptoms, though the impact of sex/gender is unclear. Moreover, prior research has not examined which of these disorders has a stronger association with loneliness. This study, utilizing a sample of 238 high school students, examined associations between loneliness and depressive symptoms/eating disorder symptoms cross-sectionally and longitudinally with a follow up period of 14-16 weeks. The study's objectives were to assess: (1) whether there was an association between loneliness and depressive symptoms; (2) whether there was an association between loneliness and eating disorder symptoms; (3) whether the association was stronger for loneliness and depressive symptoms or loneliness and eating disorder symptoms; and (4) whether sex influenced these associations. Results indicated there were cross-sectional associations between loneliness and depressive symptoms as well as loneliness and eating disorder symptoms (all  $p$  values  $\leq .001$ ), but loneliness was not predictive of changes in either type of symptom (all  $p$  values  $> .05$ ); findings were similar across sexes. Moreover, while the correlation between loneliness and depressive symptoms was stronger than the correlation between loneliness and eating disorder symptoms, this is likely due to the overlap in the constructs of loneliness and depression. Given the associations between loneliness and depressive/eating disorder symptoms, clinicians should consider loneliness when treating individuals with these disorders. Nevertheless, further research should expand on this study's findings.

Keywords: loneliness, eating disorder, depression, adolescents

Loneliness, or perceived social isolation, involves an individual's subjective perception of their inadequate connections to others (Erzen & Çikrikci, 2018; Laursen & Hartl, 2013; Mushtaq et al., 2014) that leads to "social pain" (Laursen & Hartl, 2013, p. 1262). Although loneliness can occur across all ages, research suggests it is particularly common among old people (Solmi et al., 2020) as well as adolescents/young adults (Laursen & Hartl, 2013; Mushtaq et al., 2014; Solmi et al., 2020). There are also gender/sex differences among loneliness rates, although results vary across studies. A recent umbrella review that examined 795 studies and nearly 750,000 individuals reported an association between loneliness and being female (Solmi et al., 2020). Additionally, although gender was found to be a large predictor for adolescent loneliness in a meta-analysis conducted by Mahon et al. (2006), results varied across individual studies. While most studies reported gender was not significantly associated with loneliness (19/31 hypotheses), the majority of those studies that did report an association between gender and loneliness ( $k = 12$ ) found rates of loneliness were higher among males than females ( $k = 9$ ; Mahon et al., 2006). As such, there is uncertainty regarding the gender/sex differences impacting loneliness rates.

Unfortunately, there are many adverse consequences associated with loneliness. For instance, Mushtaq et al. (2014) reported loneliness is associated with stress, increased suicidality, and physical illnesses. There has also been substantial research documenting the mental health consequences that can be associated with loneliness (e.g., Erzen & Çikrikci, 2018; Mahon et al., 2006; Richardson et al., 2017). Particularly, extensive research has been conducted examining the association between depression/depressive symptoms and loneliness.

### **The Association Between Loneliness and Depression**

Depression is a mental disorder characterized by symptoms such as fatigue, difficulty concentrating, and a depressed mood

(American Psychiatric Association, 2013). Research has highlighted a robust association between depressive symptoms and loneliness. A meta-analysis that included 95 studies looking at loneliness in adolescents (30 studies looking at depression and loneliness) found a large effect size for the association between loneliness and depression (Mahon et al., 2006). Moreover, a recent meta-analysis noted there was a moderate association between loneliness and depression across 88 studies ( $n = 40,068$ ; Erzen & Çikrikci, 2018). Similarly, in a rapid review examining the association between loneliness and mental health for children and adolescents across 63 studies using cross-sectional and longitudinal designs ( $n = 51,576$ ; Loades et al., 2020), a majority of the studies found associations between depression and loneliness. Contrastingly, although Lasgaard et al. (2011a) found an association between loneliness and depression at the cross-sectional level, loneliness was found to not be predictive of a difference in depressive symptoms one year later. Nevertheless, studies have generally shown a positive association between loneliness and depression for adolescents (Loades et al., 2020; Mahon et al., 2006), young adults (Lee et al., 2020; Richardson et al., 2017) and older individuals (Cacioppo et al., 2006).

### **Gender Differences Among the Association Between Loneliness and Depression**

Research findings regarding the role of gender in the association between loneliness and depression remain inconclusive. Most studies have found rates of depression/depressive symptoms are higher among females than males (Cacioppo et al., 2006; Lasgaard et al., 2011a), though some studies have reported higher rates among males (Ren et al., 2021). Moreover, the influence of gender on the association between depression and loneliness remains similarly unclear. Although Cacioppo et al. (2006) found a relationship between depressive symptoms and loneliness among a sample of older adults, this relationship was stronger for men than for women. Contrastingly, studies among adolescents (Lasgaard et al., 2011a) and young

adults (Ren et al., 2021) found no gender influence on the association between loneliness and depression. Lastly, Liu et al. (2020) reported that while loneliness and social isolation were associated with depression among female university students, only social isolation was associated with depression for male students. Clearly, the influence of gender/sex requires further investigation. The association between loneliness and other mental illnesses, including eating disorders, also requires further examination.

### **The Association Between Eating Disorders and Loneliness**

Eating disorders can encompass numerous disorders, including Anorexia Nervosa, Bulimia Nervosa, Binge Eating Disorder, and Otherwise Specified Feeding and Eating Disorders (American Psychiatric Association, 2013). Across these disorders and disordered eating symptoms generally, research suggests there is an association with loneliness (see a review of the literature by Levine, 2012). Among a sample of adolescents ( $n = 96$ ), researchers found an association between bulimia symptoms and loneliness cross-sectionally; moreover, loneliness was found to mediate the relationship between low trust in others and bulimic symptoms cross-sectionally and changes in bulimic symptoms 5 months later (Rotenberg & Sangha, 2015). Moreover, eating disorder symptoms were associated with loneliness among undergraduate students (Richardson et al., 2017; Wright & Pritchard, 2009). Importantly, it appears that treating eating disorder symptoms may reduce loneliness, as research has found individuals who have recovered from an eating disorder have reduced loneliness than individuals with a current eating disorder (Harney et al., 2014). Furthermore, there is mixed evidence regarding the impact of gender/sex on the association between loneliness and eating disorders.

### **Gender/Sex Differences Among the Association Between Eating Disorders and Loneliness**

Although eating disorders affect both men and women (Wright & Pritchard, 2009), research suggests rates of eating disorders and eating disorder symptoms are higher among women than men (Abebe et al., 2014; Mond et al., 2014; Rotenberg & Sangha, 2015; Wright & Pritchard, 2009). However, there are mixed findings with regards to the impact of gender/sex on the association between loneliness and eating disorders. Across a longitudinal study ( $n = 5,679$  at time 1), the association between loneliness and eating disorder symptoms in adolescence was found to be stronger among boys than girls (the association for girls was not significant; Abebe et al., 2014). Moreover, among a sample of adolescent psychiatric patients, social-emotional isolation was associated with eating disorder symptoms (e.g., binge eating) for both males and females; researchers noted that the relationship between interpersonal difficulties and disordered eating was similar across genders/sexes<sup>1</sup> (if not stronger for men; Zaitsoff et al., 2009). Contrastingly, researchers found gender did not influence the association between loneliness and bulimic symptoms among a sample of high school students ( $n = 96$ ; Rotenberg & Sangha, 2015). As noted by Abebe et al. (2014), it is difficult to draw firm conclusions because of the limited research examining the association between loneliness and eating disorder symptoms, as well as the influence of gender/sex on this association.

### **Comparing the Association between Loneliness Across Various Mental Disorders**

Few studies have compared associations with loneliness across various mental disorders, and among the studies that have, eating disorders are generally excluded. While Loades et al. (2020) found a stronger association with loneliness for depression than anxiety, their review only included one study that examined eating disorders. Similarly, Meltzer et al. (2013)

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<sup>1</sup> Researchers used both terms (i.e., gender and sex) in the paper so it is unclear which variable they used.

determined that depression, phobias, and obsessive-compulsive disorder had the strongest association to loneliness in comparison to generalized anxiety, panic disorder, etc.; however, they did not include eating disorders and their sample consisted of adults. Moreover, Papagavriel et al. (2020) examined associations between loneliness and various mental disorders (e.g., depression, anxiety, panic disorder); however, eating disorders were not included and the primary focus of their study was on adults with intellectual impairments. Lastly, Lasgaard et al. (2011b) examined the impact of different types of loneliness on various mental disorders among a sample of high school students. Interestingly, while depression was associated with peer-related loneliness and family-related loneliness, eating disorders were only associated with family-related loneliness (Lasgaard et al., 2011b), highlighting potential differences across these disorders.

### **Current Study**

Given the potential loneliness-related differences among depression and eating disorders (Lasgaard et al., 2011b), their association with loneliness may vary. Moreover, there is inconclusiveness regarding the role of sex/gender in influencing the associations between loneliness and depressive/eating disorder symptoms. Importantly, this study will help fill a gap in the literature by directly comparing the association between loneliness and depressive symptoms as well as loneliness and eating disorder symptoms to determine if the type of symptoms influences the strength of the association with loneliness. In addition, sex differences are explored; this is important due to the current mixed research results as well as the fact that if there are sex differences present in the associations between loneliness and depressive symptoms/eating disorder symptoms, it could alter the treatment a clinician provides to a client based on the client's sex.

In conducting this study, we aimed to answer the following research questions:

1. Is there an association between loneliness and depressive symptoms among adolescents at time 1, and will loneliness be predictive of changes in depressive symptoms? We hypothesized that given prior findings (e.g., Loades et al., 2020; Mahon et al., 2006), there would be a positive association between loneliness and depressive symptoms and that loneliness would be predictive of increases in depressive symptoms.
2. Is there an association between loneliness and eating disorder symptoms among adolescents at time 1, and will loneliness be predictive of changes in eating disorder symptoms? Given prior findings (e.g., Abebe et al., 2014; Levine, 2012; Rotenberg & Sangha, 2015), we hypothesized there would be a positive association between loneliness and eating disorder symptoms and that loneliness would be predictive of increases in eating disorder symptoms.
3. Is the association stronger for loneliness and depressive symptoms or loneliness and eating disorder symptoms? Given the lack of research directly comparing these disorders/symptoms, we had no formal hypothesis.
4. Does sex influence the: (1) association between loneliness and depressive symptoms or (2) the association between loneliness and eating disorder symptoms? Given the inconclusiveness of prior research findings, we had no formal hypothesis.

### **Methods**

#### **Sample**

Of the 504 students recruited from local Canadian school districts, 311 consented to participate at time 1 (T1) and 238 (76.53%) also participated at time 2 (T2). Importantly, there were no statistically significant differences on the main variables of the study: age; BMI; and mean scores on measures of depressive symptoms, eating disorder symptoms, and loneliness between those who completed T1 versus T2 (all

$p$  values > .15). The final sample ( $n = 238$ ) was roughly equivalent across females ( $n = 134$ ) and males ( $n = 104$ ). Participants were between the ages of 13 and 18 years ( $M = 16.49$ ,  $SD = 1.23$ ). Information on participant ethnicity, as well as other demographics, is presented in Table 1.

## Measures

### Participant Characteristics

A questionnaire designed for this study captured various participant characteristics (e.g., age, gender, sex, ethnicity). In this questionnaire, participants were also asked about previous diagnoses/treatment they had received for eating disorders. For the purposes of our analyses, the variable “sex at birth” was used. Given the inconclusiveness of previous findings regarding gender/sex differences, we decided to compare sex differences as Johnson et al. (2009) note that once sex differences have been confirmed, further research can disentangle whether these differences are caused by sex, gender, or both.

### Anthropometric Measurements

Participant’s height and weight to the closest 0.1 kg/0.1 cm were measured at T1 and T2 in a private room with participants wearing light clothing and removing their shoes; participants were not given the value of these measurements. These measurements were used to obtain each participant’s body mass index (BMI;  $\text{kg}/\text{m}^2$ ) and the World Health Organization reference values were used to obtain the 50<sup>th</sup> percentile for BMI (de Onis et al., 2007). Percent median BMI was also calculated.

#### *UCLA Loneliness Scale - 8 (ULS-8; Hays & DiMatteo, 1987).*

The ULS-8 assesses loneliness using 8 items (e.g., I lack companionship, I feel isolated from others; Hays & DiMatteo, 1987). Items are scored on a 4-point scale with options from *never* to *always* (Wu & Yao, 2008), with higher scores indicating higher levels of loneliness (Yildiz & Duy, 2014); the total score given is between 8 to

32 points (Xu et al., 2018). Research suggests this scale has good psychometric properties when used with university students (Hays & DiMatteo, 1987; Wu & Yao, 2008). Among a sample of Chinese adolescents, researchers found that the psychometric properties of the ULS-8 were improved by excluding two of the items (items 3 and 6); however, they hypothesized this may be due to cultural factors (Xu et al., 2018). Moreover, the ULS-8 was found to assess loneliness reliably and validly among Turkish adolescents, though a 7-item measure excluding item 3 had a better factor structure (Yildiz & Duy, 2014). The 8-item measure was used for this study due to its strong psychometric properties; moreover, it has been used by this study’s second author previously and thus would allow for a more direct comparison of findings across studies.

#### *Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977)*

The CES-D is a 20-item measure of depressive symptoms that is intended for use within the general population (Radloff, 1977). Items are scored based on symptoms experienced recently (in the last week) on a scale of 0 (*rarely or none of the time; less than 1 day*), 1 (*some or a little of the time; 1-2 days*), 2 (*occasionally or a moderate amount of time; 3-4 days*), and 3 (*most or all of the time; 5-7 days*); higher scores indicate higher levels of depressive symptoms (Radloff, 1977, 1991). Research supports the use of the CES-D with adolescents (Radloff, 1991; Roberts et al., 1990) and has found the Dutch version of the CES-D to be reliable and valid in screening Dutch adolescents for depression (Cuijpers et al., 2008). Moreover, a recent systematic review and meta-analysis found that the measure had good internal consistency for use with children and adolescents (Stockings et al., 2015). Research has suggested various factor models are adequate, including one that just considers total score (Phillips et al., 2006). In this study, the total score of the CES-D was used, which can range from 0 to 60 (Radloff, 1977).

### *Eating Disorder Examination Questionnaire (EDE-Q; Mond et al., 2014)*

The EDE-Q is a self-report measure that assesses eating disorder symptoms across 36 items. Of the 36 items, 22 of them fall across four subscales (restraint, weight concerns, shape concerns, eating concerns); these items are rated on a scale from 0 to 6 across a 28-day period, with higher scores representing higher levels of eating disorder symptoms (Mond et al., 2014). The remaining 14 questions examine the frequency of behaviours over the last 28 days, though a global score is calculated by obtaining subscale scores for each subscale and then summing and averaging the subscale scores (Aardoom et al., 2012). Research has utilized the EDE-Q among adolescent females (Carter et al., 2001) and adolescent males (Mond et al., 2014). We used a version of the EDE-Q that was used by Mond et al. (2014); this version was modified to be used with an adolescent population (e.g., changing the wording of some questions; see Mond et al., 2014 for details). Moreover, a systematic review examining the psychometric properties of the EDE-Q found evidence of its reliability and validity; however, few studies examined psychometric properties among adolescents or males (Berg et al., 2012).

### **Procedure**

Ethics approval was obtained from Simon Fraser University, the University of British Columbia, and BC Children's Hospital. Data were collected as a part of a larger project on well-being and health behaviour in adolescents (see Pullmer et al., 2019; Zaitsoff et al., 2020). Recruitment occurred at three Canadian high schools. Before data collection occurred, all prospective participants listened to a lecture about research methodology and the concept of informed consent was explained. After this lecture, students were provided with a consent form; they had a week to decide if they wanted to participate. Students were also given a letter describing the research to provide their parents, and they were encouraged to discuss their decision to consent with their parents/guardians.

Data collection occurred at two time periods. At T1, data collection took place over a class period (questionnaires took about 30 minutes to complete); 14-16 weeks later, data was collected at T2 (questionnaires took about 15 minutes to complete). At T1, participants filled out a demographic questionnaire as well as key measures of interest described above (ULS-8; CES-D, EDE-Q). Depressive symptoms (CES-D) and eating disorder symptoms (EDE-Q) were re-assessed at T2. As described above, participants were weighed and measured at both time periods. When participants were taken out of class to be measured, non-participants were also taken to a separate room so participant confidentiality was protected. As laid out in the consent form, the high school counsellor was informed if any participants reported engaged in potentially dangerous disordered eating behaviours (e.g., engaging in restricted eating behaviours and having a body mass index of less than 15.5).

### **Results**

All analyses were conducted using SPSS version 27. Due to the interest in comparing differences across sexes, analyses have all been run separately for males and females.

### **Descriptive Analyses**

At T1, males had a mean Percent Median Body Mass Index (%mBMI) of 103% ( $SD = 0.16$ ); their %mBMI was also 103% at T2 ( $SD = 0.17$ ). Similarly, females had a mean %mBMI of 105% at T1 and 104% at T2 ( $SDs = 0.19$ ). Most participants ( $n = 234, 98.32\%$ ) reported they had not been previously diagnosed with an eating disorder. Moreover, males had a mean score of 12.59 ( $SD = 8.36$ ) on the CES-D total score at T1 and a mean score of 12.37 ( $SD = 7.79$ ) at T2. Females had higher scores than males (T1:  $M = 19.31, SD = 12.15$ ; T2:  $M = 18.84, SD = 11.97$ ). Similarly, males had a mean score of 0.95 ( $SD = 1.00$ ) on the EDE-Q global score at T1 and a mean score of 0.80 ( $SD = 0.82$ ) at T2. Females had slightly higher scores than males (T1:  $M = 1.91, SD = 1.40$ ; T2:  $M = 1.72, SD = 1.28$ ). Lastly,



on the ULS-8 Loneliness scale, males had a mean score of 1.99 ( $SD = 0.51$ ) at T1, whereas females had a mean score of 2.33 ( $SD = 0.58$ ).

### **The Association Between Loneliness and Depressive Symptoms**

For the correlations assessing the association between depressive symptoms and loneliness for females and males, the assumption of linearity was met as assessed using a scatterplot and there were no outliers. Although the assumption of bivariate normality was not met as assessed by Shapiro-Wilk's tests with  $p < .05$ , we proceeded with running Pearson's correlations as this analysis is somewhat robust to deviations against normality (Laerd Statistics, n.d.a).

There was a large positive association (Laerd Statistics, n.d.b, as cited in Cohen, 1988) between loneliness and depressive symptoms at T1 for both females and males, as indicated by significant Pearson correlation values (see table 2). This association was similar in strength across sexes, though the correlation value was larger for females (.70) than males (.60).

Next, to see if loneliness (ULS-8 score) at T1 was predictive of changes in depressive symptoms (T2 CES-D score), we ran two hierarchical linear regressions. To assess sex differences, regressions were run separately for males and females. In step 1, we entered T1 CES-D scores to control for baseline levels of depressive symptoms. Then, in step 2 we entered T1 ULS-8 scores. By entering CES-D score at T1 in step 1, we controlled for baseline levels of depressive symptoms to assess the impact of loneliness (T1 ULS-8 score) in predicting changes in depressive symptoms (CES-D score at T2). Outliers were detected via casewise diagnostics and studentized deleted residuals ( $> 3 SDs$ ); 3 outliers were detected, and the regressions were re-run once removing these 3 cases. All other assumptions required to run hierarchical linear regressions (independence of observations, linear relationship between the dependent variable and each independent

variable/between the dependent variable and each independent variable collectively, homoscedasticity of residuals, no multicollinearity, no leverage points/influential points, and normally distributed residuals) were met.

Hierarchical linear regressions indicated that loneliness at T1 (mean ULS-8 score) was not predictive of changes in depressive symptoms (CES-D total score) at T2 (see table 3) as indicated by the minimal and non-significant increase in  $R^2$  for both males ( $R^2$  change of .01,  $F(1, 95) = 0.76$ ,  $p = .39$ ) and females ( $R^2$  change of .00,  $F(1, 123) = 0.24$ ,  $p = .63$ ). The full model of T1 CES-D total score and T1 ULS-8 mean score to predict changes in CES-D score at T2 (Model 2) was significant for both males ( $R^2 = .32$ ,  $F(2, 95) = 21.82$ ,  $p < .0005$ ; adjusted  $R^2 = .30$ ) and females ( $R^2 = .56$ ,  $F(2, 123) = 78.50$ ,  $p < .0005$ ; adjusted  $R^2 = .55$ ).

### **The Association Between Loneliness and Eating Disorder Symptoms**

For the correlations assessing the association between eating disorder symptoms and loneliness for females and males, the scatterplot indicated there may be deviations from linearity, there were no outliers, and the assumption of bivariate normality was not met as assessed by Shapiro-Wilk's tests with  $p < .05$ . To ensure our results were not impacted by these violations, we also ran Spearman's rank-order correlations. Given the similarity of findings, only Pearson correlation values are reported below.

There was a moderate positive association (Laerd Statistics, n.d.b, as cited in Cohen, 1988) between loneliness and eating disorder symptoms at T1 for both females and males, as indicated by significant Pearson correlation values (see table 2). This association was similar in strength across sexes (.32 for males vs. .34 for females).

Second, to see if loneliness was predictive of changes in eating disorder symptoms (T2 EDE-Q score), we ran two

hierarchical linear regressions. To assess sex differences, regressions were run separately for males and females. In step 1, we entered EDE-Q score at T1 to control for baseline levels of eating disorder symptoms. Then, in step 2 we entered ULS-8 score at T1. By entering EDE-Q score at T1 in step 1, we controlled for baseline levels of eating disorder symptoms to assess the impact of loneliness (ULS-8 score at T1) in predicting changes in eating disorder symptoms (EDE-Q score at T2). Outliers were detected via casewise diagnostics and studentized deleted residuals ( $> 3 SDs$ ); 4 outliers were detected, and the regressions were re-run once removing these 4 cases. All other assumptions required to run a hierarchical linear regression (independence of observations, linear relationship between the dependent variable and each independent variable/between the dependent variable and each independent variable collectively, homoscedasticity of residuals, no multicollinearity, no leverage points/influential points, and normally distributed residuals) were met.

Hierarchical linear regressions indicated that loneliness at T1 (mean ULS-8 score) was not predictive of changes in eating disorder symptoms (EDE-Q global score) at T2 (see table 4) as indicated by the minimal and non-significant increase in  $R^2$  for both males ( $R^2$  change of .00,  $F(1, 96) = 0.10, p = .76$ ) and females ( $R^2$  change of .01,  $F(1, 122) = 3.58, p = .06$ ). The full model of T1 EDE-Q global score and T1 ULS-8 mean score to predict changes in EDE-Q global score at T2 (Model 2) was significant for both males ( $R^2 = .71, F(2, 96) = 116.51, p < .0005$ ; adjusted  $R^2 = .70$ ) and females ( $R^2 = .68, F(2, 122) = 129.89, p < .0005$ ; adjusted  $R^2 = .68$ ).

## Discussion

The results indicated there was a large, positive association between depressive symptoms and loneliness at T1, as found in previous studies (e.g., Loades et al., 2020). However, unlike the findings of most prior studies (12/15 studies in Loades et al., 2020), loneliness did not predict changes in depressive symptoms

from T1 to T2. Interestingly, another study conducted among a sample of high school students similarly found that loneliness was not predictive of changes in depressive symptoms over one year once controlling for initial depressive symptoms, demographic characteristics, and subsequent loneliness (Lasgaard et al., 2011a). One of their potential explanations for this finding was that loneliness may fluctuate quickly in adolescence, thus making it a poor predictor of depressive symptoms over time; they also suggested more than two time points may be needed to examine the longitudinal nature of this relationship (Lasgaard et al., 2011a). These explanations may explain the lack of significant findings in this study as well. Moreover, the studies included in Loades et al. (2020) had follow-up periods ranging from several months to several years; compared to these, our study had a shorter follow-up period and this may have influenced our results. A three-month period was chosen as this is typically what is used as the timeframe for diagnostic criteria, though a longer follow up may have allowed for more change across symptoms to have been observed. Based on our findings, it appears that loneliness and depressive symptoms are correlated, although further research is needed to confirm if loneliness is predictive of changes in depressive symptoms over time among adolescents.

Similarly, results indicated there was a moderate, positive association between eating disorder symptoms and loneliness at T1, but that loneliness was not predictive of changes in eating disorder symptoms from T1 to T2. This partially contrasts findings from Abebe et al. (2014), as their study indicated loneliness predicted changes in eating disorder symptoms for adolescent males (but not for females). It is unclear why there was no longitudinal association between these constructs in this study. Although it may be due to the non-clinical sample (and thus low base rates of eating disorder symptoms in the sample), prior research has shown longitudinal associations with non-clinical samples (e.g., Abebe et al., 2014; Rotenberg & Sangha, 2015). Although Rotenberg and Sangha (2015) found a

longitudinal relationship between these associations, this was through loneliness mediating the association between low trust beliefs in others and changes in bulimic symptoms over a follow-up period of 5 months. As such, there may be other factors influencing the longitudinal association between loneliness and eating disorder symptoms that were unexplored in this study. Moreover, the follow-up period in our study is shorter than prior studies (e.g., 14-16 weeks vs. 5 months for Rotenberg & Sangha, 2015; 2 years for Abebe et al., 2014) which may have impacted results as discussed above. Nevertheless, given the correlation found between eating disorder symptoms and loneliness, loneliness should be something clinicians consider when treating individuals with eating disorders.

Associations with loneliness were similar across symptoms of both disorders such that both depressive symptoms and eating disorder symptoms were correlated with loneliness at T1, but loneliness was not correlated with changes in those symptoms at T2 14-16 weeks later. At the cross-sectional level, there were larger correlations between loneliness and depressive symptoms than loneliness and eating disorder symptoms. However, this is not surprising, given the nature of symptoms associated with depression (e.g., feelings of worthlessness; American Psychiatric Association, 2013). Moreover, the measure of depression used in this study included items about loneliness (e.g., Item 14: I felt lonely; Radloff, 1977). Given the overlap of these two constructs, the large correlation between them makes sense. However, as loneliness is not included in the diagnostic criteria/symptoms of eating disorders, it is notable that there was still a moderate correlation between these constructs. In summary, the cross-sectional association between depressive symptoms and loneliness is stronger than the cross-sectional association between eating disorder symptoms and loneliness, likely due to the substantial overlap between loneliness and depressive symptoms.

Findings were similar across sexes, such that there were associations between depressive symptoms/eating disorder symptoms and loneliness at baseline but not associations for changes in these symptoms 14-16 weeks later for both males and females. Moreover, the strength of correlations was similar for both males and females, suggesting associations are equivalent across sexes. This is in line with some prior findings that examined gender differences for the association between depressive symptoms and loneliness (e.g., Lasgaard et al., 2011a & Ren et al., 2021) and between bulimic symptoms and loneliness (Rotenberg & Sangha, 2015). However, this contrasts with findings from other studies that have found gender differences in both the association between depressive symptoms and loneliness (Cacioppo et al., 2006; Liu et al., 2020) and the association between eating disorder symptoms and loneliness (Abebe et al., 2014). Further research is needed to determine whether gender/sex influences these associations, given the mixed findings evident in prior research.

### **Strengths and Limitations**

Limitations of this study must be noted. Firstly, as a non-clinical sample was used, there were low base rates of symptoms among the sample, particularly eating disorder symptoms. As such, it is difficult to determine if the same findings would have been found had a clinical sample been used. Moreover, only self-report measures were used to measure loneliness, depressive symptoms, and eating disorder symptoms. Although it is unlikely that participants felt uncomfortable answering honestly given the confidentiality/privacy measures put in place (e.g., privacy shields on their desks, reporting answers via questionnaires), there is still a potential that participants were not honest in their answers. Moreover, the sample consisted primarily of Caucasian (35.71%) and East Asian (28.57%) adolescents, so results may not be generalizable to individuals of other ethnicities. Lastly, we examined differences in these associations based on an individual's assigned sex at birth, which prohibited an examination of

these associations based on gender and failed to consider individuals outside of the gender binary. This was done due to the uncertainty in prior research on the influence of sex/gender for these associations, in line with recommendations from Johnson et al. (2009). However, as a result our findings may not be generalizable to gender diverse youth.

Several strengths of the study should also be noted. Firstly, this study explored an under-researched area by directly examining differences in the strength of the associations between: (1) loneliness and depressive symptoms and (2) loneliness and eating disorder symptoms. Moreover, given the inconclusiveness regarding gender/sex differences found in prior studies, a strength of this study lies in using a sample of males and females, thus allowing for a further examination of sex differences across these associations. Lastly, by assessing associations cross-sectionally and longitudinally, this study allowed for a thorough examination of the relationship between these constructs.

Given the potential limitation of examining these associations using a non-clinical sample, this study should be replicated using a clinical sample to determine if findings are similar. Moreover, as loneliness was found to not predict changes in depressive symptoms or eating disorder symptoms from T1 to T2, studies could assess the association between depressive/eating disorder symptoms and loneliness over a longer duration of time to determine if this impacts findings. As suggested by other researchers (e.g., Lasgaard et al., 2011a; Zaitsoff et al., 2020), perhaps more than two time points are needed to examine longitudinal associations. Future research should also be done examining these associations among gender diverse youth. Research suggests that gender minority youth report higher loneliness levels than cisgender youth and that among a sample of adolescents, the association between sexual/gender minority status and loneliness significantly predict depression/anxiety levels (McDanal et al., 2021). As such, associations may differ for gender-diverse youth. Lastly, given the diversity across eating disorder

symptoms, future studies should examine associations between loneliness and specific eating disorder symptoms rather than examining eating disorders as a broad category. Some research has examined associations with loneliness for specific eating disorders/symptoms (e.g., bulimic symptoms; Rotenberg & Sangha, 2015), whereas other studies have focused on disordered eating more generally (e.g., Abebe et al., 2014). Examining specific eating disorder symptoms may provide more insight into whether the association between loneliness and eating disorder symptoms is stronger for certain eating disorders/symptoms than others.

## Conclusion

Results indicated there were cross-sectional, but not longitudinal, associations between loneliness and depressive symptoms as well as loneliness and eating disorder symptoms. As such, loneliness is an important construct for clinicians to consider when treating individuals with these disorders, though more research should be done with clinical samples to confirm these findings. The consequences associated with loneliness (Mushtaq et al., 2014), and the fact that loneliness is particularly common among adolescents (Laursen & Hartl, 2013; Mushtaq et al., 2014; Solmi et al., 2020), makes it necessary to study this construct among this age group. Moreover, it has become an especially relevant topic to consider due to the spikes in loneliness associated with the COVID-19 pandemic (Lee et al., 2020). Thus, further research should continue to examine loneliness and its association with other constructs/mental disorders among adolescents.

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**Table 1***Sample and Demographic Information*

Demographic Information	N	%
<b>Ethnicity</b>		
Caucasian	85	35.71
East Asian	68	28.57
South East Asian	17	7.14
South Asian	13	5.46
FN <sup>a</sup> /Hispanic/African	12	5.04
More than 1 ethnicity	26	10.92
Other ethnicity	12	5.04
Not reported	5	2.10
<b>Sex at Birth</b>		
Male	104	43.70
Female	134	56.30

<sup>a</sup> Note. FN = First Nations (included other Indigenous identities as well such as Inuit & Metis)

**Table 2**

*Pearson's Correlations: Associations Between Depressive Symptoms/Eating Disorder Symptoms and Loneliness*

	<b>Males</b>		<b>Females</b>	
	<b>ULS-8</b>	<b>N</b>	<b>ULS-8</b>	<b>N</b>
<b>CES-D</b>	.60***	100	.70***	127
<b>EDE-Q</b>	.32**	101	.34***	127

*Note.* \*\* =  $p \leq .001$ ; \*\*\* =  $p < .0005$

**Table 3***Hierarchical Linear Regression Predicting Change in Depressive Symptoms from T1-T2*

<b>X (predictor)</b>	<b>Males</b>			<b>Females</b>		
	<b>B</b>	<b>SE B</b>	<b>β</b>	<b>B</b>	<b>SE B</b>	<b>β</b>
<b>Step 1</b>						
T1 CES-D	0.48	0.07	.56***	0.76	0.06	.75***
<b>Step 2</b>						
T1 CES-D	0.43	0.09	.50***	0.73	0.08	.72***
T1 ULS-8	1.30	1.49	.09	0.84	1.72	.04
Step 1: $R^2 = .31$ ; Step 2: $R^2$ change = 0.01 ( $p = .39$ )			Step 1: $R^2 = .56$ ; Step 2: $R^2$ change = 0.00 ( $p = .63$ )			

*Note.*  $n = 98$  for males;  $n = 126$  for females\*\* =  $p \leq .001$ ; \*\*\* =  $p < .0005$

**Table 4***Hierarchical Linear Regression Predicting Change in Eating Disorder Symptoms from T1-T2*

<b>X (predictor)</b>	<b>Males</b>			<b>Females</b>		
	<b>B</b>	<b>SE B</b>	<b><math>\beta</math></b>	<b>B</b>	<b>SE B</b>	<b>B</b>
<b>Step 1</b>						
T1 EDE-Q	0.70	0.05	.84***	0.76	0.05	.82***
<b>Step 2</b>						
T1 EDE-Q	0.70	0.05	.85***	0.73	0.05	.79***
T1 ULS-8	-0.03	0.09	-.02	0.22	0.12	.10
	Step 1: $R^2 = .71$ ; Step 2: $R^2$ change = .00 ( $p = .76$ )			Step 1: $R^2 = .67$ ; Step 2: $R^2$ change = .01 ( $p = .06$ )		

*Note.*  $n = 99$  for males;  $n = 125$  for females\*\* =  $p \leq .001$ ; \*\*\* =  $p < .0005$

# Empathy Differences in Autistic Children and Children with Callous-Unemotional Traits: Recommendations for Clinicians and Research

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## Abstract

It is common for autistic individuals and individuals with callous-unemotional (CU) traits to exhibit differences in how they express empathy compared to the general population. These differences can make it difficult to understand social situations which can negatively impact affected individuals' social and emotional development. The similarities related to these difficulties have led researchers to question whether CU traits may co-occur with Autism Spectrum Disorder (ASD); however, evidence suggests that the underlying etiological origins of the empathy differences in ASD and CU traits are not one in the same. Empathy imbalance theory can explain these differing etiological origins. According to this theory, there must be a distinction made between cognitive empathy, which is the ability to perspective-take and recognize others' emotions, and affective empathy, which is the ability to empathize with, understand, and feel others' emotions. Autistic individuals' expressions of affective empathy do not seem to differ from the general population, but they tend to display differences in how they express cognitive empathy. On the other hand, cognitive empathy appears relatively intact in individuals with CU traits, yet these individuals tend to exhibit low levels of affective empathy. This paper provides a brief overview of the literature on the distinct etiological origins of these empathy differences in ASD and CU traits, considers the negative repercussions of conflating them, and concludes with recommendations for clinicians and directions for future research.

Keywords: affective empathy, Autism Spectrum Disorder, callous-unemotional traits, cognitive empathy

Empathy plays a key role in social interactions and contributes to the development of close social bonds and engagement in altruistic behaviour (Davis, 2018; Harmsen, 2019), and can be defined as the “ability to feel or understand the actual or expected emotional state of others” (Georgiou et al., 2019a, p. 1863). How empathy is expressed varies across individuals, with some individuals demonstrating challenges with empathizing with or understanding the emotions of others. Autistic individuals and individuals with callous-unemotional (CU) traits tend to exhibit such differences in empathy expression. These differences can make understanding social situations or knowing how to act appropriately given a particular situation difficult (Mazza et al., 2014). Thus, understanding the potential similarities and differences between these empathy differences in ASD and CU traits is critical to supporting these individuals. While these empathy differences can affect individuals of all ages, identifying these challenges in childhood has important implications for our ability to support these individuals and their development across the lifespan. As such, the primary population of focus for this paper will be children.

Autism Spectrum Disorder (ASD) is a neurodevelopmental condition characterized by differences in social communication and social interaction, and restricted, repetitive patterns of behaviours, interests, or activities (American Psychiatric Association, 2013). Research has shown that autistic children exhibit greater difficulty understanding social situations and the emotions of others compared to non-autistic children. In a study examining social competence, Travis et al. (2001) demonstrated that autistic children displayed less empathy and had greater difficulty with social interactions compared to children with developmental delay. Similarly, Schwenck et al. (2012) found that autistic children had greater difficulty taking the perspective of another person in an emotional perspective-taking task compared to non-autistic children. It is important to note that “difficulty” with empathy may simply reflect differences in autistic children’s expressions of empathy compared to

non-autistic children, and it is not to say that the way autistic children express empathy is wrong or pathological, or reflects a deficit. Because these empathy expressions deviate from an arbitrary norm, however, these differences can have negative implications for autistic children’s social and emotional development. Understanding social situations is associated with social success (Carter et al., 2014) and positive mental health outcomes (Rispoli et al., 2013). Thus, autistic children who express empathy differently and/or have difficulty understanding social situations may be at risk for poorer social and psychological outcomes, highlighting the importance of understanding the spectrum of empathy expression to properly support autistic children.

CU traits map on to the affective dimension of psychopathy and can be defined as “lack of empathy and guilt, failure to put forth the effort on important tasks, and shallow and deficient emotions” (Frick et al., 2014, p. 3). CU traits are associated with specific cognitive and emotional factors. For example, children with CU traits tend to have difficulty recognizing fear and sadness in others and demonstrate a lack of empathy (Frick et al., 2014). A lack of empathy, especially in childhood, is of significant concern as children with CU traits are more likely to be aggressive and engage in antisocial and criminal behaviours in adulthood (Frick et al., 2014). It follows then that CU traits pose a significant threat to children’s healthy development, and early identification and intervention is important to mitigate this trajectory.

At first glance, there appear to be some parallel characteristics in autistic children’s and children with CU traits’ empathy expressions. Because of this similarity, research has questioned the prevalence of CU traits among autistic children and whether these children have a higher likelihood of developing CU traits. As mentioned, empathy differences can negatively impact the development of autistic children and children with CU traits; therefore, evaluating the etiological origins of these differences, the implications of conflating them, and the measurement tools and strategies used by

researchers and clinicians to support these children is critical.

## **Etiological Origins**

*Empathy imbalance theory* (Smith, 2006) states that empathy can be differentiated into two distinct types: 1) cognitive empathy and 2) affective empathy. Cognitive empathy is the ability to perspective-take and recognize the emotions of others, whereas affective empathy is the ability to empathize with, understand, and feel the emotions of others (Georgiou et al., 2019b; Schwenck et al., 2012). Differences in cognitive empathy are commonly associated with Theory of Mind (ToM; Premack & Woodruff, 1978) in autistic children (Schwenck et al., 2012). ToM is a developmental milestone defined as “the ability of individuals to evaluate the behaviour of others on the basis of their own mental states, such as goals, feelings and beliefs, and enables the identification of others’ intentions, emotions, as well as self-awareness” (Andreou & Skrimpa, 2020, p. 1). Non-autistic children usually reach ToM around age four and exhibit few challenges recognizing the emotions of others once this milestone is achieved (Allen & Jones, 2018). For autistic children, however, there may be differences in their ToM ability, possibly due to a variety of social or biological factors that may inhibit ToM development (Andreou & Skrimpa, 2020).

In contrast, research suggests that children with CU traits have challenges with affective empathy but have little difficulty with cognitive empathy or recognizing others’ emotions (Allen & Jones, 2018). Jones et al. (2010) demonstrated that boys with psychopathic tendencies exhibited less fear and empathy compared to boys without these tendencies; however, there were no significant differences for cognitive empathy (Jones et al., 2010). Another study found that children with CU traits displayed greater difficulty with affective empathy compared to autistic children who had greater difficulty with ToM tasks (Schwenck et al., 2012). Likewise, a study by Pijper et al. (2016) showed that autistic traits were related to lower cognitive empathy,

whereas greater CU traits were related to lower empathic sadness or affective empathy in boys with conduct problems. Further, Georgiou et al. (2019a) found that autistic traits were negatively associated with cognitive empathy, while CU traits were negatively associated with affective empathy. Interestingly, although CU traits were associated with both cognitive and affective empathy, the association between CU traits and cognitive empathy significantly decreased after controlling for autistic traits (Georgiou et al., 2019a). These findings are in line with empathy imbalance theory and suggest that autistic children and children with CU traits do not experience the same challenges with empathy expression.

Taken together, the aforementioned findings suggest that autistic individuals may experience empathy difficulties due to differences in their expressions of cognitive empathy, while their expressions of affective empathy do not significantly deviate from those of non-autistic individuals. On the other hand, individuals with CU traits tend to lack affective empathy but exhibit typical levels of cognitive empathy, demonstrating empathy difficulties opposite that of autistic children. Thus, the empathy differences in ASD and CU traits have distinct etiological origins and are not one in the same. Because of these differing underlying origins, there can be negative implications for children and their families if the distinction is not made between these empathy difficulties by clinicians or researchers.

## **Implications of Conflating Cognitive and Affective Empathy**

### **Stigmatization**

As mentioned, research has questioned whether autistic individuals possess co-occurring CU traits. Some studies have found high levels of CU traits among autistic individuals, representing a “double hit” in which the presence of both CU and autistic traits heighten differences in how empathy is expressed (Leno et al., 2019; Pasalich et al., 2014; Rogers et al., 2006). Despite this,

misidentifying CU traits in autistic children carries the detrimental effects of labelling and can be highly stigmatizing. It has been demonstrated that others' expectations about another person can affect how they are treated. In Rosenthal and Jacobson's (1996) classic study, students showed greater academic achievement throughout the school year when their teachers believed that they had greater academic potential. Clinicians may interact with autistic children differently if they believe they possess CU traits. Labels such as "psychopath" and "antisocial" are highly stigmatizing diagnostic labels that have been shown to influence clinicians' expectations and behaviours towards children with CU traits (Rockett et al., 2007). For instance, Rockett et al. (2007) found that clinicians relied more on a youth's diagnostic label of psychopath to guide their decision-making regarding future risk for violence, particularly when the youth had a minimal antisocial/criminal history. Additionally, clinicians were more likely to judge a greater likelihood of future violence for youth labelled as psychopaths compared to youth with a diagnosis of conduct disorder. If clinicians rely primarily on diagnostic labels, this can influence their decision-making and the strategies they use to support their clients.

Clinicians may also be pessimistic about working with children with CU traits if they associate these traits with the challenges they face when working with adults with psychopathy (Rockett et al., 2007). Frick et al. (2014) state that there is a falsely held belief that children with CU traits respond poorly and are less likely to voluntarily participate in treatment. Therefore, misidentifying CU traits in autistic children can subject them to stigmatization in clinical settings due to the negative connotations associated with traits that they may not have. This could lead to a strained clinician-client relationship if clinicians view their clients in a negative light.

Moreover, labelling can have negative impacts on the development of a child's self-concept; if a child is labelled, their self-concept may develop based on that particular label (Al-

Talib & Griffin, 1994). Research has shown that adolescents who were labelled as "delinquents" reported lower self-concept compared to adolescents without that label (Al-Talib & Griffin, 1994). There is reason to believe then that autistic children who believe they have co-occurring CU traits are likely to form a negative self-concept stemming from their CU traits label. Further, if children are treated negatively due to others' expectations of them, their overall wellbeing and feelings of adequacy as an individual can deteriorate (Erikson, 1956). Given evidence that there are low levels of personal wellbeing among some autistic adolescents, which may be partly due to differences in their expression of cognitive empathy and the difficulties that follow (Bos & Stokes, 2019), it is imperative that any further blows to their wellbeing are avoided. This can be done by avoiding the use of labels, particularly ones that hold strong negative connotations, such as "callous-unemotional" or "psychopath". Ultimately, accuracy in distinguishing empathy differences in ASD from those in CU traits can reduce the likelihood that autistic children will receive those labels.

While prior research has generally agreed that autistic children and children with CU traits exhibit distinct empathy differences due to separate etiological processes, some suggest that these differences are actually no different from one another. Fitzgerald (2019) proposes that the majority of autistic individuals exhibit aggression and other behaviours that overlap with psychopathy. Fitzgerald discusses how Hans Asperger had observed autistic children with aggressive tendencies and suggests that Asperger's accounts point towards "a sadistic pleasure characteristic of both psychopathy and autism...again, showing the overlap" (para. 10). Taking Asperger's observations as evidence of an overlap in ASD and psychopathy, Fitzgerald argues that the term *criminal autistic psychopathy* should be used to "diagnose" autistic individuals who appear to display CU or psychopathic traits.

The use of the term criminal autistic psychopathy fails to consider the consensus that differences in empathy expression in ASD and CU traits have distinct etiological origins, despite



appearing similar on a superficial level. Fitzgerald (2019) describes the empathy levels of autistic individuals as “dangerously low” (para. 10); however, the danger is not within autistic individuals who *appear* to have co-occurring CU traits. The real danger is in labelling them as criminal autistic psychopaths as such a highly stigmatizing label can have significant negative implications for individuals and how they are perceived by others (Al-Talib & Griffin, 2004; Boccaccini et al., 2008; Edens et al., 2003; Murrie et al., 2007; Rockett et al., 2007).

Asperger (1991, 1946) himself acknowledges that the antisocial behaviour he observed in some autistic individuals may have been due to their lack of social understanding. This would align with what is currently known about autistic individuals’ differences in cognitive, but not affective, empathy expression. Nevertheless, Fitzgerald (2019) interprets Asperger’s ideas as strong evidence for psychopathy in autistic individuals without taking into account the underlying differences in how they express empathy compared to individuals with CU traits. Using this term could create additional difficulties for autistic children who may already experience adversity associated with their ASD diagnosis, demonstrating further support for avoiding the use of a highly problematic and stigmatizing label.

## **Financial Impact**

Families of autistic children can face financial challenges due to significant expenses associated with their child’s diagnosis. For example, the medical costs for families of autistic children are 3 to 10 times greater compared to those of families of non-autistic children (Parish et al., 2015). Previous research has also found that families of autistic children report greater financial problems associated with the services and supports for their child (Parish et al., 2015) and greater out-of-pocket expenses that are not reimbursed (Sharpe & Baker, 2007). These financial costs can lead to increased stress for families of autistic children (Rogge & Janssen, 2019). Implementing strategies and participating

in services that target the wrong empathy difficulty can unnecessarily add to the costs that families of autistic children are already impacted by. Thus, there is an essential need for accuracy in identifying how empathy is expressed differently in autistic children compared to children with CU traits to ensure that these children and their families are receiving services that will be beneficial to them.

Broadly, financial impacts also exist for society if children with CU traits do not receive adequate supports due to a lack of understanding of the particular empathy difficulty they have, or due to unavailability of these services (see Clinical Implications). As mentioned earlier, children with CU traits are more likely to engage in antisocial and criminal behaviour in adulthood (Frick et al., 2014), so the costs associated with failing to provide adequate support to these children can be detrimental. It is estimated that it costs society \$2.6 to \$5.3 million to prevent just one high-risk youth from being involved in the criminal justice system (Cohen & Piquero, 2009). These costs can be mitigated if clinicians are accurate in their identification and can distinguish empathy differences among autistic children from those among children with CU traits. Not only would this prevent the incorrect identification of CU traits in autistic children, or vice versa, but could also prevent the negative outcomes that follow.

## **Clinical Implications**

The therapeutic alliance between a clinician and their client has been shown to be a significant predictor of client outcomes, irrespective of the treatment modality used (Norcross & Lambert, 2018). If clinicians are not accurate in their identification of empathy differences among autistic children and children with CU traits, this holds negative clinical implications for both populations. If CU traits are misidentified in autistic children who then participate in interventions designed to target the mechanisms underlying affective empathy difficulties, this could negatively impact children with CU traits. The time and resources that could

be put into supporting children with CU traits may be unnecessarily spent on autistic children who typically do not require support for differences in affective empathy expression. Further, if children with CU traits do not receive support because it is unavailable and inaccessible to them, there may be fewer opportunities for them to learn and development their empathic skills. Again, this could create greater challenges at the individual and societal level as antisocial and criminal behaviours can increase and persist if left unaddressed (Frick et al., 2014). This is certainly not to say that autistic children would not benefit at all from services aimed at enhancing their affective empathy abilities; however, it is important that children with CU traits have the appropriate supports available to them as well.

### **Recommendations for Best Practice**

#### **Research Recommendations**

Using high-quality tools to measure psychological constructs allows researchers to conduct more accurate assessments. Well-validated empathy measures that distinguish between cognitive and affective empathy (e.g., Empathy Questionnaire for Children and Adolescents (EmQue-CA; Overgaauw et al., 2017), should be used to assess empathy in autistic children and children with CU traits to understand where exactly, if at all, these children are experiencing empathy-related challenges. To the best of the author's knowledge, no studies have validated the EmQue-CA with autistic children or children with CU traits. Future research should aim to validate the EmQue-CA, or a similar questionnaire, with these children to establish its psychometric properties in both populations. The development of a scale that measures both cognitive and affective empathy in autistic children specifically may be an alternate option. The Empathy Quotient (EQ; Baron-Cohen & Wheelwright, 2004) is a widely used empathy measure for autistic individuals. That said, the EQ does not differentiate between cognitive and affective empathy (Bos & Stokes, 2019). Additionally, the Questionnaire of Cognitive and Affective Empathy (QCAE; Reniers et al., 2011)

has recently been used to measure both empathy domains in autistic individuals (Mul et al., 2018), but this study did not include children. Empathy is not simply a unidimensional construct, and distinguishing between cognitive and affective empathy is critical (Blair, 2008; Georgiou et al., 2019a; Jones et al., 2010; Schwenck et al., 2012). As such, it would be best practice to utilize measures of cognitive and affective empathy when measuring empathy in autistic children, children with CU traits, or any child that may exhibit differences in empathy expression.

The majority of research has shown that children with CU traits express cognitive empathy no different from the general population. Yet some studies have found that these children do in fact exhibit difficulty with cognitive empathy, in addition to affective empathy (Dadds et al., 2009; Pasalich et al., 2014). Inconsistent definitions of cognitive empathy in past studies may explain why findings are mixed (Lui et al., 2016). Utilizing an agreed upon definition would improve research methodologies by increasing the validity of the measurement of cognitive empathy in children with CU traits. As with autistic children, well-validated scales that assess cognitive and affective empathy should also be used with children with CU traits. One study (Murphy, 2019) found that the Griffith Empathy Measure (GEM; Dadds et al., 2008) demonstrated poor construct validity, bringing into question previous research that has used the GEM to examine empathy in children with CU traits. There are several well-validated measures designed to evaluate CU traits in children, which also tap into differences in empathy expression (e.g., Inventory of Callous-Unemotional Traits (ICU; Frick et al., 2004); Psychopathy Checklist Revised - Youth Version (PCL:YV; Forth et al., 2003). While some research has demonstrated good psychometric properties for the ICU in multicultural, diverse populations, the normative sample for the PCL:YV is comprised of a predominantly male and white sample (Kimonis & Goulter, 2017), limiting the ability to generalize to more diverse populations. More research evaluating empathy scales and their use with children with CU traits is needed.

## Clinical Recommendations

While autistic children do not typically demonstrate differences in their expressions of affective empathy, some research has shown that autistic children do in fact exhibit differences in affective empathy compared to non-autistic children (Bos & Stokes, 2019). ASD is a highly heterogeneous condition and expressions of empathy may fall along a spectrum; thus, generalizations cannot be made regarding empathy differences for all autistic individuals. Clinicians should assess cognitive and affective empathy in autistic children as objectively as possible, without assuming that there will be more or less difficulty for the child in either domain. Further, clinicians should tailor their approach to the child's specific needs and aim to enhance their strengths in addition to supporting them in the areas they may experience difficulty. Research suggests that it can be beneficial for autistic children's social skill development when educators and families work together to ensure that children are practicing these skills in both educational and home/familial contexts (Carter et al., 2014). Clinicians should emphasize the importance of practicing empathy outside of the therapeutic context by encouraging children to practice empathy at school with teachers and peers as well as at home with family.

Importantly, educational programs that promote inclusivity by teaching children about their autistic peers and their differences can be a valuable tool for supporting autistic children's social and emotional development. The 'double empathy problem' (Milton, 2012) emphasizes that autistic individuals' ways of communicating are considered atypical to non-autistic individuals; yet non-autistic individuals' ways of communicating are likewise misunderstood and unusual to autistic individuals. In this sense, "empathy is a two-way street" (Milton, 2012, p. 885) in which both autistic and non-autistic individuals experience a disconnect in their social interactions with one another. However, this lack of social reciprocity is typically attributed to the autistic individual and believed to be due to intrinsic factors the lie within the autistic person

(Milton, 2012). Viewing the social difficulties that some autistic individuals face as internal to the person can be pathologizing and can pressure autistic individuals to conform to social norms that are typical of the general population. In contrast to the medical model of disability which views disability as an individual problem, the social model of disability moves away from individual blame, and instead attributes disability to social barriers beyond one's control that make the world an inaccessible place (Disability Rights Commission, 2003). From a social model perspective, autistic individuals' different ways of expressing empathy simply reflect variation in empathy expression, and it is society's lack of understanding of these differences that creates the social and emotional difficulties that some autistic individuals' experience. Thus, while social and emotional supports can be beneficial for autistic children, these children should not have to conform to a neurotypical standard of empathy expression. An alternative could be educating their peers, teachers, and clinicians about these differences, rather than trying to "fix" autistic children and their behaviours as they need not be fixed.

Interventions and supports for children with CU traits can be implemented earlier if clinicians focus more on empathy *development*, rather than solely on the empathy challenge itself (Frick & Kemp, 2021). Frick and Kemp (2021) state that recognizing the risk factors associated with the development of empathy difficulties can lead to earlier implementation of services and supports aimed at mitigating these risks. If these are to be implemented effectively, we must understand not only how empathy difficulties develop in children with CU traits, but also *which* dimensions of empathy these children may struggle with. Again, this emphasizes the importance of distinguishing between differences and/or difficulties in cognitive versus affective empathy, and enhancing our understanding of who is at risk.

## Future Directions

There is growing research on the role that alexithymia may play in the social challenges observed in some autistic individuals. Alexithymia is a condition characterized by difficulty in recognizing, understanding, and distinguishing one's own emotions and the emotions of others (Costa et al., 2019), and approximately 50% of autistic individuals have co-occurring alexithymia (Kinnaird et al., 2019). The "alexithymia hypothesis" (Bird & Cook, 2013) proposes that the social difficulties observed in some autistic individuals, and the heterogeneity in the social phenotype of ASD, may be better explained by co-occurring alexithymia, rather than as a core feature of ASD (Poquérousse et al., 2018; Scheerer et al., 2021). Recent studies (Mul et al., 2018; Shah et al., 2019) have examined the role of alexithymia for autistic and non-autistic individuals' expressions of cognitive and affective empathy. Mul et al. (2018) found that alexithymia partially mediated the association between empathy differences and autistic traits, whereas Shah et al. (2019) found that autistic traits explained more variance in empathy differences than alexithymia. The latter finding counters research suggesting that alexithymia is a stronger predictor of social difficulties than ASD. However, Speyer et al. (2021) demonstrated that alexithymia was in fact a stronger predictor of empathy differences than autistic traits. These mixed findings indicate that more research examining alexithymia, autistic traits, and empathy differences is needed before stronger conclusions can be made.

Like empathy, research suggests that CU traits have their own distinct etiological origins. Often referred to as variants, these origins are based on Karpman's (1948, 1941) theory that there are two types of psychopathy which are distinguished by anxiety. *Primary* CU traits are believed to originate from emotional processing deficits with a biological basis, with affected individuals demonstrating typical levels of anxiety (Kahn et al., 2017). *Secondary* CU traits are believed to originate from negative environmental factors which lead individuals to act callously as a way to cope with these adverse environmental experiences, such as trauma or abuse (Craig et

al., 2021). Thus, individuals with the secondary variant exhibit higher levels of anxiety compared to those with the primary variant (Kahn et al., 2017).

One study found that individuals with CU traits demonstrated greater cognitive empathy when they also had low levels of anxiety, but their anxiety did not influence their affective empathy (Kahn et al., 2017). The researchers suggest that this may explain why previous research has consistently demonstrated a negative association between CU traits and affective empathy, but has inconsistently demonstrated the link between CU traits and cognitive empathy. It may be that individuals with both variants experience a lack of affective empathy given that lower levels of affective empathy are observed in individuals with varying levels of anxiety. However, individuals with the secondary variant may be more susceptible to a lack of cognitive empathy, perhaps due to higher anxiety. It is less clear how these variants play a role in children's empathy differences, and further research is needed to parse the potential moderating role of anxiety specifically in children with CU traits.

There is also room for future research to further our understanding of the prevalence of co-occurring CU traits in autistic individuals. One study demonstrated that, although the correlation between CU traits and ASD traits was low, approximately 35% of autistic youth scored highly on measures of CU traits (Rogers et al., 2006). Leno et al. (2015) also investigated the prevalence of CU traits in autistic adolescents and found that 51% of their sample scored above the cut-off for CU traits. These findings suggest that CU traits may indeed be higher in autistic individuals compared to the general population. Notably, Rogers et al. (2006) highlight that the high levels of CU traits found in some autistic individuals should not be mistaken as applicable to all autistic individuals, but rather as a subgroup of autistic individuals who may also score highly on CU traits. This means that a lack of empathy or disregard for others observed in some autistic individuals should not be considered to be a core feature of ASD, but should be assessed

separately, perhaps indicating co-occurring CU traits (Rogers et al., 2006). Replication is necessary to examine whether these findings hold true across more diverse samples, and it is clear that research would benefit from examining this overlap further.

## Conclusion

Clinical practice that is informed by research is invaluable for the development and implementation of adequate services and supports. As differences in empathy expressions can negatively impact development, understanding the etiological origins of these differences, the implications of conflating them, and the measures and the strategies clinicians

can use to support affected children is critical. A greater understanding has the potential to mitigate the consequences that follow from misidentifying or conflating empathy differences in these populations. Particularly, stigmatization and negative financial impacts can be avoided, children and their families can receive adequate and appropriate supports, and the therapeutic alliance can be protected. Empathy differences, their potential associated difficulties, and their developmental pathways in autistic children and children with CU traits are complex. More research, particularly that takes a social model of disability approach, is needed to fully understand these differences and to aid researchers and clinicians in supporting these children's healthy development

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# Treatment of Secondary Psychopathy: A Proposed Application of Decompression Treatment

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## Abstract

Previous research has achieved little success in the pursuit of an effective treatment regime for psychopathy, leaving many researchers skeptical as to whether psychopathy is treatable at all. However, the same researchers often unintentionally adhere to an underlying fallacy, by assuming that psychopathy is a uniform construct. By reducing psychopathy to its primary and secondary variants, it quickly becomes apparent that this distinction is key with respect to treatability. In particular, the two psychopathy variants have three major etiological differences in regards to emotional processing, reward sensitivity, and attachment style mechanisms. Accordingly, a relatively novel corrections/clinical hybrid model titled 'decompression treatment' (DT) naturally becomes relevant to the discussion. Designed to be an alternative to conventional corrections placement, DT has exclusively handled the most serious of offenders since its inception, including violent inmates, mentally disordered offenders, and most notably, adolescents manifesting psychopathic traits. The model relies on three core principles: first, is minimizing the amount of potentially harmful stimuli present in the corrections environment; second, is providing a reward system to those who exhibit prosocial behaviour; and third, is building positive relationships between patients and staff. Fittingly, these three principles directly correlate with the lived experiences of secondary, but not necessarily primary, psychopaths. After making a case for the models application in the secondary psychopath population, the discussion concludes with an examination of the strengths, weaknesses, and caveats of the model. Ultimately, DT lends itself to be a promising treatment option for secondary psychopaths.

Keywords: decompression treatment, secondary psychopathy, primary psychopathy, corrections, rehabilitation

Psychopathy, in general, is characterized by a host of affective, interpersonal, and cognitive idiosyncrasies of a destructive nature; for instance, psychopaths can be deceitful, cunning, manipulative, antagonistic, egocentric, without guilt or empathy, and so forth (Skeem, Monahan, & Mulvey, 2002). Moreover, statistics estimate that psychopaths make up 1 percent of the general population and an alarming 25 percent of the prison population (Yildirim & Derksen, 2015). Given the nature and prevalence of psychopathy, it follows that criminal justice professionals ought to have a range of treatment strategies at their disposal. However, efficacious treatments are lacking (Douglas, Nikolova, Kelley, & Edens, 2015), and criminal psychopaths arguably present the most difficult clinical profiles to treat. For instance, relative to non-psychopaths, psychopaths are more likely to be disruptive in treatment settings, to have high attrition rates, and to show slower, if any, treatment improvements (Yildirim & Derksen, 2015). Generally speaking, contemporary forensic researchers widely underscore the importance of early, comprehensive interventions as a means of preventing adult criminality (Dodge et al., 2015). However, the continuity of psychopathy from childhood to adolescence to adulthood is still a matter of debate (Corrado, DeLisi, Hart, & McCuish, 2015). Thus, early identification and intervention efforts for psychopathy are a particular challenge, leaving criminal justice professionals to deal largely with adult manifestations of the disorder. In sum, psychopathy, and its corresponding treatment options, clearly constitute a disproportionate relationship.

Throughout the literature, Dr. Hare's Psychopathy Checklist-Revised (PCL-R) is considered the gold standard for measuring psychopathy (Yildirim & Derksen, 2015). With that said, the PCL-R was devised from a Caucasian adult male offender sample, thereby having constricted generalizability outside these demographic parameters (Hare, Clark, Grann, & Thornton, 2000). Therefore, unless stated otherwise, the research below - which utilizes PCL-R measures - is primarily applicable to individuals who match the original sample demographics. In brief, the PCL-R consists of 20 items each scored zero, one, or two,

yielding a total score out of 40, where 30 or above is indicative of psychopathy. The tool consists of two factors and four facets. Rather than providing a strict operational definition of primary and secondary psychopathy, the itemized components of Factor 1 (interpersonal and affective facets) and Factor 2 (lifestyle and antisocial facets) of the PCL-R are used in the present article to define each variant (Douglas et al., 2015). This approach provides the most organized and comprehensive conceptualization of both variants based on the literature to date. Examples of Factor 1 items include pathological lying, failure to accept responsibility, and grandiose sense of self-worth. Examples of Factor 2 items include impulsivity, criminal versatility, and parasitic lifestyle. For a complete list of factor items, see Hare et al. (1990).

Accordingly, Factor 1 is representative of primary psychopathic traits. To illustrate, absolute primary psychopaths exhibit a deficient affective core, abnormal (i.e., overly-relaxed) psychophysiological measures, interpersonal malice (e.g., to gain promotions in vocational settings), and distinct language irregularities. Conversely, Factor 2 is representative of secondary psychopathic traits. To illustrate, absolute secondary psychopaths exhibit extensive rule-breaking/trouble-making behaviours, extreme impulsivity/antisociality, abnormal (i.e., overly-anxious/negative emotionality) psychophysiological measures, and more Cluster B personality traits (e.g., borderline, histrionic, and narcissistic). Importantly, however, most psychopaths manifest both Factor 1 and Factor 2 symptoms, although one side of the spectrum typically dominates (Douglas et al., 2015).

Unfortunately, researchers have yet to determine the prevalence of primary psychopathy relative to secondary psychopathy, or relatedly, the prevalence of traits that compose each variant. However, Factor 2 of the PCL-R, which is used to define secondary psychopathy in the present article, has consistently been an empirically superior predictor of general and violent recidivism outcomes compared to Factor 1 (i.e. primary psychopathy), although this finding is controversial in itself (Corrado et al., 2015). That is, past criminal behaviour is being used to predict future criminal behaviour, because

criminal behaviour forms part of the definition of Factor 2 (but not Factor 1) of the PCL-R. Such reasoning is tautological, and has been disapproved by many scholars (Douglas et al., 2015).

Although primary and secondary psychopaths likely inflict a similar *degree* of harm on society, the *type* of harm inflicted reportedly varies (Yildirim & Derksen, 2015). Broadly, traits characteristic of secondary psychopathy mostly associate with offenses of an overt nature, such as violent crime, property crime, or drug crime. Conversely, traits characteristic of primary psychopathy associate with offenses of an overt and covert nature, such as white-collar crime, interpersonal crime, or organized crime. Thus, given the openly damaging nature of secondary psychopathy, it can be argued that such individuals draw more public attention and hence a greater desire for a sociopolitical response than their primary counterparts, who typically operate more behind the scenes.

As alluded to above, researchers have produced little to no consistent, successful treatment paradigms for psychopathy. Furthermore, research that does trend toward positive outcomes has yet to be of a high-quality nature (i.e. randomized controlled trial). In fact, one matched groups design study consisting of 292 forensic patients followed for an average of 10.5 years found that treatment initiatives actually increased violent and general recidivism tendencies among psychopathic patients - while indicating the reverse to be true for non-psychopathic patients (Rice, Harris, & Cormier, 1992, as cited in Skeem et al., 2002). Nevertheless, the above study contained serious methodological flaws. For example, the researchers failed to use random assignment, post-release differences were not considered, and patients were subjected to inhumane treatment.

Moreover, and more importantly, like so much of the extant literature on psychopathy treatment, this study failed to disentangle the conceptual underpinnings of the personality disorder - a notion that has broad and substantial treatment implications. Primary and secondary psychopathy evidently differ on etiological and symptom manifestation grounds, and arguably, on

prognostic grounds as well (Yildirim & Derksen, 2015). For example, although not mutually exclusive, primary psychopathy predominately has a neurobiological/genetic etiological basis, whereas secondary psychopathy predominately has an environmental etiological basis. Given that it is more difficult to treat an innate (as opposed to environmental) condition, this fact at least partially explains the largely ineffective primary psychopathy treatment outcomes seen to date (Yildirim & Derksen, 2015). Accordingly, it is surprising how little research has attempted to make this distinction, alternatively, hyper-fixating on primary psychopathy at the expense of secondary psychopathy. Here, the emphasis is placed on secondary psychopathy. Upon close examination, the nature of secondary psychopathy infers better treatment outcomes, thereby mitigating the clinical gloom surrounding psychopathy and providing a useful starting point.

In particular, 'decompression treatment' (DT) constitutes an exemplary treatment option. Meant for the most serious of offenders, DT represents a correctional/clinical hybrid model which serves as an alternative to traditional prison system placement following the commission and sentencing of a crime (Caldwell, McCormick, Umstead, & Van Rybroek, 2007). DT was originally designed to erode antagonistic bonds between troubled inmates and prison staff (Monroe, Van Rybroek, & Maier, 1988). Thus, admission to DT was granted to inmates who showed severe malice and defiance towards conventional correctional settings/staff over a considerable period of time; a similar admissions criteria is applied presently. The rationale behind DT was to help these violent and mentally disordered offenders adapt to a less distressing correctional environment, which would in turn set a foundation for their successful return to traditional correctional settings/programs with less subsequent incidents and altercations.

More recently, researchers have adapted and expanded the model to target youths manifesting psychopathic traits - where some success has been achieved. For instance, Caldwell and Van Rybroek (2001) found a criminal recidivism rate of only 10% for those youths who received DT compared

to those youths who received treatment as usual (20%) and those youths who received assessment-only treatment (70%). Moreover, Caldwell, Skeem, Salekin, and Van Rybroek (2006) reported significantly lower and slower rates of violent recidivism for those youths who received experimental treatment compared to those who received treatment as usual, with the latter group being twice as likely to violently recidivate in the two-year study period. Together, these results suggest that DT can effectively accommodate adolescents showing psychopathy signs. However, without any available research, it is unclear whether the same results will generalize to the adult psychopath population. Hence, the present discussion seeks to explore and analyze this issue. Correspondingly, a brief overview of DT is outlined below.

DT has been limited to the Mendota Forensic Center in Madison, Wisconsin, where treatment occurs in a designated correctional facility. Accordingly, using their research knowledge and expertise, Mendota forensic psychologists train correctional staff to rehabilitate offenders using three core techniques: (1) minimize threatening stimuli; (2) incorporate reward systems; and (3) foster positive relationships (Caldwell & Van Rybroek, 2001). To ensure safety, offenders only interact with staff (not other inmates), and staff reconvene daily to assess each others well-being. Also, given the nature of clients that staff work with, Preventive Aggression Devices (PADs) can be deployed; PADs are wrist or ankle cuffs that get attached to belts by adjustable straps (Monroe et al., 1988). These devices allow for both safe and fruitful social interactions. Furthermore, more recent DT variations provide every offender with access to a psychologist, psychiatrist, and social worker, in addition to substance abuse or anger management training, for example - depending on their needs (Caldwell et al., 2007). Thus, offenders spend their time either interacting with staff in comfortable common areas or privately in their cell. The length of treatment is at the discretion of staff. If satisfied, and depending on the length of a given sentence, staff will (1) release the offender into society or (2) transfer the offender to a regular correctional facility. However, after being released from the program, offenders can be readmitted to DT

if they commit a new offense in a community or correctional setting (Monroe et al., 1988). Notably, although a promising framework, DT has yet to become widely adopted. It remains a short-term, transient treatment rather than a long-term, independent correctional process on its own. Thus, in order to obtain optimal results, this transformation should be the top priority of researchers.

Considering the above, the remaining discussion highlights the theory behind DT as it relates to primary and secondary psychopathy - and the reasons why positive outcomes can be anticipated for the latter population. Note that the anticipated benefits of DT do not apply equally to both populations, thereby underscoring the need to consider the context of offenders being treated. Therefore, primary psychopathy is used as a point of reference throughout the discussion to show how DT mechanisms operate differently for unique offender populations. Thus, compared to their primary counterparts, secondary psychopaths from a Caucasian adult male demographic will show better treatment outcomes via DT, due to their distinct, environmentally determined etiology; specifically, this includes emotional processing, reward sensitivity, and attachment style factors which vary between primary and secondary psychopaths - detailed below, respectively.

### **Primary Versus Secondary Psychopathy: Emotional Processing**

Unlike primary psychopathy, secondary psychopathy customarily originates from learned, environmental experiences, which take place early on in life. That is, secondary psychopaths are frequently subjected to harsh parental rejection and physical/sexual abuse during their childhood (Yildirim & Derksen, 2015). This also encompasses parents who act violently towards one another or inanimate objects. Therefore, compared to primary psychopaths, secondary psychopaths would respond better to DT due to their hyperactive (rather than hypoactive) emotional processing mechanisms. Hyperactive mechanisms lead an individual to overvalue potentially harmful stimuli in an environment whereas hypoactive mechanisms lead an individual to undervalue potentially harmful stimuli in an environment. To expand,

research demonstrates that maltreated children are particularly sensitive to threat-related cues in their surroundings (Kimonis, Frick, Cauffman, Goldweber, & Skeem, 2012). Such children seek out angry faces/gestures, and have great difficulty disengaging from these cues. Additionally, these children learn to act aggressively towards these cues as a means to alleviate their distress. Ultimately, this maladaptive coping mechanism starts early in life and then carries on throughout the life course, thus promoting secondary psychopathic traits (Yildirim & Derksen, 2015).

One reaction time study involving primary/secondary psychopaths captured this phenomenon by cycling through positive, negative, and neutral stimuli images (Kimonis et al., 2012). Specifically, the researchers hypothesized that secondary psychopaths would have quicker reaction time scores when negative images were present, as their attentional focus would already be directed towards such stimuli. Indeed, this was the case, in turn supporting the notion that secondary psychopaths are unusually sensitive to harmful stimuli; further, primary psychopaths did not demonstrate this response pattern.

Regarding DT, this model is suitable because it avoids displaying potentially harmful or threatening stimuli (Caldwell & Van Rybroek, 2001). The correctional facility is designed to mitigate feelings of entrapment, isolation, and abandonment. Rather than employing punitive measures which resemble a secondary psychopaths upbringing, rehabilitative measures are employed instead. This, in turn, reduces the likelihood of an unwanted altercation occurring between a patient and other staff or inmates. To illustrate, offenders are allowed out of their cells into open common areas with furniture where they can interact with staff who are trained to act friendly. The staff may attempt to make warm gestures, such as by offering a smoke or a refreshment. In addition, the regimes are not harsh and rigid, thereby eradicating any sense of coercion or control possibly held by the offender. Ultimately, the decompression model reduces the amount of potentially threatening stimuli for secondary psychopaths to react over, be it interpersonally, structurally (i.e., building design), or timetable wise (Monroe et

al., 1988). One exception to this rule involves the prioritization of staff safety. A prime example of this notion is the use of PADs, as defined above. Offenders may view leather shackles and cuffs as being a threat to their personal freedom. However, such devices prevent staff from being assaulted, thus empowering staff to carry out their duties, which in turn benefits offenders. If the staff perceive their environment as unsafe, their service quality will decline and their attrition rates will increase. Not to mention, PADs are only used in the most serious cases, and can be removed indefinitely after an offender exhibits sustained, socialized behaviour.

At this point, it may be argued that secondary psychopaths possess hypoactive emotional processing mechanisms as opposed to the suggested hyperactive variant (Porter, 1996). This hypoactive mechanism essentially indicates the reverse. That is, it involves a dissociation of emotion where, after repeated traumatization, one learns to “turn off” their emotions in an effort to cope (Porter, 1996). These episodes generally occur earlier on in life but then endure throughout adulthood - such that, the victim is unable to emotionally connect with other individuals. Nevertheless, in the realm of psychopathy, this link has yet to be established; primary psychopaths exhibit hypoactive emotional processing mechanisms, but this is due to genetic dispositions rather than environmental influences (Kimonis et al., 2012). Hence, given that secondary psychopaths respond negatively to threatening stimuli as a result of their hyperactive emotional processing mechanisms, it is imperative that DT initiatives maximize the amount of innocuous components to ensure the successful rehabilitation of this population.

### **Primary Versus Secondary Psychopathy: Reward Seeking**

As mentioned above, secondary psychopathy is largely the product of neglect and abuse experienced in early childhood. Yet, as a consequence, this produces substantial changes to their nervous system functioning - particularly as it relates to reward sensitivity (Yildirim & Derksen, 2015). Thus, relative to primary psychopaths, secondary psychopaths would respond better to DT due to their strong (rather than weak)

physiological propensity towards reward gratification. Unlike primary psychopaths, secondary psychopaths display strong neurotic symptoms - namely anxiety, but also depression. In fact, researchers frequently distinguish between the two groups on the basis of high/low Welsh Anxiety Scale (WAS) scores (Newman, MacCoon, Vaughn, & Sadeh, 2005). Furthermore, the anxiety which is inherent to secondary psychopathy corresponds to a distinct pathway of nervous system functioning. Specifically, Gray's model of the nervous system postulates two primary motivational systems: the behavioural activation system (BAS) and the behavioural inhibition system (BIS) (Gray, 1987, as cited in Newman et al., 2005). The former is receptive to reward cues and thus initiates behavioural approach, while the latter is receptive to punishment cues and thus initiates behavioural avoidance. Importantly, secondary psychopathy is associated with a strong BAS and a normal BIS while primary psychopathy is associated with a strong BIS and a normal BAS (Newman et al., 2005). In other words, secondary psychopaths value reward over risk-aversion whereas primary psychopaths value risk-aversion over reward.

Accordingly, DT takes advantage of secondary psychopaths extreme need for reward satisfaction. The model is premised on operant conditioning principles, particularly those of positive reinforcement (Monroe et al., 1988). Initially, stringent disciplinary measures and protocols are imposed on offenders. However, for every prosocial action that an offender makes - small or large - the more these measures and protocols are gradually lifted. For example, if a violent offender does not utter threats or misbehave for a considerable duration of time, then their PADs can be removed. Further, prosocial behaviours are reinforced through various levels of rewards; the more an offender complies, the more an offender is rewarded. Therefore, these rewards progressively increase in quality (e.g., chocolate bar to television privileges) and quantity (e.g., 10 minutes of television time to 30 minutes of television time). This technique is known as shaping, which involves the continued reinforcement of behaviours that increasingly approach a desired response outcome - in this case, prosocial attitudes and behaviour (Caldwell & Van Rybroek, 2001).

Notably, a glaring issue now arises: since the decompression model is practiced in correctional settings, the rewards will no longer continue upon release, and hence, secondary psychopaths will return to being antisocial. However, neuroscientific brain scans conducted on secondary psychopaths have produced telling results. Namely, secondary psychopathy is associated with decreased grey matter in brain areas like the amygdala, orbitofrontal cortex, posterior cingulate, para-hippocampal region, and the temporal pole - all parts of the paralimbic system (Anderson & Kiehl, 2012). This system is associated with functions such as self-control, higher reasoning, and most importantly here, pleasure thresholds. Consequently, given this reduced grey matter, secondary psychopaths do not derive the same level of satisfaction from rewards, nor are they able to exercise proper self-control, which in turn, causes them to seek rewards impulsively (Yildirim & Derksen, 2015). However, researchers contend that, with enough reward gratification over time, new grey matter is formed in areas of the paralimbic system - thereby signalling permanent changes in the brain (Anderson & Kiehl, 2012). As a result, secondary psychopaths would derive more pleasure from each individual reward they receive while concurrently reducing their inappropriate reward seeking habits. In sum, given that secondary psychopaths are especially receptive to rewards due to strong abnormalities in their BAS, DT must sufficiently reward these individuals in order to regulate their reward seeking tendencies upon release.

### **Primary Versus Secondary Psychopathy: Attachment Styles**

Problems between infants and caregivers are known to result in several possible troublesome attachment styles, of various forms (Unrau & Morry, 2019). As a result, these attachment styles differentially impact an individual's interpersonal abilities and skills, typically in a negative manner. Accordingly, secondary psychopaths would respond better to DT due to their environmentally determined anxious attachment style, in comparison to primary psychopath's evolutionarily associated avoidant attachment style. To start,



attachment theory proposes that infants have an innate need to bond with and maintain close proximity to their caregivers (Unrau & Morry, 2019). If these needs are satisfied, the child develops a secure attachment style. However, if these needs are not satisfied, the child develops an insecure attachment style - which can be further divided into avoidant and anxious variants. The former is characterized by items like avoidance of intimacy and cynicism regarding relationships, engendered through nonresponsive caregiving (Christian, Sellbom, & Wilkinson, 2017). The latter is characterized by items like fear of abandonment and excessive reassurance seeking, engendered through inconsistent caregiving (Christian et al., 2017). Infant attachment styles also correspond to adult attachment styles in terms of the behaviours, cognitions, and emotions that a given individual displays (Unrau & Morry, 2019). So, an anxious infant-parent relationship would later translate to an anxious adult-partner relationship, for example.

Evidently, researchers discovered that secondary psychopathic traits related to anxious attachment styles while primary psychopathic traits related to avoidant attachment styles (Blanchard & Lyons, 2016). That said, the life history theory paradigm posits that primary psychopathy is an evolutionary consequence; these individuals have adapted to exploit and manipulate others in order to ensure their own survival and reproductive success. Therefore, their avoidant attachment style is postulated to derive not from the environment, but from genetic mutations (Blanchard & Lyons, 2016). On the other hand, secondary psychopathy is regarded as an environmentally derived phenocopy of primary psychopathy - albeit its manifestation as anxious attachment (Blanchard & Lyons, 2016). Essentially, the attachment style of primary psychopaths is firmly established while the attachment style of secondary psychopaths is not.

Accordingly, the interpersonal aspect of DT addresses the attachment style held by secondary psychopaths. In particular, healthy relationships are fostered between staff and offenders. Although these interactions are not as structured or intricate as more established interpersonal therapies, they do abide by

important principles (Monroe et al., 1988). DT emphasizes rapport building between offender and staff; the staff are trained to take an interest in offenders, mostly at a casual level. This includes any necessary education to ensure successful interaction with offenders. For instance, this comradery could simply take the form of a conversation where an offender is free to discuss a host of different topics (e.g., future goals), as long as the conversation stays appropriate. Furthermore, DT staff avoid portraying offenders in a suspicious manner, while coming across as humble and reliable. Elsewhere, psychopaths are often disrespected, humiliated, or met with pre-existing pessimism on behalf of therapists (Martens, 2004). Moreover, DT is small-scaled so offenders can be regularly attended to, and protocols can be tailored to fit their needs. Not to mention, newer adaptations of DT incorporate external specialists like psychiatrists and social workers into the model. Thus, these individuals further aid in developing an offenders social skills, communication abilities, problem solving capacity, and social receptivity. Essentially, DT helps secondary psychopaths develop secure relationships with program staff, which contradict and thus weaken their normally unstable, anxious relationships (Monroe et al., 1988).

That said, evidently, the majority of individuals who develop an anxious attachment style do not proceed to develop secondary psychopathy. Nonetheless, researchers note that attachment styles are not entirely fixed in nature (Christian et al., 2017). Alternatively, they propose an accumulation or cascading effect - in which, an attachment style is strengthened or weakened based on experiences throughout the life span. Not only do secondary psychopaths experience an extreme degree of adversity in childhood, they also have difficulty in school, work, and other related organizations, which all involve interpersonal transactions (Yildirim & Derksen, 2015). These transactions are characterized by distrust, discourse, and instability. Therefore, this accumulation of negative experiences strengthens their anxious attachment style, which consequently fosters destructive relationships (Christian et al., 2017). Meanwhile, researchers contend that the evolutionary based avoidant attachment style

of primary psychopaths is more immune to accumulation effects, and thus steadily fixed (Blanchard & Lyons, 2016). Accordingly, given that secondary psychopaths present anxious attachment styles that are, overall, amendable to change, it is paramount that DT emphasizes the development of secure attachments between secondary psychopaths and staff.

### **Conclusion: Strengths, Limitations, and Implications of Decompression Treatment**

Overall, it has been argued that the DT model should be applied to the secondary psychopath population. Importantly, the argument is premised on the fact that primary and secondary psychopathy is distinguishable based on its predominantly genetic and environmental etiology, respectively. Correspondingly, the first variable etiological characteristic pertains to emotional processing; primary psychopaths possess hypoactive mechanisms while secondary psychopaths possess hyperactive mechanisms. Therefore, given that DT operates by reducing the amount of harmful stimuli in the environment, it follows that secondary psychopaths would respond well. The second variable etiological characteristic pertains to reward sensitivity; primary psychopaths rate risk-aversion over reward while secondary psychopaths rate reward over risk-aversion. Thus, given that DT provides increasing reward incentives for prosocial behaviour, it follows that secondary psychopaths would respond well. Finally, the last variable etiological characteristic pertains to attachment style. Primary psychopaths have an evolutionarily associated avoidant attachment style while secondary psychopaths have an environmentally determined anxious attachment style - which implies that the former is more resistant to change. Thus, given that DT fosters secure relationships between staff and offenders, it follows that secondary psychopaths would respond well. All together, secondary psychopaths from a Caucasian adult male demographic will show better treatment outcomes via DT due to their environmentally unique, etiological variations in emotional processing, reward sensitivity, and attachment style - relative to their primary counterparts.

Notably, several potential variables may moderate or mediate the link between secondary psychopathy and the treatment outcomes anticipated above. For instance, even if two individuals share a diagnosis of secondary psychopathy, odds are they would differ on at least one sociodemographic parameter such as age, ethnicity, gender, or comorbid mental disorder. For example, compared to male psychopaths, female psychopaths are more likely to be emotionally unstable, relationally manipulative, and embody an unstable self-concept - in addition to being less aggressive, disruptive, domineering, and self-aggrandizing (Douglas et al., 2015). Touching on ethnicity, some researchers believe that only the affect-based deficits of psychopathy are cross-culturally stable (Cooke, Michie, Hart, & Clark, 2005). Meanwhile, other researchers contend that psychopathy measures (e.g. PCL-R) show overall cultural equivalence despite item level differences (Douglas et al., 2015). Unfortunately, provided the current state of the DT literature, it is too premature to make definitive claims as to how exactly these types of variables may impact the treatment process, both theoretically and empirically. This is a large area for future research, and the results of such query will inform additional treatment considerations beyond that of the primary-secondary distinction. Even at that, there have been poor efforts to distinguish between primary and secondary variants to date, despite the fact that this distinction is paramount with respect to treatability (Yildirim & Derksen, 2015). Criminal attitudes and actions can seemingly be reduced in secondary psychopaths through models like DT, which exemplifies a customizable, flexible framework. That said, DT currently has three major limitations.

First, the model has been limited to correctional settings. Thus, there is a premise that secondary psychopaths must be apprehended before they receive this treatment. By extension, this means that DT falls into the category of tertiary prevention. Unlike primary/secondary prevention, tertiary prevention deals with preventing future criminal transgressions once an offender has already offended at least once (Simeonsson, 1991). In other words, tertiary prevention is primarily focused on curtailing criminal recidivism. Tertiary prevention is not the ideal

form of crime prevention as a certain level of harm has already been imposed on society. However, tertiary prevention constitutes a major portion of criminal justice system activities, and to assume in modern society that all crime can be entirely prevented before it occurs is a fictitious statement. Moreover, given that psychopaths have egocentric and self-absorbed personality traits, it is highly unlikely that these individuals would seek treatment on their own. Not to mention, detecting psychopathy among lay persons is not an easy undertaking (Skeem, Johansson, Andershed, Kerr, & Loudon, 2007). In theory, since secondary psychopaths display more Cluster B personality features (e.g., irritability, attention-seeking, reactive anger, intense mood swings, poor impulse control) and overt behavioural reactions, it seems like this population would be slightly easier to identify (Skeem et al., 2007). However, even if early identification was possible, the amount of proper treatment resources and time they would receive is questionable. Therefore, although DT is considered tertiary prevention, it still has a place in contemporary correctional programming.

Second, the DT model has one major shortcoming that the available literature fails to explicitly address. Namely, does the displacement of an offender from DT into conventional prison programming reduce or even eliminate the benefits that an offender acquired while in DT? Given that DT is designed for serious offenders, it follows that their criminal sentence is likely to be of a lengthy duration. Consequently, a bountiful amount of time, resources, and monetary means are going to be allocated to a single offender. Further, the problem becomes exacerbated when one considers the total amount of offenders placed in DT programming. Nevertheless, a few possible solutions exist.

First, an indirect solution involves an increase in the amount of DT patients who are either granted parole or statutory release. This would allow certain individuals access back into their communities while simultaneously reducing the resource burden faced by DT. Yet, the odds of this indirect consequence are variable, and hence, not a great solution to the problem. Another, more pragmatic solution is to transfer DT patients to the regular corrections facility of their given

jurisdiction with regular follow-up evaluations taking place thereafter. Forensic psychologists associated with DT could open a case file that contains information about a particular client while that client is undergoing DT. Thereafter, once transferred to regular corrections, the same psychologist could conduct direct interviews with their assigned client, interview other correctional staff or inmates, monitor any available records or security footage, administer self-report measures or other psychological tests, and so forth. Then, the psychologist would rule whether their client should remain in their current corrections environment or return to DT, based on how well their client has adjusted to regular corrections. Finally, a third proposed solution is to restrict DT to small-scale operations. Although the total amount of offenders assigned to DT would be limited, those who are involved in the programming could be thoroughly treated from the beginning to the end of their sentence.

Fittingly, this leads to the third major limitation of the model: the DT literature is largely restricted to small sample sizes. This issue presents a paradox. On the one hand, future research should aim to expand the model and its services without compromising its effectiveness. Yet, on the other hand, given the limited amount of resources that the model has available and the nature of the individuals being treated, it appears as if the expansion of DT is not entirely feasible.

Despite these limitations, DT seemingly presents numerous benefits, with the two most prominent being cost and harm reductions. Secondary psychopaths incur expensive costs in three general, broad domains. The first domain is offender related. Items in this category include criminal justice system costs, incarceration costs, rehabilitation costs, and so forth. The second domain is offence related. Items in this category include residential/commercial/business property damage costs, incivility costs, insurance costs, and so forth. The last domain is victim related. Items in this category include victim service costs, lost time from work costs, physical injury costs, and so forth. Furthermore, particularly in the last domain, it is important to not only consider tangible costs, but also intangible costs (McCollister, French, & Fang, 2010). Attempting to place a

monetary value on pain, suffering, shame, guilt, fear, and so on, can drive costs even higher. Although it seems that these collective costs override those of DT initiatives, future research must verify this.

Additionally, a related issue is that of harm reduction. Secondary psychopaths cause many interpersonal troubles among family, friends, and strangers (Yildirim & Derksen, 2015). Such conduct in turn impacts the recipient in a variety of negative ways. Some recipients may become irritated or frustrated, and try to retaliate against or provoke a secondary psychopath; other recipients may become withdrawn or get taken advantage of by a secondary psychopath; other recipients may become fearful of crime and

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victimization by a secondary psychopath even if their actual risk of being a victim is low. Regardless, without any intervention, secondary psychopaths have the potential to harm both individuals and society as a whole. Thus, DT provides a starting point to mitigate the extent of these damages. Yet, above all, DT offers a robust template to eradicate the notion that psychopathy is completely untreatable. At its core, the model relies on sound principles in order to ameliorate the behaviours, cognitions, and attitudes of the most problematic of offenders. Ultimately, the intervention efficacy of DT for secondary psychopathy appears promising, and hopefully one day, with some modifications, primary psychopaths will similarly benefit.

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# Prosocial Spending and Well-Being: Revisiting a Recollection-Based Paradigm

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## Abstract

In the present research, we replicated a study reported by Aknin et al. (2013) which discovered that recalling a previous purchase made for another individual (*prosocial spending*) led to greater happiness than recalling a previous purchase made for oneself (*personal spending*). We attempted to replicate this finding online with one-thousand nine-hundred fifty Americans as part of a large, preregistered replication report. Upon completing baseline measures of happiness, respondents were randomly assigned to either recall a past spending experience that was prosocial in nature or recall a past spending experience that was personal in nature. Participants then reported their current well-being. Results indicate that, at least in our current application of the recollection paradigm, the emotional benefits of recalling an instance of prosocial spending are not any greater than those of recalling an instance of personal spending, controlling for baseline happiness. Thus, the original result from Aknin et al. (2013) was not replicated. The study's implications, applications, and limitations are discussed. Directions for future research are offered.

*Keywords:* prosocial spending, personal spending, well-being, happiness

## Introduction

Recall a recent purchase where you spent approximately \$20 on yourself. How did you feel afterward? Now, recall a recent purchase where you spent approximately \$20 on someone else. Again, how did you feel afterward? Which spending instance made you happier? According to the body of past research, spending money on others (*prosocial spending*) leads to greater happiness than spending money on oneself (*personal spending*). This finding was reported by Aknin et al. (2013), who examined the causal link between financial generosity and well-being in individuals around the world. These researchers discovered that the emotional rewards of generous spending were larger than those of self-directed spending, whether immediately after the act or upon later recollection. However, several years have passed since this paper was published, and standards for evidentiary value have increased. In an effort to promote psychology's reproducibility, the psychological community is now advocating more stringent procedures, one of which is preregistration. Therefore, taking these new standards into consideration, we re-examine a research question addressed by Aknin et al. (2013) through a large, preregistered replication report.

Evidence for the emotional benefits of financial generosity has been mounting in the literature (e.g., Aknin et al., 2013; Aknin et al., 2011; Anik et al., 2013; Geenen et al., 2014; for a review and meta-analysis, see Curry et al., 2018). One of the earliest papers was by Dunn et al. (2008), which reported that prosocial spending engenders greater happiness than personal spending. This result has been replicated and expanded to diverse regions of the world by Aknin et al. (2013), who found converging evidence that the link between prosocial spending and happiness may be a cross-cultural universal. Indeed, this link was uncovered in 120 countries, rich and poor alike (Study 1), and in countries as varied as Canada, Uganda, India, and South Africa (Studies 2a, 2b, and 3). Both the immediate and the recall benefits of prosocial spending were examined in Aknin et al.'s (2013) paper via two designs: the goody bag paradigm (Study 3) and the recollection paradigm (Study 2a). In their goody bag study, Aknin and colleagues (2013) found that participants who were randomly assigned to purchase a goody bag for charity reported higher levels of happiness than participants assigned to purchase a goody bag for themselves. Hence, the goody bag paradigm captures the immediate emotional rewards of

generous spending. In the recollection study, it was discovered that simply recalling an instance of generous spending led to greater happiness than when recalling an instance of spending on oneself, which suggests that the emotional benefits of generous spending are even detectable upon reflection (Aknin et al., 2013). The impetus behind Aknin et al.'s (2013) research was to determine whether the link between prosocial spending and well-being is a psychological universal. (The terms "well-being" and "happiness" are utilized as synonyms in the current article.) Psychological universals are "core mental attributes shared by humans everywhere" (Aknin et al., 2013, p. 2). Past studies (e.g., Anik et al., 2013; Dunn et al., 2008; Geenen et al., 2014), which have been conducted primarily in affluent countries, but not less affluent ones, failed to provide an adequate answer regarding universality. Yet the answer may be affirmative for theoretical reasons. According to evolutionary theory, prosocial behaviour may have promoted the flourishing of human societies in the past and therefore evolved to engender happiness in virtually all cultures today:

[T]he evolution of altruistic behavior was essential in producing the large-scale social cooperation that allowed early human groups to thrive...If the capacity for generosity favored survival in our evolutionary past, it is possible that engaging in generous behavior might produce consistent, positive feelings across diverse cultural contexts. (Aknin et al., 2013, p. 2)

As with altruistic behaviours in general, prosocial spending may induce positive emotions in the benefactor in cultures around the world. Aknin et al. (2013) theorized that this relationship is not merely widespread, but a psychological universal. There was empirical evidence for this: The authors provided a review of past studies—studies involving subjects as diverse as young children, adults, chimpanzees, and regions of the brain—that indirectly supported a universal link between prosocial spending and well-being. However, there was also a reason to believe that the derivation of positive emotions from prosocial spending is *not* a psychological universal. Although the emotional benefits of prosocial spending are evident in wealthy countries, individuals in poorer countries may be more focused on meeting basic needs, which could be threatened if the individual were to spend their limited resources on others. In this case, the emotional benefits of prosocial spending would be reduced. It was upon these theoretical and

empirical bases that Aknin and colleagues conducted the research that is presently being replicated. These researchers' findings indicated that, quite likely, the link between prosocial spending and happiness is indeed a psychological universal, resolving the two competing hypotheses outlined above.

Over the better part of the last decade there has been growing concern of a "replicability crisis" in psychology that has cast doubt on the veracity of many empirical claims. Indeed, a recent large-scale investigation attempted to replicate 100 experimental and correlational psychological findings published in 2008 and reported a 47.4% replication success rate (Open Science Collaboration, 2015). This replicability crisis was perhaps fueled by the alarmingly high rates of false positives in psychology; as Simmons et al. (2011) note, "It is unacceptably easy to publish 'statistically significant' evidence consistent with *any* hypothesis" (p. 1359; original emphasis), including an erroneous research hypothesis. The culprit behind false positives, the authors explain, is what they term *researcher degrees of freedom*, which include flexibility in the following: choosing among dependent variables, choosing sample size, using covariates, or reporting subsets of experimental conditions (Simmons et al., 2011, p. 1360). When this flexibility is exploited, it amounts to a questionable research practice (QRP), which is arguably quite prevalent among psychologists today (John et al., 2012). In fact, QRPs may comprise the de facto norm in psychological research, serving to insidiously render psychological science disreputable while hindering our quest for truth.

In response, new methods have been suggested to reduce researcher degrees of freedom and, in turn, promote more transparent and reproducible science. A main solution adopted by the field, which we also implemented, is preregistration: specifying the details such as the research question and analysis plans prior to data analysis (Nosek et al., 2018). What we aim to do is to conduct a preregistered replication of a seminal finding in psychology. By preregistering and replicating, we are effectively minimizing our own flexibility and taking ownership of our own findings—what Pashler and De Ruiter (2017) label *investigator accountability*. Furthermore, in addition to undertaking a preregistered replication, notably, we are also using a large sample size that is nearly 2.5 times the sample size of the original study. Findings emerging from small samples may be skewed or inaccurate, compounding the replicability crisis, and up until recently researchers habitually relied on smaller

samples (Aknin et al., 2019). In our replication, we ensured that our sample size was sufficiently powered to detect a small effect and provide an accurate estimate of the effect. We have preregistered our study question, sample size, methods, and analyses, for greater transparency. The original result that we attempt to replicate was reported by Aknin et al. (2013). Since its publication, this article has been applied broadly, and remarkably so: According to the main author (L. Aknin, personal communication, June 24, 2019), its findings have been reported in textbooks, used to inform government policies in some countries, and cited hundreds of times in various articles. Most likely, then, this paper has made an impact and its findings may be valuable. Thus, in light of recent concerns regarding the replicability crisis gaining traction in psychology, it seems worthwhile to revisit this work and attempt a replication. A replication may offer further support for a valuable finding. Therefore, we submit the recollection paradigm to a further test in the present paper in order to ascertain that using a larger sample and having preregistered our analysis plans beforehand, the results will still hold. We predicted that, consistent with previous findings reported in past research by Aknin et al. (2013, Study 2a), participants randomly assigned to recall a time they spent money on others would report greater happiness than participants randomly assigned to recall a time they spent money on themselves, controlling for baseline happiness.

## Methods

### Participants

Participants were recruited through Qualtrics from the general population. A final sample of one-thousand nine-hundred fifty Americans ( $M_{age} = 42.7$  years,  $SD = 15.2$ , range = 14-90; 68.7% female) participated in exchange for gift certificates and credit vouchers. This sample size was determined by an a priori power analysis to ensure we had enough statistical power to detect a small effect ( $d = .15$ ) at 95% power with alpha set to .05 using a one-tailed test.

### Procedure

Replicating Aknin et al.'s (2013) recollection paradigm, participants first reported their baseline levels of well-being assessed via two questions: "Do you feel happy right now?" (a state measure of happiness; 1 = *Not at all* to 5 = *Extremely*) and "In general, I consider myself..." with responses ranging from 1 = *Not a very happy person* to 7 = *A very happy person* (a trait measure of happiness). States are temporary and short-term



whereas traits are enduring and long-term. The questions above were embedded within other questions to disguise our interest in happiness. Because these two measures were highly correlated,  $r(1948) = .60$ ,  $p < .001$ , baseline happiness was then computed by standardizing and averaging the two measures to create a composite.

After completing these initial measures, participants were randomly assigned to recall and write about a recent purchase where they had spent \$20 either on themselves (*personal spending condition*) or on others (*prosocial spending condition*). The recall prompts were to “Please think back to and describe as vividly and in as much detail as possible the last time you spent approximately \$20” followed by either “on yourself” or “on someone else.” This was equivalent to Aknin et al.’s (2013) original methods. However, one difference between the original and present studies was in the mode of survey administration: Participants in the original study completed the survey in person while participants in the present study completed the survey online. An online survey method confers numerous benefits—expediency, economy, and speed among them—and with its use, the present study captured these advantages.

### Measures

After recalling the spending memory, participants reported their momentary post-recollection subjective well-being on the Positive Affect and Negative Affect Scales, including the key word “happy” as one of the items (PANAS; Watson et al., 1988;  $\alpha = .93$ ) and the Scale of Positive and Negative Experience (SPANE; Diener et al., 2009;  $\alpha = .92$ ). The PANAS was computed by taking the average of the 10 positive affect items together with “happy,” and the SPANE was the sum of the 6 positive affect items. Notably, these scales were used in place of the Subjective Happiness Scale (SHS; Lyubomirsky & Lepper, 1999) that was utilized by Aknin et al. (2013)—a key point of divergence between the present and original studies. This change was made as our manipulation was projected to influence momentary state, but not enduring trait, levels of subjective well-being; the SHS is a measure of the latter and the scales used here are measures of the former and therefore more appropriate for our purposes. Of note, reasons for employing the SHS over other scales were not explicitly elucidated by Aknin et al. (2013). The SHS has the benefit of being a brief measure (containing only four items) and has been utilized widely around the world, and perhaps it was for

these reasons that the SHS was utilized by the original authors—unfortunately, the exact reasons are unclear. Regardless of the scales used, the construct being measured—well-being—was essentially the same across the two studies. Differences in the scales were not anticipated to significantly hinder our endeavour to replicate. Lastly, basic demographic information (age, gender, ethnicity, and income) was collected. Following data collection, two research assistants examined participant responses to the recall prompts and noted irrelevant, non-purchase related responses to exclude from analyses.

### Results

We predicted that participants randomly assigned to recall a time they spent money on others would be happier than those who recalled a time they spent money on themselves. We tested this hypothesis with the following pre-registered analyses. First, we employed an analysis of covariance (ANCOVA) to compare happiness levels on the PANAS (with the addition of “happy”) across conditions while controlling for baseline happiness. Contrary to predictions, results showed no significant main effect of spending type, as participants in the prosocial spending condition ( $M = 3.10$ ,  $SD = .90$ ) were not significantly happier than participants in the personal spending condition ( $M = 3.08$ ,  $SD = .91$ ),  $F(1, 1943) = .457$ ,  $p = .499$ . Second, we employed an ANCOVA to compare happiness levels on the SPANE across conditions while controlling for baseline happiness. Again, results indicated no significant main effect of spending type, as participants in the prosocial spending condition ( $M = 19.93$ ,  $SD = 6.01$ ) were not significantly happier than participants in the personal spending condition ( $M = 19.99$ ,  $SD = 5.93$ ),  $F(1, 1944) = .118$ ,  $p = .732$ . Therefore, participants randomly assigned to recall a purchase made for someone else did not report greater happiness than participants randomly assigned to recall a purchase made for themselves.

### Discussion

The current study presents a preregistered replication of the research conducted by Aknin et al. (2013). Among a large online sample of Americans, we did not find evidence that participants recalling an instance of prosocial spending reported greater emotional rewards than participants recalling an instance of personal spending. This outcome conflicts with past results from Aknin et al. (2013), who found that recollections of prosocial spending confer greater

happiness than recollections of personal spending.

The current findings present some challenges to past research. Prior to our replication endeavour, the literature had mostly been in agreement: Prosocial spending was found to generate greater happiness than personal spending, even if the effect was not large, but small-to-medium (Curry et al., 2018). Our study witnessed no such effect. This may raise some concerns regarding past research, such as the use of smaller samples, the presence of researcher degrees of freedom, or other aspects of the methods employed. As such, this work helps to refine the underlying theory regarding when this effect is detectable. In the original research by Aknin et al. (2013), recollection is involved in only one study design; the other study design, the goody bag paradigm, has been left unscathed. This latter paradigm revealed the emotional rewards of prosocial spending immediately after the generous act. Hence, the act of engaging in generosity may still boost happiness in the moment, although merely reflecting upon past instances of generosity may not boost happiness. Our findings do not indicate that financial generosity will not impact happiness; they do not necessarily speak to the overall emotional benefits of prosocial spending. The null effect that we observed here has practical applications. Critically, our findings, in combination with past research, underscore the need to partake in actual prosocial spending to derive its immediate emotional rewards. Indeed, because prosocial spending has such an emotional impact in the moment (Aknin et al., 2013, Study 3) while reflecting upon an instance appears to have no significant emotional impact, perhaps we should actively spend on others to experience the warm glow of giving—not merely doing a single kind deed some time ago and replaying that single event in one’s mind, as this is not an effective strategy to boost happiness.

A number of limitations should be considered. First, although participants were asked to “think back to and describe as vividly and in as much detail as possible” a past purchase, participants rarely adhered to these instructions. In fact, some responses were brief (e.g., “food,” “birthday,” “getting gasoline,” and “i bought cigs”) with no elaboration as to how the events unfolded. Detailed recollections are important because emotional differences may only be detectable if and when spending experiences are relived. We endeavoured to exclude irrelevant, non-purchase related responses from our analyses, but unfortunately the quality of the responses we did

analyse was still not ideal. The amount of spelling and grammar errors present, as well as the brevity of the responses, indicate that very little thought was involved in the response process. Thus the two factors that were found by previous research (Strack et al., 1985) to determine whether reminiscing about the past elicits affect—participants describing the events vividly and in detail, and participants describing how the events occurred rather than why they occurred—were absent in our study. To account for this, perhaps the online environment conferred upon the participants a sense of imperviousness to scrutiny and psychological distance from our experiment. When completing a questionnaire in person, the setting is less impersonal and thus participants may be more invested in providing elaborate accounts as requested. The original study by Aknin et al. (2013) used such an in-person survey method and found that their manipulation had an effect. Interestingly, another recollection study by Aknin et al. (2013, Study 2b) was carried out online, but here the manipulation nonetheless had an effect. Hence the online method is not inherently problematic. Perhaps future research could encourage deeper engagement with the recollection activity by some other means, such as imposing a minimum response time or character count for responses.

Additionally, our study was limited by the timing of our survey, which was right after Mother’s Day. This may have led participants to give knee-jerk responses that were not all that thoughtful or to recall an instance of generous spending that was not freely made. For example, a number of survey responses mentioned a purchase for Mother’s Day. However, purchases made for this day are often obligatory and this obligation could be resented, resulting in diminished happiness when recollecting the experience. Past research suggests that feeling obligated to act prosocially is negatively related to well-being (Rinner et al., 2022; Weinstein & Ryan, 2010). Furthermore, the recent memory of Mother’s Day would be highly salient, and no reflection would be necessary to recall the purchase, reducing the amount of thought poured into remembering the past spending activity and reducing its emotional effects in turn. Future research could avoid these complications by implementing their surveys at a date sufficiently far from Mother’s Day, Christmas, Valentine’s Day, and so forth, where gift giving is the norm.

Another limitation is that our study asked participants to report their current well-being, not how they felt at the time of their purchase. Although measuring current emotion has some

benefits (e.g., Kahneman, 1999), asking participants to report their current well-being may have provided an overly conservative test because this does not rely on deeply engaged recollections. It is likely that the emotional consequences of personal and prosocial spending are most distinct immediately after the purchase, and that upon delay, the emotional consequences become diluted. Even reporting how one feels in general, as was requested by Aknin et al. (2013, Study 2a), involves considering both present *and* past feelings. It requires retrospective reflection on one's feelings in the past that brings the participant closer to the spending experience. In short, it may be a tall order to expect that simply recalling a purchase one made possibly months ago would significantly influence mood in the present. Instead, a more direct test of the research question may be using recollections to examine how personal and prosocial spending led to different levels of well-being *at the time of purchase*, an approach that could be adopted for future research. This approach may better uncover the effects of purchase type as spending activities are thought to influence well-being more potently at the time of purchase.

#### **Conclusion**

Contrary to previous research, recalling a past instance of generous spending does not

appear to impart greater hedonic benefits than recalling a past instance of self-directed spending. There are a number of admittedly post hoc reasons that may have been the case. For instance, we used state measures of current happiness; the original study by Aknin et al. (2013) used trait measures of happiness. We compared samples from the general population; the original study compared samples of university students. We launched our survey days after a holiday where gifting was expected; the original researchers launched their survey at a more ordinary time. Our survey was completed online; the original survey was completed in person. Regardless of the reason, as the data currently stand, it seems that recalled acts of prosocial spending do not lead to a higher degree of happiness than recalled acts of personal spending. The results raise important questions about the nuances of the recollection paradigm in assessing the aftereffects of prosocial spending, but perhaps the effect is in fact detectable if we can encourage better recollections. At present, this is unclear. However, the possibility offers an exciting route for future research to probe into the limitations mentioned above and elucidate the impact of prosocial spending—a fundamental human virtue—on a fundamental human experience: happiness.

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## **Emotion Regulation as a Risk Factor for Suicidal Thoughts and Behaviors in Adolescents Engaging in NSSI**

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### **Abstract**

Suicidal behaviours amongst adolescents represents a major health concern. Adolescence embodies a particularly sensitive time period in which increased self-harm and suicidal thoughts and behaviours (STBs) are evidenced. Specifically, emotion dysregulation in adolescents is linked to a higher likelihood of STBs, particularly suicide ideation and NSSI (nonsuicidal self-injury). Notably, the adolescent population exhibits the highest rates of NSSI, which is one of the strongest predictors of suicide ideation and attempted suicide. As such, NSSI can serve as both a precursor and cooccurring behavior with respect to STBs. Nonetheless, a gold standard treatment for treating adolescents exhibiting emotion dysregulation and engagement in NSSI has yet to be established. This paper discusses the critical role of emotion regulation as a risk factor for adolescent engagement in NSSI and subsequent STBs. In particular, improving emotion regulation skills should be the primary focus of treatment for adolescents engaging in NSSI in order to reduce STBs. To support this assertion, the link between adolescent emotion dysregulation and NSSI will be examined with respect to increased STBs, emotional self-efficacy and the acquired capability for suicide.

*Keywords:* adolescence; emotion regulation; STBs; NSSI; acquired capability; DBT

Emotion regulation constitutes a set of intrinsic and extrinsic regulatory processes responsible for maintaining emotional equilibrium and ensuring psychological wellbeing (Ong & Thompson, 2018; Loevaas et al., 2018). While encompassing a broad domain of processes, emotion regulation is characterized by emotional awareness and the management of emotional responses using regulation strategies (De Berardis et al., 2020). Particularly, emotion regulation involves adaptive strategies including problem-solving and positive reappraisal, and maladaptive strategies such as self-blame and rumination (Theurel & Gentaz, 2018). Successful emotion regulation is determined by the ability to confront situational demands by utilizing adaptive emotional responses including conscious awareness, monitoring, understanding, evaluating and actively modifying emotions (Theurel & Gentaz, 2018; Loevaas et al., 2018; Grant et al., 2018).

Research has shown that emotion regulation is particularly important during adolescence (ages 12-17) (De Berardis et al., 2020). Adolescence is a period characterized by rapidly changing and intense emotional states and thus embodies a high-risk period for the development of psychopathology (De Berardis et al., 2020). The consistent inability to adequately counterbalance negative emotional reactions with positive emotions contributes to dysfunctional emotion regulation (De Berardis et al., 2020). Untreated emotion dysregulation in adolescents is associated with a range of issues, most notably, non-suicidal self-injury (NSSI) (Heffer & Willoughby, 2018). Typically beginning during mid-adolescence, NSSI is the intentional destruction or harm of one's bodily tissue in the absence of suicidal intent (Heffer & Willoughby, 2018; Buelens et al., 2019). Together, NSSI and suicidal behaviour are categorized as self-injurious behaviours in which individuals directly and intentionally inflict harm upon themselves (Nock et al., 2006). However, it should be noted that the aforementioned behaviours exemplify distinct disorders as established by diagnostic criteria within the DSM-5 (Chartrand et al., 2015). The emotion regulation model of NSSI holds that self-harm can function as a form of emotion regulation wherein physical pain serves to reduce emotional pain (Zhou et al., 2020). According to researchers, adolescent emotional dysregulation elicits engagement in NSSI as well as suicidal behaviour (Buelens et al., 2019). Between 40% and 85% of individuals performing NSSI also report having attempted suicide (Chesin et al., 2017). This is concerning given that the second

largest contributor to death amongst adolescents is suicide (Statistics Canada, 2021).

The role of emotion regulation in promoting STBs can further be understood with respect to the interpersonal theory of suicide (IPTS) (Van Orden et al., 2010; Per et al., 2022). According to the IPTS, three key elements are integral to suicidal behaviour: thwarted belongingness, stemming from unfulfilled social connectedness; perceived burdensomeness, perpetuated by low self-esteem; and acquired capability, implicating reduced fear of death and increased pain tolerance (Van Orden et al., 2010). The former two aspects pertain to the desire to attempt suicide whereas the latter aspect concerns capability to act (Van Orden et al., 2010). This analysis will focus on the third. Acquired capability is a necessary component in the transition from suicide ideation to suicide attempts, as illustrated within the ideation-to-action framework (Klonsky & May, 2015). Acquired capability can be fostered by habituation of painful and provocative events (PPEs) (Burke et al., 2018). PPEs are largely characterized by repetitive self-injury, as evidenced in NSSI, and represent a driving force of suicidal behavior (Burke et al., 2018). Accordingly, acquired capability serves to elucidate the progression of NSSI to suicide attempts in adolescents (Klonsky & May, 2015).

Ultimately, adolescents exhibiting unaddressed emotion dysregulation may turn to NSSI which successively elevates STBs (Buelens et al., 2019; Heffer & Willoughby, 2018). This underscores the importance of emotion regulation as a critical target within adolescent treatment interventions (Zhou et al., 2020). Currently, researchers have not acknowledged a gold standard treatment for adolescents exhibiting emotion dysregulation and NSSI (Wolff et al., 2019; Turner et al., 2014). A growing body of research highlights the vital role of emotion regulation in adolescent psychopathology which has incited the inclusion of emotion regulation within some treatment interventions (Moltrecht et al., 2020; Bjureberg et al., 2018; Zhou et al., 2020). For instance, individual/group supportive therapy (IGST), mindfulness-based cognitive therapy and compassion focused therapy (CFT) implicate varying degrees of emotion regulation (Deplus et al., 2016; Adrian et al., 2019; Van Vliet & Kalnins, 2011). In addition, Dialectical Behavioural Therapy (DBT) is a particularly promising intervention (Midkiff et al., 2018). DBT centers treatment efforts on addressing emotion regulation and coping skills amongst adolescents to attenuate NSSI and suicide risk (Midkiff et al.,

2018; Hatkevich et al., 2019). Although DBT may be effective for facilitating emotion regulation in adolescents, its origins are grounded in supporting adults with borderline personality disorder and thus lacks specified treatment outcomes solely catered to emotion regulation in adolescents (Cavicchioli et al., 2019).

Current interventions developed for adolescent emotion dysregulation and NSSI neglect to consider the multifaceted role of emotion regulation in provoking NSSI and STBs. Accordingly, improving emotion regulation skills should be the primary focus of treatment for adolescents engaging in NSSI, in order to reduce STBs. To support this assertion, the link between adolescent emotion dysregulation and NSSI will be examined with respect to increased STBs, emotional self-efficacy and the acquired capability for suicide.

### **The Link Between Emotion Dysregulation and NSSI**

According to researchers, individuals experiencing difficulty exercising emotion regulation exhibit increased frequencies of NSSI (Midkiff et al., 2018). This supports the notion that emotion dysregulation in adolescents fosters engagement in NSSI (Turner et al. 2014). As NSSI involves self-harm in the absence of suicidal intent, adolescents largely employ methods of low-lethality to avoid enacting detrimental injuries requiring medical attention (Kiekens et al., 2018). In particular, NSSI typically constitutes socially unacceptable behaviours including burning, self-hitting, scratching and skin-cutting (Kiekens et al., 2018; Turner et al., 2014). NSSI can serve varying functions for individuals, therefore diverse reasons may account for adolescent performance of NSSI (Buelens et al., 2019). The most commonly cited function of NSSI amongst adolescents is alleviating overwhelming negative emotions, such as anxiety and anger (Klonsky et al., 2014). With this, negative emotionality and emotional distress constitute the precipitating factors of NSSI (Buelens et al., 2019). Research reveals that performing NSSI following overwhelming negative emotions effectively reduces negative emotionality while eliciting relief (Klonsky, 2014). Thus, adolescents struggling to exercise emotion regulation resort to NSSI when confronted with overwhelming negative emotions (Buelens et al., 2019).

The persistence of such unaddressed emotional imbalances results in emotion dysregulation, which facilitates the long-term adoption of maladaptive emotion regulation strategies such as NSSI (De Berardis et al.,

2020). However, prolonged engagement in NSSI in the absence of healthy coping mechanisms can result in NSSI becoming ineffective (Taliaferro et al., 2019). Consequently, adolescents seek alternative means to elicit relief and may adopt self-harm methods exhibiting high lethality, thus increasing suicide risk (Taliaferro et al., 2019).

Research supports the notion that NSSI is one the strongest predictors of the transition from suicide ideation to suicide attempts in adults (Glenn et al., 2017; Mars et al., 2019). Moreover, NSSI is a greater predictor of suicide attempts than hopelessness, symptoms of borderline personality disorder and depressive symptoms (Taliaferro et al., 2019). This reinforces the strength of the relationship between NSSI and STBs (Taliaferro et al., 2019). Together, these findings illuminate the overlap between emotion dysregulation and NSSI, and the resulting relationship between NSSI and STBs (Taliaferro et al., 2019; Glenn et al., 2017; Mars et al., 2019).

These findings hold considerable implications for addressing STBs within treatment (Taliaferro et al., 2019; Glenn et al., 2017; Mars et al., 2019). Addressing emotion regulation within treatment is a fundamental first step in ascertaining adolescents are equipped with the adaptive mechanisms necessary to manage negative emotionality (Mars et al., 2019). In this way, treatment interventions will attenuate maladaptive behaviours, namely NSSI, which is the contributing factor in the transition from NSSI to suicide attempts thus reducing STBs (Mars et al., 2019). Notably, DBT interventions geared toward adolescents display marked decreases in emotion dysregulation, NSSI and suicide ideation (MacPherson et al., 2013). Emotion dysregulation in adolescents fosters elevated NSSI and the consequent escalation to STBs and thus should be prioritized to reduce STBs.

### **The Role of Emotional Self-Efficacy**

Adolescents perform NSSI primarily to achieve emotional stability and relief during instances of negative emotionality (Midkiff et al., 2018). As such, adolescent engagement in NSSI stems from a perceived inability to manage and exert control over negative emotions (Andover & Morris, 2014). This suggests that emotion regulation exists on a continuum that determines the recurrence of NSSI (Midkiff et al., 2018). Low levels of emotional self-efficacy in adolescents elicit feelings of hopelessness and psychological pain which are significant predictors of increased suicide ideation (Rajappa et al., 2012). Accordingly, interventions focused on teaching adolescents specific emotion regulation skills

should be implicated in treatment (Rajappa et al., 2012; Valois et al., 2013).

Emotional self-efficacy, a construct of emotion regulation, refers to individuals' perceived capability of enacting emotion regulation to cope with distress (Midkiff et al., 2018). In practice the effects of emotional self-efficacy involve both avoiding negative emotionality as well as attempting to recover from emotional distress (Valois et al., 2013). Nonetheless, adolescents with diminished emotional self-efficacy lack the adaptive emotion regulation strategies needed to cope with negative emotionality (Valois et al., 2015). This elicits psychological pain and hopelessness, resulting in adolescents seeking alternative coping mechanisms such as NSSI (Klonsky & May, 2015; Midkiff et al., 2018).

According to Klonsky and May (2015), the impact of such psychological pain and hopelessness can be understood by examining their intricate relationship. The authors assert that in isolation, day-to-day psychological pain can be accompanied by hope that the situation can improve and one day pain will be alleviated. However, they suggest psychological pain alone is not sufficient to elicit suicide ideation. Conversely, the authors support the notion that psychological pain in concert with hopelessness can diminish such optimism. In addition, they suggest that when psychological pain dominates one's daily life, the hope of pain diminishing is abandoned and replaced by feelings of hopelessness which leads to the consideration of suicide. With this, the combination of psychological pain and hopelessness are instrumental in eliciting suicide ideation. In these circumstances, adolescents may perceive suicidal thoughts to be the most effective problem-solving method to escape stressors and the accompanying negative emotions (Hatkevich et al., 2019). Together these findings highlight that limited access to emotion regulation strategies, specifically, low emotional self-efficacy, significantly predicts suicide ideation which is mediated by hopelessness and psychological pain (Valois et al., 2015; Midkiff et al., 2018; Klonsky & May, 2015). Evidently, diminished emotional self-efficacy alongside psychological pain and hopelessness are markedly predictive of suicide ideation thus provide specific targets to be addressed in treatment (Rajappa et al., 2012; Klonsky & May, 2015).

With this, Dialectical Behavioural Therapy (DBT) offers an evidence-based approach that specifically concentrates treatment

efforts on addressing emotion regulation and problem-solving skills in order to attenuate suicide risk (Midkiff et al., 2018; Hatkevich et al., 2019). Although DBT is primarily used to treat borderline personality disorder, similarly, the underlying issues are rooted in emotion dysregulation and thus can be effective for treating emotion regulation alone (Berk et al., 2019). As NSSI stems from emotion dysregulation, decreases in NSSI should also be evidenced following DBT (Midkiff et al., 2018). For instance, one study utilized a DBT approach catered to adolescents, comprising four adult DBT modules alongside an additional module specifically for adolescents (Berk et al., 2019). The results revealed that DBT treatment effectively decreased emotion dysregulation and impulsivity and elevated reasons for living (Berk et al., 2019). Thus, DBT interventions focused on teaching adolescents' specific emotion regulation skills can enhance emotional coping skills whilst decreasing maladaptive coping techniques such as NSSI (Berk et al., 2019). Evidently, reduced emotional self-efficacy mediated by hopelessness and psychological pain, increase suicide ideation in adolescents.

#### **Elevated Acquired Capability for Suicide**

Emotion dysregulation and the associated propensity to engage in NSSI elevates the acquired capability to attempt suicide (Van Orden et al., 2010). The acquired capability for suicide embodies an essential factor in predicting suicide attempts within the IPTS and the ideation-to-action framework (Van Orden et al., 2010; Klonsky & May, 2015).

As per the IPTS, individuals must first become conditioned to suicidal behaviours, particularly, by reducing their fear of suicide and by exhibiting a heightened pain tolerance (Van Orden et al., 2010). Suicide ideation in isolation is not predictive of suicide attempts, rather, suicide ideation in combination with reduced fear of suicide must be evidenced (Van Orden et al., 2010). Moreover, given that death by suicide involves painful and lethal methods, an elevated pain tolerance is also necessary in predicting suicide attempts (Van Orden et al., 2010).

The IPTS further highlights the role of habituation in developing the acquired capability for suicide (Van Orden et al., 2010). Habituation is based upon opponent process theory, wherein a strengthening of opponent processes occurs (Van Orden et al., 2010). Specifically, repeated exposure to a stimulus results in the emotional effects of the opposite process becoming exaggerated, whilst the primary emotional effects maintain stability (Van Orden et al., 2010). For



instance, the initial response to cutting oneself is likely to be fear and pain, however following repeated exposure and engagement in the behaviour, the primary process effects of fear remain stable while the opponent processes effects of emotional release become exaggerated (Van Orden et al., 2010). In turn, reduced fear characterizes the net emotional response of this process (Van Orden et al., 2010). Moreover, habituation is also manifested in PPEs (Burke et al., 2018). Thus, NSSI is a crucial PPE that fosters the key elements of developing the acquired capability and therefore the capacity for suicide including, reduced fear of death, enhanced pain tolerance and habituation (Burke et al., 2018). Additionally, acquired capability serves as a critical factor implicated in the transition from suicide ideation to suicide attempts within the ideation-to-action framework, thus reinforcing the role of NSSI in increased STBs (Klonsky & May, 2015). As evidenced, emotion dysregulation heightens adolescent engagement in NSSI, a critical PPE, that fosters the acquired capability for suicide. Thus, emotion dysregulation by way of NSSI, supports the psychological mechanisms necessary to transition adolescents from suicide ideation to suicide attempt. As such, treatment catered to suicide ideators should occur within a DBT approach emphasizing emotion regulation. In turn, maladaptive coping strategies, namely, NSSI will be discontinued as will the potential transition from suicide ideation to suicide attempt.

#### **Potential Limitations of Targeting Emotion Regulation within a DBT Framework**

According to Gonzales and Bergstrom (2013), as compared to treatment as usual (TAU), DBT does not exhibit elevated efficacy in reducing NSSI. Specifically, one study examining a pediatric population revealed reductions in NSSI one year post treatment, equivalent to those resulting from TAU (Gonzales & Bergstrom, 2013). DBT may be effective for facilitating emotion regulation and thus reducing subsequent NSSI in adolescents, however its origins are grounded in supporting adults with borderline personality disorder (Cavicchioli et al., 2019). Consequently, the DBT framework lacks specified treatment interventions specifically geared toward targeting emotion regulation for adolescents engaging in NSSI (Cavicchioli et al., 2019). Moreover, DBT may not be feasible for adolescents in a hospital setting as one of the main components of DBT involves generalizing learned skills to daily life (Cavicchioli et al., 2019). Thus, DBT does not exhibit equal efficacy across settings, and is generally more beneficial in

outpatient settings (Cavicchioli et al., 2019). Nevertheless, DBT still remains both feasible and effective albeit to a slightly lesser degree, as accommodations can be made within the DBT framework. That is, DBT exemplifies a relatively flexible framework as it has been adapted from its original establishment to be utilized in numerous contexts (Hatkevich et al., 2019). However, applying a DBT treatment approach to adolescents engaging in NSSI neither prioritizes emotion regulation, NSSI or their complex interplay (Hatkevich et al., 2019; Cavicchioli et al., 2019).

#### **Future Directions**

This paper demonstrated the importance of interventions focused on emotion regulation in helping adolescents engaging in NSSI and reducing the potential progression to suicidal behavior. As it stands, limited research exists to support the efficacy of DBT in reducing NSSI within the adolescent population, particularly in the long term (Gonzales & Bergstrom, 2013). Nonetheless, the literature supports the notion that DBT holds the potential to reduce the incidence of NSSI in adult populations (Gonzales & Bergstrom, 2013). Accordingly, a DBT framework with an emphasis on emotion regulation can indeed serve as an effective launchpad for future interventions catered towards adolescents engaging in NSSI. However, such interventions should be informed by the IPTS and the three-step theory provided its pivotal role in emotion regulation (Van Orden et al., 2010; Klonsky & May, 2015). Moreover, further research is needed to identify how such interventions can be applied to adolescent minority groups such as cultural minorities (Yeo et al., 2020).

#### **Conclusion**

It is paramount to ensure effective treatment interventions for adolescents performing NSSI given the diverse developmental changes they are experiencing and the heightened risk of developing psychopathology in adolescence. As noted, emotion dysregulation in adolescents contributes to engagement in NSSI thus elevating STBs. Specifically, the prolonged use of NSSI for emotion regulation reduces its effectiveness, subsequently increasing STBs. Moreover, engagement in such maladaptive behaviours is fundamentally grounded in diminished emotional self-efficacy which mediates psychological pain and hopelessness. In turn, this limited access to adaptive emotion regulation strategies elicits the performance of NSSI yielding suicide ideation. Further, emotion dysregulation fosters NSSI

which embodies a critical PPE, thus elevating the acquired capability for suicide. Notably, adolescent treatment within a DBT framework has been seen as efficacious in facilitating healthy emotion regulation, discontinuing NSSI and diminishing STBs, respectively, however a majority of research emphasizes the adult population. Moreover, DBT exhibits potential limitations and may restrict treatment options for adolescents struggling with NSSI and STBs. All things considered, DBT embodies a promising foundation from which tailored treatment interventions can be developed for adolescents engaging in NSSI. Ultimately, by addressing such psychological issues in adolescence, both improved psychosocial functioning and life-long healthy coping mechanisms ensue.

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