MUJSP

MCMASTER UNDERGRADUATE JOURNAL OF **SOCIAL PSYCHOLOGY**

VOL. 6 - NO. 1 - 2025

McMaster Undergraduate Journal of Social Psychology

Address

Kenneth Taylor Hall, Room 212
Social Psychology Program
1280 Main Street West
Hamilton, Ontario L8S 4M4

Email

mujsp@mcmaster.ca

Website

https://journals.mcmaster.ca/mujsp

About Us

The McMaster Undergraduate Journal of Social Psychology is a student-run organization that was founded in 2019 by Namya Tandon, a fourth-year undergraduate student in the Honours Social Psychology program at the time. Dr. Sarah Clancy serves as the faculty supervisor for the journal. She supervises the capstone research projects that Social Psychology students complete during their final year of the program**,** with the exception of the 2024/2025 academic year due to a research leave. In 2024/2025, the capstone research projects were supervised by Dr. Kiersten Dobson. The MUJSP aims to recognize the academic excellence of final year Social Psychology students by providing them with the opportunity to have their own work published in a journal.

Copyright Notice

Acknowledgments

The MUJSP team would like to convey our heartfelt gratitude to everyone who made this year's issue possible. This includes faculty members, the editorial team, and the authors of the featured articles.

Table of Contents

Faculty Foreword **4**

Letter from the Editor **5**

Featured Articles

Attached at the Hinge: Relationship Initiation in Dating Apps **6**
Erin Arruda, Jordan Dubyk, Alyssa Mulholland, Amber O'Pray, Alyssa Ventresca, Jaime White

Beyond the Bubble: McMaster Students' Fear of Crime in Downtown Hamilton **22**
Amanda Atkinson, Anna Wienburg, Sarah Uden, Lisa Mulhall, Ana Stoicheci, Ryen-Mackenzie Cameron

Examining the Moderating Effect of Agreeableness on the Relationship between Forgiveness and Self-Esteem **37**
Joely Bye, Avery Court, Lyla Faroogh, Hannah Guit, Natalie Kovac, Ena Shin

Exploring Parental Responsiveness and Relationship Dynamics Among Young Adults in University **54**
Amelia Burt, Xiwen Zhang, Wanrong Jiang, Hainya Rahman, Ella Proulx, Megan Nerbonne

Friend or Foe? The Impact of Generative AI on Student Academic Motivations **69**
Jason van der Horst, Russell Roberge, Sara Nazemi, Sahel Nazemi, Maxime Gratton

Hermeneutic Empowerment: Centering Disabled Testimony in Faith-Based Accessibility Research and Practice **84**
Emma Albanese, Justin Carriere, Deanna Fraser, James Huh, Honey Starr

Editorial Team

Celebrating our Capstone Students in Social Psychology

A warm welcome and happy reading of the sixth issue of the McMaster Undergraduate Journal of Social Psychology (MUJSP)!

The 2025 editorial team includes returning Editor-in-Chief Ayma Iqbal, as well as returning Assistant Editor Paula Sheron Queiroz. Ayma and Paula are joined by new Assistant Editor Kathryanna Peacock, Graphic Designer Lia Icasiano, and Layout Editors Khushi Goyal and Teodora Uilecan. A very warm welcome and huge thanks to this incredible team! This year, Christina Doan (Co-Assistant Editor), Chelsea Zhang (Layout Editor), and Julia Duguid (Graphic Designer) departed the team. The entire MUJSP team sends best wishes and thanks to all former MUJSP editorial members, continued thanks to returning editorial board members, and extends a warm welcome to all new editorial members of the McMaster Undergraduate Journal of Social Psychology!

This was an odd year as I was on a research leave for part of the 2024/2025 academic year, which made it impossible to teach the 6-unit capstone thesis course. This marked the first time in over a decade that I was not the course instructor and thesis supervisor – it was quite a transition to not teach the course in the past academic year! However, I am very happy to continue to serve as Faculty Advisor and learn about the fascinating research conducted by the students in the capstone course in the 2024/2025 academic year, supervised and mentored by Dr. Kiersten Dobson, CLA in Social Psychology.

I hope you enjoy reading the fascinating social psychological research studies featured in the sixth issue of the McMaster Undergraduate Journal of Social Psychology. As always, the collection of work in this publication showcases the academic excellence and achievements of the students in the Social Psychology Program. The entire editorial board should be commended for their hard work and dedication to the publication of the fifth issue of the McMaster Undergraduate Journal of Social Psychology. I continue to be honoured to work, as Faculty Advisor, alongside intelligent, motivated, dedicated, and inspirational students: Ayma, Paula, Kathryanna, Khushi, Lia, and Teodora, who serve as editorial board members this year, along with the groups who were eligible for publication this year. Congratulations to all involved in the publication of the sixth issue of the McMaster Undergraduate Journal of Social Psychology!

Sincerely and with best wishes,

Dr. Sarah Clancy, PhD
Faculty Advisor, McMaster Undergraduate Journal of Social Psychology
Associate Professor
Honours Social Psychology Program
Department of Health, Aging and Society
McMaster University

Letter from the Editor

Dear MUJSP Readers,

It is my great pleasure to present this year's issue of the *McMaster Undergraduate Journal of Social Psychology* (MUJSP). Now in its sixth year of publication, the MUJSP continues to celebrate and showcase the exceptional research conducted by final-year students in the Honours Social Psychology program.

This year, six theses met the journal's rigorous publication criteria. Together, these projects explore a diverse range of topics— from generative AI and academic integrity to parental responsiveness and relationship dynamics, and the initiation of relationships on dating apps.

As Editor-in-Chief for the second consecutive year, I am truly honoured to share the 2025 issue with you. I would like to express my sincere gratitude to Namya Tandon, the founder and original Editor-in-Chief of the MUJSP, whose vision laid the foundation for this journal. I also wish to thank Linette Sapper, who led the journal in 2023, the year I first joined the MUJSP team as Assistant Editor. Her mentorship and example continue to guide my approach to leadership today.

The publication of this issue would not have been possible without the dedication of our outstanding editorial team. I would like to extend my heartfelt thanks to our Assistant Editors, Paula Sheron Quieroz and Kathryanna Peacock. Paula has been an invaluable contributor for a second year, while Kathryanna has brought fresh insights and enthusiasm as a new member of the team. I also wish to recognize our Layout Editors, Khushi Goyal and Teodora Uilecan, for their hard work and creativity in shaping this issue's final presentation. Additionally, I would like to thank our Graphic Designer, Lia Icasiano, whose fresh vision and design expertise brought a new level of polish to the journal this year. Finally, I extend my deepest appreciation to Dr. Sarah Clancy, our faculty advisor, for her unwavering support, guidance, and commitment to the success of the MUJSP.

On behalf of the entire editorial team, thank you for taking the time to engage with the thoughtful and compelling research featured in the 2025 issue of the MUJSP. We hope you enjoy reading these papers as much as we enjoyed bringing them to publication.

Sincerely,

Ayma Iqbal
Editor-in-Chief

Attached at the *Hinge*: Relationship Initiation in Dating Apps

Erin Arruda[1], Jordan Dubyk[1], Alyssa Mulholland[1], Amber O'Pray[1], Alyssa Ventresca[1], and Jaime White[1]

Abstract

The increased use of online dating apps presents an alternative way for individuals to seek out and initiate relationships that can differ from face-to-face interactions. Previous research has found that attachment orientation can offer insight into the characteristics that lead to differences in behaviour on dating apps. This research aims to explore how undergraduate university students' attachment orientations can influence their initiation of relationships on online dating apps. We hypothesized that participants who score higher in attachment anxiety would be more likely to engage in relationship initiation on dating apps, whereas participants who score higher in attachment avoidance would be less likely to engage in relationship initiation on dating apps. Data was collected from 130 participants currently enrolled in university through a quantitative survey hosted on Qualtrics. Multiple regression analyses found that anxious attachment was significantly associated with greater relationship initiation on dating apps. Dating apps may reflect a unique context that nullifies associations between attachment orientation and initiation behaviours found in previous research. Our findings propose important considerations for future research and encourage further investigation into the influence that attachment orientation can have on the initiation of relationships on online dating apps.

Attached at the *Hinge:* Relationship Initiation in Dating Apps

Previous research has found a correlation between an individual's attachment orientation and their behaviours while initiating or within relationships, including their willingness to make the first move or ask someone out (Hazan & Shaver, 1987; Mikulincer & Shaver, 2016). This study aims to explore the relationship between attachment orientation and relationship initiation behaviours on dating apps. In particular, this study hopes to find distinctions between anxious and avoidant attachment and how this might influence one's likelihood of initiating relationships through dating apps.

Attachment Orientation

Attachment theory, developed by John Bowlby and later expanded by Mary Ainsworth, is widely used in psychology (Ainsworth, 1985; Bowlby, 1969; Mikulincer & Shaver, 2016). Attachment illustrates how an individual's model of self and others develops based on childhood interactions with attachment figures (Mikulincer & Shaver, 2016). While

[1] Undergraduate Student, Honours Social Psychology Program, Faculty of Social Sciences, McMaster University, Hamilton, Ontario, Canada

attachment is a complex spectrum, we specify two main categories for observation, collectively called attachment insecurity: anxious attachment and avoidant attachment. Anxious attachment is characterized by strong worries about relationships, a strong need for closeness, and using hyperactivation strategies (Mikulincer & Shaver, 2016). Avoidant attachment is characterized by maintaining emotional distance from partners and decreasing vulnerability, referred to as deactivation strategies (Mikulincer & Shaver, 2016). When both anxiety and avoidance are low, one would be considered securely attached (Mikulincer & Shaver, 2016).

Attachment Orientation in Young Adults and University Students

Attachment orientations play an important role in determining how we connect and form relationships with one another. Young adulthood is a time of many novel experiences that transition a person into adult attachment orientations (Bartholomew & Horowitz, 1991). Research shows that for this demographic, attachment anxiety tends to be more prevalent compared to the rest of the population (Chopik et al., 2013; Segal et al., 2009). Furthermore, other research has found that individuals who self-reported having an avoidant attachment orientation determinately had more difficulty forming close relationships and relying on others (Bartholomew & Horowitz, 1991). These characteristics of avoidant adolescents are corroborated by Oztürk and Mutlu (2010), whose research found that avoidant university students are not as successful in intimate relationships as their securely attached peers. Students who self-reported having a secure attachment orientation were determined to put in more effort to maintain their romantic relationships and had more willingness to work through issues with their partner rather than break up (Oztürk & Mutlu, 2010). Studies in this field posit that avoidant young adults may use casual sex as a defense mechanism to shield themselves from serious and potentially vulnerable relationships (Bartholomew & Horowitz, 1991; Oztürk & Mutlu, 2010; Snapp et al., 2014). The reason for forming close relationships was primarily due to insecurity and feelings of self-consciousness for avoidant students (Oztürk & Mutlu, 2010; Snapp et al., 2014). When faced with issues within their relationships, both avoidant and anxious students were more likely to break up (Matsuoka et al., 2005; Oztürk & Mutlu, 2010).

Dating App Use by University Students

Given the pivotal role of attachment orientations in shaping relationship behaviours among university students, it is important to consider how these patterns manifest in modern contexts such as dating apps. Dating apps such as *Tinder*, *Hinge*, and *Grindr* foster communication between online users. Whether you “swipe” or “like,” these algorithms promote user satisfaction and retention (Hobbs et al., 2017). Although the intention of all dating app users differs, these applications aim to allow users to browse online profiles and communicate through text messaging systems. Estimations of dating app prevalence are rough, as privacy agreements between many applications do not allow this information to be shared (Wu & Trottier, 2022). In 2019, it was estimated that more than 200 million people worldwide were active users of dating apps (Statista Market Forecast, 2019). Vogels and McClain (2023) reported that, in 2019, three in ten U.S. adults had used a dating application. Current literature often focuses on the effectiveness of dating apps in comparison to non-mobile methods of meeting a partner (Alexopoulos

et al., 2020; Yeo & Fung, 2016). Many elements of dating applications have been considered in studies, such as the use of geolocation (Blackwell et al., 2015), algorithms (Zhang, 2016), and gender and sexual orientation (Castro et al., 2020). Of interest to the current research, the literature has also begun to delve into the connections between attachment and dating app use.

Anxious Attachment and Dating App Usage

Attachment orientation influences how individuals use dating apps, shaping their motivations, behaviours, and emotions (Coffey et al., 2022; Kajzer, 2023). Anxiously attached individuals experience heightened distrust, fear of abandonment, and general anxiety in romantic relationships (Alexopoulos & Timmermans, 2021; Ormonde, 2013). These fears contribute to high rejection sensitivity, making them seek stable partners for reassurance (Ormonde, 2013; Torrence, 2014). Since rejection-sensitive individuals are generally less likely to pursue relationships due to fear of rejection, dating apps provide a favourable format (Alexopoulos & Timmermans, 2021; Chin et al., 2018; Coffey et al., 2022; George, 2024; Kajzer, 2023; Ormonde, 2013; Timmermans & Alexopoulos, 2020). The design of these apps, which only notifies users of matches, helps anxiously attached individuals by concealing rejection and boosting confidence (Alexopoulos & Timmermans, 2021; Chin et al., 2018; Coffey et al., 2022; George, 2024; Kajzer, 2023; Ormonde, 2013; Timmermans & Alexopoulos, 2020).

Anxiously attached individuals are more likely to pursue online relationships, eager for emotional validation and stability (Alexopoulos & Timmermans, 2021; Atkins, 2019; Chin et al., 2018; Goodcase et al., 2018). They also prefer dating apps due to the ability to meet many potential partners quickly, increasing their chances of finding reassurance (Alexopoulos & Timmermans, 2021; Coffey et al., 2022).

Avoidant Attachment and Dating App Usage

Avoidantly attached individuals prefer emotional distance, which influences their dating app behaviours (Alexopoulos & Timmermans, 2021). While some scholars assume they would avoid dating apps to maintain detachment, they still engage in online dating, particularly when travelling, as it provides low-commitment interactions (Chin et al., 2018; Coffey et al., 2022). Studies show avoidant individuals are more likely than anxious or secure users to engage in spontaneous, low-commitment hookups, minimizing emotional intimacy (Alexopoulos & Timmermans, 2021; Atkins, 2019; Timmermans & Alexopoulos, 2020; Torrence, 2014). They also tend to avoid initiating conversations to maintain emotional distance, even when interested in someone (Alexopoulos & Timmermans, 2021; Torrence, 2014).

Avoidant individuals often feel bored, apathetic, or stressed while using dating apps, as online relationships can develop quickly, making them uncomfortable (Torrence, 2014). To prevent emotional bonds, they inhibit self-expression, appear detached, and overemphasize sexuality, leading to more casual encounters than anxious or secure individuals (Alexopoulos & Timmermans, 2021; Coffey et al., 2022; Kajzer, 2023; Torrence, 2014).

Current Research

The rise of online dating apps has transformed how individuals initiate and develop romantic relationships, offering an alternative to traditional face-to-face interactions. While prior research has examined the role of attachment orientation in relationship formation (Hazan & Shaver, 1987; Mikulincer & Shaver, 2016), little is known about how attachment orientations influence behaviours specific to digital dating environments. As discussed, attachment theory suggests that individuals with anxious attachment tendencies seek greater intimacy and reassurance, whereas those with avoidant attachment tendencies may be more hesitant to engage in close relationships (Bartholomew & Horowitz, 1991). Understanding these dynamics in the context of dating apps can offer deeper insight into how individual differences in attachment orientation influence relationship initiation processes.

This research is significant as it contributes to the growing body of literature on online dating behaviours among university students, a population particularly engaged with digital relationship-seeking platforms (Harrison et al., 2022; Smith & Duggan, 2013). By identifying how attachment orientation influences relationship initiation on dating apps, we hope our findings provide valuable implications for both psychological theory and practical applications. For instance, mental health professionals and relationship counsellors could use these insights to support individuals in navigating their attachment orientation through their online dating app behaviours. Additionally, dating app developers may consider incorporating features that cater to users with different attachment orientations to foster healthier online dating experiences. Ultimately, this research aims to deepen the understanding of how dating app technologies influence modern romantic interactions.

By examining attachment orientations in the context of online dating, we can expect correlations between attachment orientations and online dating behaviours. Alexopoulos and Timmermans (2021) found connections between anxious and avoidant attachment and one's online dating confidence. Building on this, we hypothesize that university students who are higher in anxious attachment will be more likely to engage in relationship initiation behaviours on dating apps. Additionally, we expect to find that university students who are higher in avoidant attachment will utilize a more passive approach to dating app usage and will be less likely to engage in relationship initiation behaviours, such as "swiping right" or sending the first message.

Methods

Participants

The participants were 213 university students recruited through an online SONA study, Instagram posts, and physical posters on the McMaster campus. Inclusion in this study required participants to be (a) 18-25 years of age, (b) capable of reading and writing in English fluently, (c) currently in university pursuing an undergraduate, Master's, or PhD degree, and (d) a past or current dating app user. Participants who did not complete the survey or meet these criteria were excluded from the analysis. Of the 212 recruited participants, 83 were excluded; 24 participants did not meet the inclusion criteria, and 58 did not complete the survey. Therefore, the final sample consisted of 130 individuals. Of our participants, 79.2% identified as female, 16.9% identified as male, and 3.8% identified

as non-binary/genderqueer/preferred to self-identify. Participants were an average of 20.5 years old (*SD* = 1.44).

Procedure

On behalf of the student researchers, Dr. Kiersten Dobson received approval for this study from the McMaster Research Ethics Board (MREB). This study was conducted via an online survey hosted by Qualtrics and included 60 quantitative questions. Before beginning the survey, participants were provided with a letter of information, including information about the researchers, possible risks of completing the survey, the right to withdraw consent, and information surrounding confidentiality. Participants were told that the study examined students' attachment orientation concerning dating apps. After consenting to participate, participants completed the 30-minute online survey measuring their anxious and avoidant attachment, dating app behaviours, and relationship initiation on online dating apps. Participants who completed the study through SONA received half a SONA credit (0.5) for their participation, while those who were recruited through alternative methods did not receive compensation.

Measures

Demographics and Screening Questions

Participants first provided demographic information, including their age, gender and current university status. They then answered screening questions assessing English fluency and whether they had ever used online dating apps. Following this, participants were asked if they were current or past dating app users and to specify which apps they had used.

Attachment Orientation

The *Experiences in Close Relationships-Revised* (ECR-R) Questionnaire created by Fraley et al. (2000) measures the extent to which someone is related to attachment anxiety (*M* = 3.80, *SD* = 1.22, α = .92) and attachment avoidance (*M* = 3.13, *SD* = 0.99, α = .93) through 36 items (e.g., “I am afraid I will lose my partner's love”, “My romantic partner makes me doubt myself”). The scale is marked on a 7-point Likert scale (1 = *strongly disagree,* 7 = *strongly agree*), and relevant items are reverse-scored with the average taken across the items of each subscale, such that higher scores indicate higher attachment anxiety or avoidance.

Dating App Behaviours

The Perceived Dating App Behaviours Scale created by Alexopoulos and Timmermans (2020) measures an individual's active engagement on dating apps and the extent to which they engage in them (e.g., “How many dating app profiles do you “like” or “swipe right on” out of every 10 profiles you see?”, “How many conversations do you start for every 10 users you match with?”). The scale consists of three items marked on a scale of 0-10 (e.g., 0 *profiles* or 10 *profiles*) measuring how many profiles on average an individual interacts with (*M* = 3.20, *SD* = 1.45, α = .21). The scale suggests low reliability in measuring participants' dating app behaviours, which may be due to the scale's limited number of questions.

Relationship Initiation

The *Online Relationship Initiation Scale* (ORIS), created by Harris and Aboujaoude (2016), measures an individual's frequency of online relationship initiation using nine self-report items (e.g., “Were you ever looking/hoping to make new friends online?”, “Did you make any new romantic relationships online?”). The first six items are measured on a 5-point scale (1 = *never*, 5 = *frequently*) measuring engagement and perceived success in online relationship initiation (M = 1.92, SD = 1.02, α = .71). The following three items are measured on a 5-point scale (1 = *not at all,* 5 = *much easier*) measuring online vs offline relationship development (M = 2.62, SD = 1.19, α = .61). Higher scores show a greater likelihood of searching for and developing new relationships online.

Participants also answered three “yes or no” questions regarding their relationship initiation behaviours (e.g., “Would you consider yourself someone who often 'swipes right' or 'likes' profiles on dating apps?”, “Would you consider yourself someone who often starts conversations with other people/profiles on dating apps?”, “Would you consider yourself likely to ask a match to meet in person?”). Upon reviewing the data from our other initiation measure, it was determined that this measure was not needed and was therefore excluded from our final data analysis (M = 0.91, SD = 0.94, α = .49).

Results

We present the correlations between key variables in Table 1, examining the relationships among anxious and avoidant attachment orientations, relationship initiation on dating apps and dating app behaviours. Results show a positive correlation between attachment anxiety and attachment avoidance, as well as a positive correlation between dating app behaviours and relationship initiation. No other variables were significantly correlated.

Table 1

Correlation Matrix Among Key Study Variables

		Anxious Attachment	Avoidant Attachment	Online Relationship Initiation Scale (ORIS Scale)	Dating App Behaviours	Relationship InitationQ
Anxious Attachment	Pearson's r	—				
	df	—				
	p-value	—				
Avoidant Attachment	Pearson's r	0.414	—			
	df	98	—			
	p-value	< .001	—			

Online Relationship Initiation Scale (ORIS Scale)	Pearson's r	0.165	-0.138	—		
	df	89	88	—		
	p-value	0.119	0.194	—		
Dating App Behaviours	Pearson's r	0.147	0.076	0.286	—	
	df	105	102	98	—	
	p-value	0.130	0.446	0.004	—	
Relationship InitationQ	Pearson's r	0.012	-0.026	0.155	0.434	—
	df	107	104	99	121	—
	p-value	0.899	0.790	0.122	< .001	—

We conducted a multiple regression model analysis to examine whether anxious and avoidant attachment orientations predicted relationship initiation on dating apps among university students. The independent variables ($F(2, 83) = 3.09$, $p = 0.05$) accounted for 7% of the variance in relationship initiation. Table 3 shows that anxious attachment significantly predicted relationship initiation on dating apps ($b = .19$, $t(130) = 2.31$, $p = 0.023$), whereas avoidant attachment did not ($b = -.18$, $t(130) = -1.76$, $p = 0.082$).

Table 2

Model Fit Measures

			Overall Model Test			
Model	**R**	**R^2**	**F**	**df1**	**df2**	**p**
1	0.263	0.0692	3.09	2	83	0.051

Table 3

Model Coefficients - Online Relationship Initiation Scale (ORIS Scale)

Predictor	Estimate	SE	t	p
Intercept	1.884	0.3539	5.32	< .001
Anxious Attachment	0.190	0.0821	2.31	0.023

Avoidant Attachment	-0.180	0.1025	-1.76	0.082

We conducted a multiple regression analysis to examine whether anxious and avoidant attachment orientations predicted dating app behaviours among university students. The independent variables ($F(2, 95) = 1.41$, $p = 0.25$) accounted for 3% of the variance in dating app behaviours. Table 5 shows that neither anxious attachment ($b = .17$, $t(130) = 1.29$, $p = 0.2$) nor avoidant attachment ($b = .07$, $t(130) = 0.42$, $p = 0.68$) significantly predicted dating app behaviours.

Table 4

Model Fit Measures

			Overall Model Test			
Model	**R**	**R²**	**F**	**df1**	**df2**	**p**
1	0.170	0.0288	1.41	2	95	0.250

Table 5

Model Coefficients - Dating App Behaviours

Predictor	Estimate	SE	t	p
Intercept	2.2140	0.564	3.927	< .001
Anxious Attachment	0.1725	0.133	1.294	0.199
Avoidant Attachment	0.0689	0.166	0.416	0.678

Discussion

Although many studies have examined the relationship between one's attachment orientation and its effect on close relationships, there is a lack of research on how an individual's attachment orientation can influence their initiation of relationships through online dating apps. University students, in particular, are an under-explored population, despite the rising popularity of dating apps among this group. Given this information, the present research aimed to fill this gap by exploring the role of attachment orientation in relationship initiation on dating apps among university students.

Based on prior research, we hypothesized that participants who scored higher in anxious attachment would be more likely to engage in relationship initiation behaviours on dating apps, whereas those who scored higher on avoidant attachment would be less likely to engage in relationship initiation behaviours online. Consistent with the hypothesis on anxious attachment, the study's findings were supported as anxious attachment significantly predicted relationship initiation on dating apps. However, the findings

regarding avoidant attachment did not produce notable results. These results contribute to the growing body of literature on attachment orientation and relationship initiation, underscoring the significance of individual differences in attachment and the effects of the unique environment that dating apps present.

Interpretation of Results

University students with higher levels of anxious attachment significantly predicted greater relationship initiation on dating apps, whereas those higher in avoidant attachment did not. Additionally, neither high attachment anxiety nor high attachment avoidance significantly predicted dating app behaviours. The study's results align with previous research that suggests individuals high in attachment anxiety exhibit increased relationship fixation and actively seek reassurance from close relationships (Mikulincer & Shaver, 2016). However, those high in attachment avoidance prioritize independence and being detached (Bartholomew & Horowitz, 1991). Such individuals are typically understood to be averse to initiating relationships (Bartholomew & Horowitz, 1991).

Anxious Attachment

These results are consistent with prior research, which highlights that individuals with higher attachment anxiety exhibit high motivation to form connections through online dating platforms (Goodcase et al., 2018; Timmermans & Alexopoulos, 2020). Various studies have established that this may be a means of obtaining emotional and relational security, proximity, and validation while alleviating their fears of abandonment from potential romantic partners (Goodcase et al., 2018; Mikulincer & Shaver, 2016; Timmermans & Alexopoulos, 2020). The observed relationship supports research by Simpson et al. (2012) regarding relational distress. Individuals who are high in attachment anxiety experience lower relationship satisfaction due to heightened awareness of a partner's responsiveness and increased sensitivity to perceived relational threats (Mikulincer & Shaver, 2016; Simpson et al., 2012). Given that anxiously attached individuals exhibit hyperactivating strategies, they may have a penchant for dating apps as a means of continuously seeking both reassurance and romantic relationships (Mikulincer & Shaver, 2016).

The insignificant relationship found between individuals high in anxious attachment and dating app behaviours might suggest that they may not necessarily engage in more diverse or extensive behaviours on dating apps, even though they initiate relationships more frequently. Such behaviours might indicate that the driving force behind their motivation to engage in dating apps consists of their need to secure emotional connections rather than frequent app usage or unsubstantial brief exchanges.

Avoidant Attachment

In contrast, avoidant attachment did not significantly predict relationship initiation on dating apps nor dating app behaviours. While prior studies have suggested that avoidantly attached individuals may use dating apps for casual interactions rather than committed and romantic relationships (Chin et al., 2018), the present findings suggest that higher attachment avoidance does not necessarily drive relationship initiation behaviours in this context. Previous research postulates that attachment avoidance is associated with lower levels of emotional investment, prioritizes self-reliance over

intimacy, and minimizes dependence on others (Bartholomew & Horowitz, 1991; Fraley & Shaver, 2000). Considering their tendency to use the previously listed qualities as a deactivating strategy as it relates to the formation of close relationships, avoidantly attached individuals may be less motivated to seek romantic relationships (Bartholomew & Horowitz, 1991). Bartholomew and Horowitz (1991) expressed that such deactivating strategies are used as a defense mechanism which aids these individuals in maintaining emotional distance and independence. The aforementioned tendencies for those high in attachment avoidance to suppress attachment needs and maintain emotional distance have been thoroughly documented in an abundance of literature, supporting Bartholomew and Horowitz's (1991) understanding of avoidant attachment functioning as a defense mechanism (Fraley & Shaver, 2000).

The absence of a significant correlation between attachment avoidance and dating app behaviours contrasts with previous research that suggested that individuals high in attachment avoidance may engage with online dating platforms for self-affirmation or casual relationships and interactions (Timmermans & Alexopoulos, 2020). Although not explored, a possible explanation for this discrepancy could be that the present study's university-aged participants may not be reliant on dating apps to fulfill their casual relational needs or have dating apps but do not actively utilize them. There is a possibility that there is a preference towards alternative methods, such as meeting people organically, as this may mitigate their feelings of actively seeking out potential partners purposely through online dating platforms. This could be explained through individuals high in avoidant attachment having less inclination to pursue romantic relationships (Bartholomew & Horowitz, 1991). These findings highlight the complexity of avoidant attachment processes and accentuate the need for further research exploring the intricate ways in which attachment avoidance manifests in various relational contexts, with a particular emphasis on dating apps, considering its prevalence today and the lack of research in this area.

Correlation Between Anxious and Avoidant Attachment

Most researchers' findings in this field often report anxious and avoidant attachment as being negatively correlated (Bartholomew & Horowitz, 1991; Chopik et al., 2013; Goodcase et al., 2018; Hazan & Shaver, 1987; Mikulincer & Shaver, 2016). Unlike prior research, the present study found a positive correlation between anxious and avoidant attachment orientations. These findings can be understood through modern research that identified attachment orientation as existing on a continuum, where individuals can exhibit various qualities that are associated with attachment anxiety and avoidance, rather than fitting neatly into one specific style (Bartholomew & Horowitz, 1991; Chopik et al., 2013; Mikulincer & Shaver, 2016). This can be further explained by Bartholomew and Horowitz's (1991) four-category model. Individuals categorized as fearful-avoidant, who rank high in both anxious and avoidant attachment qualities, present a possible exception where both attachment orientations co-exist (Bartholomew & Horowitz, 1991; Mikulincer & Shaver, 2016).

Two particular mechanisms have been highlighted by Mikulincer and Shaver (2016) that can drive both attachment anxiety and avoidance: fear of rejection and past relational trauma. Individuals who fear rejection may exhibit feelings of desperately seeking validation (associated with anxious attachment) while simultaneously avoiding

vulnerability and intimacy (associated with avoidant attachment) (Mikulincer & Shaver, 2016). Those who have experienced past relational trauma can develop both hyperactivation (anxiety) and deactivation (avoidance), which are utilized as defensive strategies (Mikulincer & Shaver, 2016). Dating apps make it effortless for users who are high in both attachment anxiety and avoidance to actively seek connections while subsequently withdrawing due to fears of intimacy. Timmermans and Alexopoulos' (2020) research could provide a possible behavioural explanation for the positive correlation found. Those high in anxious attachment frequently engaged with dating apps for reassurance, though individuals high in avoidant attachment tended to use these applications for casual relationships and avoidance of intimate relationships (Timmermans & Alexopoulos, 2020).

The study's findings on the positive correlation between anxious and avoidant attachment orientations challenge traditional views and research that label the two as opposites. Rather, it supports a dimensional approach where attachment traits exist on a spectrum. Furthermore, the results suggest that in niche contexts, such as online dating, attachment orientation is not necessarily mutually exclusive but mutually inclusive. Such divergence from prior research warrants further investigation.

Strengths, Limitations, and Future Directions

As a study that examined a relatively novel concept, such as relationship initiation in dating apps, it did not come without its limitations. While our survey produced a fair turnout for a short-term study, the sample size was reduced from 230 participants to 130 to ensure that the responses reflected the entire scope of the present study. This included excluding those who did not complete the survey and participants who did not fit the inclusion criteria. While we did produce some significant findings, a larger sample size may have allowed us to detect smaller effects and provided this study with greater confidence in its results.

Future research should look more closely at demographics such as age, sexuality, ethnicity, etc., to further determine the significance of relationship initiation. Subsequent studies on this topic should take a longitudinal approach to assess the long-term effects of attachment and relationship initiation on the individual's relationship outcomes. Further, studies have shown that attachment orientation can change in an individual over time (Chopik et al., 2013). This means that while we were able to determine that anxious attachment correlates with relationship initiation in university students aged 18-25, we cannot predict this as a long-term behaviour across the lifespan for the participants of this study or dating app users over the age of 25. This research, coupled with the possibilities of future research regarding attachment and relationship initiation, may seek to improve existing dating apps and assist in the development of new dating apps to fit the needs of its target audience.

Relationship initiation, especially in terms of dating apps, is not a universally defined term. Without a standardized understanding, interpretations may vary across researchers, disciplines, and cultural contexts, leading to inconsistencies in how the concept is applied and measured. This lack of definitional clarity poses challenges in developing reliable measurement tools, making it difficult to compare findings across studies. While we used relevant scales, we encourage the further creation of scales tailored to this particular concept, looking at relationship initiation on dating apps, and

taking into consideration the different features of dating apps that may influence initiation behaviours, such as limitations on how many likes you can give per day, or if a message must be sent to match with someone. Additionally, the absence of a common framework affects the reproducibility of the research, as future studies may operationalize the concept differently. To address this, further research should aim to refine and standardize the concept to enhance clarity and consistency in future investigations.

The culture surrounding dating apps for university students between the ages of 18-25 has also shifted. Young adults are experiencing a delay in long-term commitment and sexual debut compared to older generations. “Hookup culture” is increasingly common, where young adults are seeking more casual encounters (Shulman & Connolly, 2013). This could explain increased “relationship initiation” such that swiping, liking, and messaging are not behaviours intended to produce a long-term relationship, relieving any pressure associated with initiation. Contrarily, some studies have found that young adults are delaying sexual debut and relationships entirely, which could mean that there may be an alternative reason for dating app usage (South & Lei, 2021). 11.1% of the participants of this study reported seeking friendships on dating apps. Perhaps this differentiation may explain initiation behaviours by seeking a lower-stakes relationship. Further research should seek to understand if “hookup culture” and the decline in long-term romantic relationships for today’s young adults affect relationship initiation. It could be that relationship initiation may not lead to entering a long-term relationship or that initiation is different depending on the individual’s relationship goals and intentions.

Lastly, this study was conducted as a self-report, retrospective study that relied on the participants’ memory for data on their dating app usage and relationship initiation behaviours. This approach, while the most accessible for a study of this nature, may lead to memory bias, affecting the reliability of the data and limiting the depth of analysis, as memories may be inaccurate or influenced by external factors. Future research could use real dating app data to avoid this problem; not only would this produce more reliable data, but it would also allow us to better define initiation behaviours in the context of a specific app.

Conclusion

The current findings suggest that attachment anxiety is associated with increased relationship initiation on dating apps among undergraduate students. Although no significant relationship was found between attachment avoidance and initiation behaviours, this may be due to the unique context of online dating, which differs from traditional face-to-face interactions. Given the growing influence of digital platforms on modern dating, further research should refine the conceptualization of relationship initiation, particularly in the context of dating apps. A more precise understanding of this process could enhance the reliability of studies in this area and provide deeper insights into how attachment orientations influence romantic interactions in online settings.

Authors' Contributions

Conceptualization: AM (lead), AV (equal), AO (equal), EA (equal), JW (equal), JD (equal)
Data curation: JW (lead), JD (equal)
Formal analysis: JW (lead), JD (equal)
Investigation: EA (lead), JW (equal), JD (equal)
Methodology: AM (lead), AV (equal), AO (equal)
Project administration: AO (lead), AM (supporting), AV (supporting), EA (supporting), JW (supporting), JD (supporting)
Resources: KD
Supervision: KD
Visualization: AM (lead), AV (equal), AO (equal), EA (equal), JW (equal), JD (equal)
Writing – original draft (Introduction): AV (lead), JW (equal), AM (supporting), AO (supporting), EA (supporting), JD (supporting)
Writing – original draft (Methods and Results): AM (lead), JD (equal), JW (supporting)
Writing – original draft (Discussion): EA (lead), AO (equal)
Writing – review & editing (Introduction): AV (lead), JW (equal), JD (supporting)
Writing – review & editing (Methods and Results): AM (lead), JD (equal)
Writing – review & editing (Discussion): EA (lead), AO (equal)

References

Ainsworth, M. D. (1985). Attachments across the life span. *Bulletin of the New York Academy of Medicine*, *61*(9), 792–812.

Alexopoulos, C., & Timmermans, E. (2021). Sexy and I know it: Attachment orientation and romantic confidence on dating apps. *Human Communication & Technology*, *1*(2), 60–72. https://doi.org/10.17161/hct.v1i2.13687

Alexopoulos, C., Timmermans, E., & McNallie, J. (2020). Swiping more, committing less: Unraveling the links among dating app use, dating app success, and intention to commit infidelity. *Computers in Human Behavior*, *10*(2), 172–180. https://doi.org/10.1016/j.chb.2019.08.009

Atkins, S. (2019). *Online dating versus face-to-face dating: A comparison of attachment style and relationship success* (Publication No. 3620292) [Doctoral dissertation, The Chicago School of Professional Psychology]. ProQuest Dissertations & Theses Global.

Bartholomew, K., & Horowitz, L. M. (1991). Attachment styles among young adults: A test of a four-category model. *Journal of Personality and Social Psychology*, *61*(2), 226–244. https://doi.org/10.1037/0022-3514.61.2.226

Blackwell, C., Birnholtz, J., & Abbott, C. (2015). Seeing and being seen: Co-situation and impression formation using Grindr, a location-aware gay dating app. *New Media & Society*, *17*(7), 1117–1136. https://doi.org/10.1177/146144481452159

Bowlby, J. (1969). *Attachment and loss volume one.* Basic Books.

Castro, Á., Barrada, J. R., Ramos-Villagrasa, P. J., & Fernández-Del-Río, E. (2020). Profiling dating apps users: Sociodemographic and personality characteristics. *International Journal of Environmental Research and Public Health*, *17*(10), 3653. https://doi.org/10.3390/ijerph17103653

Chin, K., Edelstein, R. S., & Vernon, P. A. (2018). Attached to dating apps: Attachment orientations and preferences for dating apps. *Mobile Media & Communication*, *7*(1), 41–59. https://doi.org/10.1177/2050157918770696

Chopik, W. J., Edelstein, R. S., & Fraley, R. C. (2013). From the cradle to the grave: Age differences in attachment from early adulthood to old age. *Journal of Personality*, *81*(2), 171–183. https://doi.org/10.1111/j.1467-6494.2012.00793.x

Coffey, J. K., Bond, D. K., Stern, J. A., & Van Why, N. (2022). Sexual experiences and attachment styles in online and offline dating contexts. *International Journal of Sexual Health*, *34*(4), 665–678. https://doi.org/10.1080/19317611.2022.2110349

Fraley, R. C., & Shaver, P. R. (2000). Adult romantic attachment: Theoretical developments, emerging controversies, and unanswered questions. *Review of General Psychology*, *4*(2), 132–154. https://doi.org/10.1037/1089-2680.4.2.132

George, S. R. (2024). *An examination of relationships between adult attachment, rejection sensitivity, dating app use* (Publication No. 30818374) [Doctoral dissertation, Walden University]. ProQuest Dissertations & Theses Global.

Goodcase, E. T., Nalbone, D. P., Hecker, L. L., & Latty, C. (2018). The role of attachment anxiety and avoidance in communication modality and relationship quality of romantic relationships initiated online. *The American Journal of Family Therapy*, *46*(2), 168–183. https://doi.org/10.1080/01926187.2018.1461032

Harrison, M. G., McAnulty, R. D., & Canevello, A. (2022). College students' motives for in-person meetings with dating application matches. *Cyberpsychology, Behavior, and Social Networking*, *25*(2), 100–106. https://doi.org/10.1089/cyber.2021.0031

Hazan, C., & Shaver, P. R. (1987). Romantic love conceptualized as an attachment process. *Journal of Personality and Social Psychology*, *52*(3), 511–524. https://doi.org/10.1037/0022-3514.52.3.511

Hobbs, M., Owen, S., & Gerber, L. (2017). Liquid love? Dating apps, sex, relationships and the digital transformation of intimacy. *Journal of Sociology*, *53*(2), 271–284. https://doi.org/10.1177/1440783316662718

Kajzer, T. A. (2023). *Exploring the role of personality traits and attachment styles in shaping dating app user experience* [Master's thesis, Aalborg University]. https://projekter.aau.dk/projekter/files/536281796/MA_DatingAppsBig5AttTheory_TrinaAnaKajzer.pdf

Matsuoka, N., Uji, M., Hiramura, H., Chen, Z., Shikai, N., Kishida, Y., & Kitamura, T. (2005). Adolescents' attachment style and early experiences: A gender difference. *Archives of Women's Mental Health*, *9*(1), 23–29. https://doi.org/10.1007/s00737-005-0105-9

Mikulincer, M., & Shaver, P. R. (2016). *Attachment in adulthood: Structure, dynamics, and change* (2nd ed.). The Guilford Press.

Ormonde, A. R. (2013). *One click away: A study of stigma, attachment, and personality traits in online dating compared to face-to-face dating in heterosexual individuals* (Publication No. 3601315) [Doctoral dissertation, Alliant International University]. ProQuest Dissertations & Theses Global.

Öztürk, A., & Mutlu, T. (2010). The relationship between attachment style, subjective well-being, happiness, and social anxiety among university students. *Procedia - Social and Behavioral Sciences*, *9*, 1772–1776. https://doi.org/10.1016/j.sbspro.2010.12.398

Shulman, S., & Connolly, J. (2013). The challenge of romantic relationships in emerging adulthood: Reconceptualization of the field. *Emerging Adulthood*, *1*(1), 27–39. https://doi.org/10.1177/2167696812467330

Segal, D. L., Needham, T. N., & Coolidge, F. L. (2009). Age differences in attachment orientations among younger and older adults: Evidence from two self-report measures of attachment. *International Journal of Aging & Human Development*, *69*(2), 119–132. https://doi.org/10.2190/AG.69.2.c

Simpson, J. A., Rholes, W. S., Campbell, L., & Wilson, C. L. (2012). Adult attachment, the transition to parenthood, and depressive symptoms: A developmental systems perspective. *Journal of Personality and Social Psychology*, *102*(3), 543–560. https://doi.org/10.1037/a0025289

Smith, A., & Duggan, M. (2013). *Online dating & relationships*. Pew Research Center. https://www.pewresearch.org/internet/2013/10/21/online-dating-relationships-3/

Snapp, S., Lento, R., Ryu, E., & Rosen, K. S. (2014). Why do they hook up? Attachment style and motives of college students. *Personal Relationships*, *21*(3), 468–481. https://doi.org/10.1111/pere.12043

South, S. J., & Lei, L. (2021). Why are fewer young adults having casual sex? *Socius*, *7*(1), Article 2378023121996854. https://doi.org/10.1177/2378023121996854

Statista Market Forecast. (2019) *eServices Report 2019—Dating Services*. https://www.statista.com/study/40456/dating-services-report/.

Timmermans, E., & Alexopoulos, C. (2020). Anxiously searching for love (among other things): Attachment orientation and mobile dating application users' motives and

outcomes. *Cyberpsychology, Behavior, and Social Networking*, *23*(7), 447–452. https://doi.org/10.1089/cyber.2019.0702

Torrence, N. S. (2014). *Effect of Attachment Style on Seeking a Romantic Partner in Online Dating* (Publication No. 3620292) [Doctoral dissertation, Alliant International University]. ProQuest Dissertations and Theses database.

Vogels, E. A., & McClain, C. (2023). *Key findings about online dating in the U.S.* Pew Research Center. https://www.pewresearch.org/short-reads/2023/02/02/key-findings-about-online-dating-in-the-u-s/

Wu, S., & Trottier, D. (2022). Dating apps: a literature review. *Annals of the International Communication Association*, *46*(2), 91–115. https://doi.org/10.1080/23808985.2022.2069046

Yeo, T. E. D., & Fung, T. H. (2016, July). Relationships form so quickly that you won't cherish them: Mobile dating apps and the culture of instantaneous relationships. *Proceedings of the 7th 2016 international conference on social media & society*, 1–6. https://dl.acm.org/doi/10.1145/2930971.2930973

Zhang, M. (2016). *Building Tinder.* Tinder Engineering. http://tech.gotinder.com/building-tinder/

Beyond the Bubble: McMaster Students' Fear of Crime in Downtown Hamilton

Amanda Atkinson[1], Anna Wienburg[1], Sarah Uden[1], Lisa Mulhall[1], Ana Stoicheci[1], Ryen-Mackenzie Cameron[1]

Abstract

Previous research has examined fear of crime within university campuses as opposed to the surrounding city. This study aimed to fill this gap by examining students' fear of crime beyond the university campus, using the idea of familiarity to guide the hypotheses. We explored the difference between local and domestic McMaster students' fear of crime in downtown Hamilton Ontario. Additionally, we investigated the role of meaningful time spent downtown as a factor that impacts students' fear of crime. Using a mixed-methods approach, 261 students completed an online survey about their fear of crime in downtown Hamilton. Quantitative findings revealed no statistically significant difference between the two groups, and meaningful time spent downtown did not moderate the relationship between group status and fear of crime. However, qualitative findings suggested that meaningful time may influence qualitative differences in fear of crime. These findings indicate that the relationship between meaningful time spent in a specific area and fear of crime is more complex than previously assumed, with familiarity alone being insufficient in reducing fear without deeper place attachment. Ultimately, the findings contribute to theoretical discussions on fear of crime while underscoring the importance of community integration strategies in enhancing students' overall sense of safety in their university's city.

Theoretical Models

A variety of theoretical perspectives help explain how fear of crime is elicited among the general population (Wu & Wen, 2014). The Community Environment model is a substantial framework that consists of both the Disorder Model and the Social Ties Model, also referred to as the Social Integration Model (Wu & Wen, 2014). The latter focuses on an individual's feeling of connectedness to their neighbourhoods and communities as it relates to the fear of crime (Alper & Chappell, 2012; Franklin et al., 2008). The Social Integration Model suggests that those who feel well-integrated into their communities experience less fear of crime compared to those who do not feel integrated (Franklin et al., 2008; Lockey et al., 2019). Based on this model we believed that students attending their local universities felt more integrated with their city and, therefore, would have a lower fear of crime compared to students from another town.

[1] Undergraduate Student, Honours Social Psychology Program, Faculty of Social Sciences, McMaster University, Hamilton, Ontario, Canada.

The Disorder Model explains how those who perceive their neighbourhood as in a state of disarray, including a prominent street population, vandalism, and neglected establishments, experience a heightened fear of crime (Camacho Doyle et al., 2021). This model is in direct association with the broken windows theory, which states that obvious signs of disorder within communities inherently suggest to people that crime is occurring in the area– a belief that contributes to one's fear of crime (Kelling & Wilson, 1982; Sas et al., 2022). Experiential evidence from researchers and anecdotes of peers reveal that downtown Hamilton exhibits a lot of obvious physical disorder. From a large homeless population in the Jackson Square area, to vandalized and deteriorating businesses on main streets like King and Main Street, one does not have to look hard to see why students may feel fearful based on the Disorder Model. Together, the Community Environment model explains how those who do not feel integrated into their communities and perceive them as being in a state of disorder experience a heightened fear of crime (Franklin et al., 2008). We found this model to be ideal to use as a framework in developing our research.

We additionally considered the vulnerability model to analyze the prevalence of students' fear of crime. This model states fear of crime can be encouraged by both that real and perceived risk of vulnerability (Alper & Chappell, 2012). For example, women are more fearful of crime because they believe they are less able to defend themselves from offenders (Wu & Wen, 2014). In this way, individuals believe that a personal aspect of their identity makes them particularly vulnerable to crime. This concept is particularly relevant to student populations who may have limited access to resources, live away from familiar support networks, and/or belong to diverse and historically marginalized groups. Intersecting factors such as these may contribute to an increased sense of perceived vulnerability. Franklin and colleagues (2008) divided this concept of perceived vulnerability into two categories–physical and social vulnerabilities. The earlier example of women would fall into the category of physical vulnerabilities, as it pertains to how a lack of mobility or strength causes one to believe they cannot sufficiently defend themselves from violent attacks. Social vulnerabilities, on the other hand, refer to a variety of factors that contribute to one's victimization, such as living in economically distressed neighbourhoods, being in a marginalized group, or being unfamiliar with a certain space (Alper & Chappell, 2012; Franklin et al., 2008). These two categories heavily influence each individual's various feelings and perceptions of crime.

The Bubble

With these models in mind, the university setting provides a unique context for analyzing fear of crime because it creates a 'bubble' where students can stay and feel safe. Due to the many security measures of the university setting such as campus security, surveillance, and highly populated areas, students may feel safer compared to the city outside of the bubble (Sas et al., 2022). This is especially true for domestic students—those who previously did not reside in their university city or who commute—as they tend to have less familiarity with these areas than local students—those who previously lived in their university area. Importantly, this bubble also has the potential to hinder students' integration into local communities because it is a self-contained environment that separates students from the rest of the surrounding city (Maier & DePrince, 2019). If students feel uncomfortable with their surroundings and remain

fearful, this can adversely impact their mental health and general university experiences (Daigle et al., 2022; Lane, 2015). With the McMaster University campus being separate and distinct from downtown Hamilton, this bubble is intensified and makes for a unique case of students' experiences and fear of crime.

Existing discussions surrounding the fear of crime in urban areas tend to focus on general populations and dismiss subgroups within the larger population (Fisher & May, 2009; Jacobsen, 2022; Maier & DePrince, 2019). Focusing on a specific group may help uncover different patterns in the of fear of crime. While fear of crime on university campuses has been studied, there is limited knowledge on university students' fear of crime in relation to their surrounding communities, as well as how time spent in the area could inform their fear of crime (Maier & DePrince, 2019). Investigating these gaps in the literature with a focus on the bubble is critical in getting a better understanding of students' fear of crime.

Current Study

This study focused on the difference between local and domestic students' fear of crime in downtown Hamilton, and whether meaningful time spent there influences their fear of crime. We wanted to understand how these different McMaster student groups perceived the city and their feelings of safety in relation to downtown Hamilton depending on their level of integration into the community, potentially fostering a sense of safety and enhancing their overall well-being. We hypothesized that local students would have a lower fear of crime in downtown Hamilton than domestic students due to their familiarity with the area, and that the more meaningful time students spend there, the lower fear of crime they would report.

Methods

Participants

Participants were 261 McMaster University undergraduate and graduate students who were either local to Hamilton, Ontario (N = 59) or domestic, meaning they lived outside of Hamilton, Ontario prior to enrollment at McMaster (N = 202). Participants were recruited through McMaster's SONA Research Participation System (N = 156) and through posts on social media (Instagram, LinkedIn). Additionally, physical posters were distributed around the Westdale and downtown communities, including inside coffee shops and on community poster boards. Inclusion criteria required that participants must be (a) a current McMaster University student, (b) 18 years of age or older, and (c) able to read and speak fluent English. Of the 296 students who entered the study, 35 were excluded from the analysis due to not meeting the inclusion criteria. The final sample size consisted of 261 McMaster University students. Participants mostly identified as female (77.4%; 11.1% male, 11.1% nonbinary) and White (53.3%; 13.8% Southeast Asian, 13.4% East Asian, 19.5% other groups). Over half of participants identified as straight (59%; 16.5% Bisexual, 8% Queer, 12.6% other sexualities). In terms of student demographics, the dominant group was second-year undergraduates (34.6%; 26.8% fourth-year undergraduates, 26.8% third-year undergraduates, 9.7% other undergraduate and graduate years). Finally, the participant sample was made up of mostly 21-year-olds (27.6%; 26.8% 19-year-olds, 19.2% 20-year-olds, 13.8% 22-year-olds, and 6.8% other ages).

Procedure

Data was collected through an anonymous survey on the website Qualtrics. Participants consented and completed the inclusion criteria questions at the beginning of the survey and then were asked a series of quantitative and demographic questions, as well as four qualitative, open-ended questions. An attention check question ("What university is the focus of this study?") was asked mid-survey to ensure that participants were not answering questions randomly. Failure to choose the right answer resulted in the dismissal of all data collected in that participant's responses. The survey took approximately 5-20 minutes for most participants to complete. Participants who took the survey through SONA received 0.5 SONA credits when they reached the end of the survey, and no compensation was provided to those who completed a survey through social media posts or physical posters.

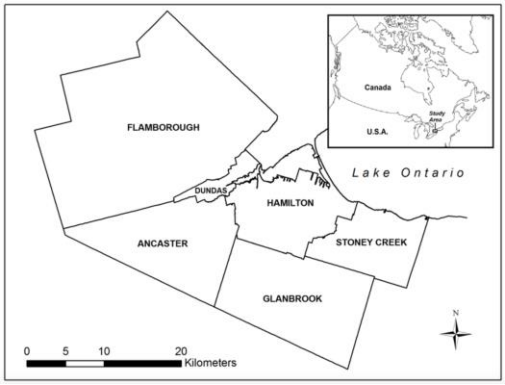
Measures

Local or Domestic

The primary independent variable in this survey was whether a student was local to Hamilton prior to their enrollment at McMaster University, or whether they were domestic and lived outside of Hamilton prior to enrollment. To obtain this information, the singular item "Did you live in Hamilton prior to enrollment at McMaster University?" was asked. A boundary map (Spinney, 2011) was provided that indicates the areas researchers defined as Hamilton. This boundary map included Ancaster, Dundas, Flamborough, Glanbrook, and Stoney Creek (see Figure 1). Response options were "*Yes*", "*No*", and "*Prefer not to answer*".

Figure 1

Map of Hamilton taken from Spinney (2011).



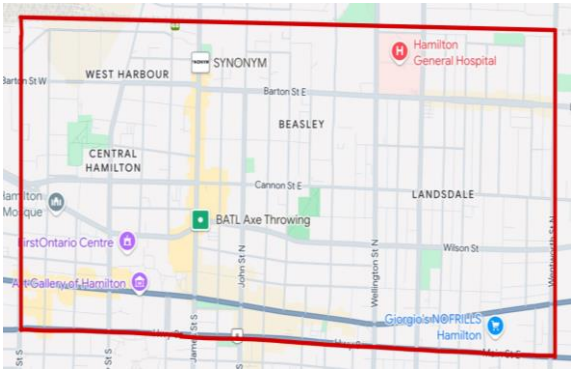
Meaningful Time Spent

Participants also indicated how much meaningful time they spent in downtown Hamilton (M = 3.89, SD = 1.53). A boundary map of what researchers considered to be the downtown core was provided (see Figure 2). Participants were allowed to define meaningful time for themselves, which was an intentional choice made to assess what each person considered to be their subjective idea of meaningful time. This independent variable was measured through a single-item statement, "During the duration of my time enrolled at McMaster University, I have spent a considerable amount of meaningful time

in downtown Hamilton," with responses rated on a 6-point Likert scale (1 = "*very untrue for me*", 6 = "*very true for me*").

Figure 2

Downtown Hamilton Boundary Map retrieved from Google (n.d.).



Fear of Crime

Participants completed a modified version of the Fear of Crime scale (Etopio & Berthelot, 2022) to assess their fear of crime in downtown Hamilton (e.g., "I'm afraid of a crime happening to me in downtown Hamilton", "I feel at risk of being victimized in downtown Hamilton"). The modified scale included nine items rated on a 6-point scale (1 = *Very untrue for me*, 6 = *Very true for me*; α = .945). The original scale included an additional item that could not be modified to logically involve downtown Hamilton ("Crime worries me in my day-to-day life") and therefore was not used in the fear of crime scale. Items were scored such that higher scores indicate a higher fear of crime, and an overall fear of crime score was created by averaging all nine items (*M* = 3.77, *SD* = 1.09).

Additional Qualitative Measures

Participants had the option to answer four open-ended qualitative questions at the end of the survey. These questions asked participants to elaborate beyond their quantitative responses and provide more insight into their fear of crime score. Qualitative questions included:

1) "Considering your experiences in downtown Hamilton, how would you describe your feelings of safety while you were there? If you have never been to downtown Hamilton, please write "N/A"."
2) "Has your fear of being a victim of crime ever prevented you from doing something you wanted to do in downtown Hamilton? Please elaborate if you feel comfortable."
3) "What influences your feelings about personal safety and fear of crime in downtown Hamilton?"
4) "Since coming to McMaster, how have your feelings about personal safety and fear of crime in downtown Hamilton changed? What do you think caused that change? If they have not changed, please elaborate on why."

Ethics

This study has been reviewed by the McMaster Research Ethics Board and received ethics clearance under project #7231.

Results

Hypothesis 1

An independent samples t-test was conducted to examine the differences between local and domestic students' fear of crime in downtown Hamilton. Results showed no significant difference between local (M = 3.75, SD = 1.19) and domestic students' (M = 3.78, SD = 1.07; t (258) = -.15, p = .878) fear of crime.

Hypothesis 2

A univariate ANOVA was conducted to investigate whether meaningful time was a moderator of the relationship outlined in Hypothesis 1. Results demonstrated that meaningful time spent in downtown Hamilton did not moderate the association between the two variables (F (1, 256) = .001, p = .976).

Exploratory Quantitative Research

A bivariate regression was conducted to examine whether meaningful time spent in downtown Hamilton, regardless of being a local or domestic student, predicted fear of crime. Results revealed that meaningful time spent accounted for 0.7% of the variability in fear of crime in downtown Hamilton. Additionally, the model predicted a 0.062 decrease in fear with every one-unit increase of meaningful time spent, though this effect was not significantly different from zero (t (1) = -1.389, p = 0.166).

Exploratory Qualitative Research

Exploratory qualitative analyses were conducted to gain deeper insights into participants' beliefs and feelings about their fear of crime beyond the limitations of the quantitative scale. A combination of content analysis and thematic analysis was conducted on the four open-ended, exploratory questions.

Researchers began with an approach more consistent with content analysis, where responses were coded for the more binary options they could choose to discuss for each question. For the first question, "How would you describe your feelings of safety while you were in downtown Hamilton? [...]" responses were categorized into "Safe" and "Unsafe" based on the main indication of the response. Far more participants responded that they felt unsafe while in downtown Hamilton. Answers to the second question indicated that slightly more participants had not been prevented from doing something they wanted to in downtown Hamilton due to their fear, while less than half had been prevented. The third question investigated the factors that influence participants' fear in downtown Hamilton; very few noted positive influences, whereas most responses discussed negative influences. The final question asked how participants' feelings about downtown Hamilton had changed throughout their time at McMaster. Three categories for responses emerged rather than two, with most participants expressing that their feelings about downtown Hamilton had not changed, fewer reporting their feelings improved, and the least saying their feelings had worsened. Table 1 displays these categorizations, with the first column of values indicating how many responses in total were coded into each category. This

type of coding allowed for an understanding of the main leanings of participants' responses, which created a more holistic picture of the data.

Table 1

Primary Codes for Qualitative Responses

Q1: "How would you describe your feelings of safety while you were in downtown Hamilton? If you have never been to downtown Hamilton, please write "N/A"."		
Safe	91	35.8%
Unsafe	163	64.2%
Q2: "Has fear of being a victim of crime ever prevented you from doing something you wanted to do in downtown Hamilton? If you are comfortable, please elaborate."		
Has prevented	92	40.7%
Has not prevented	134	59.3%
Q3: "What factors influence your feelings about personal safety and fear of crime in downtown Hamilton?"		
Positive influences noted	41	17.8%
Negative influences noted	189	82.2%
Q4: "Since coming to McMaster, have your feelings about personal safety and fear of crime in downtown Hamilton changed? If so, what do you think caused that change? If they have not changed, why do you think they have not changed?"		
Feelings improved	71	30.5%
Feelings worsened	52	22.3%
Feelings stayed the same	110	47.2%

The next step in the coding process examined response details using a thematic approach to get a broader understanding of themes. These codes were applied across all questions because similar themes arose regardless of the question. Some of these sub-codes were grouped into larger categories for ease of interpretation, for example, codes such as "nighttime/dark," "alone," "minority identity," "gender", and "specific area" were grouped into the "Conditional" category, indicating that a participant's fear was dependant on a certain condition being fulfilled. Responses sub-coded as "nighttime/dark" expressed that participants' feelings of fear in downtown Hamilton had to do with whether or not it was dark out, for example,

> [...] I'm fine with going to downtown during the day, but it definitely gets scarier at night with limited visibility and fewer people around. For example, if I wanted to get food at a restaurant downtown but the sun was setting soon, I would decide against it.

The “alone” conditional sub-code had to do with participants’ fears being present or absent depending on whether or not they are in the presence of others. One participant noted,

> “I try not to spend time in downtown Hamilton by myself. If I go through downtown Hamilton to do things other than go to McMaster, I usually bring a friend or I don't go at all.”

These two sub-codes were the most coded for. The “minority identity” and “gender” sub-codes were similar, both indicating a participant’s response had to do with having a vulnerable identity influencing their feelings in downtown Hamilton. The frequency of participants mentioning that their feelings came from being a gender minority indicated a need to separate the sub-codes for more detail in interpreting results. Lastly, the “specific area” sub-code labelled responses where participants expressed that their fears (or lack thereof) were associated with a certain physical space within downtown Hamilton.

Another broader category that commonly emerged was the “Visible Disorder” category, which included the sub-codes “people,” “violence,” “environment,” and “miscellaneous.” “Visible Disorder” had to do with responses that referenced themes of the Visible Disorder or Broken Windows theory. The “people” sub-code referred to responses that mentioned the more passive human elements of visible disorder, like homelessness or visible drug use. This sub-code was incredibly prevalent in the data, with responses like,

> Not to be stereotypical but there are lots of homeless and intoxicated people who often wander downtown at night. Some of which I have happened to come across or observe seem aggressive. This does influence my feelings of personal safety again as I said my friends and I would not be able to defend ourselves. [...]

Responses sub-coded as “violence” expressed concerns about active acts of violence (e.g. petty theft, etc.) or violent items (e.g. knives, guns, etc.) in downtown Hamilton. The “environment” sub-code was used to label responses which referenced the physical elements of visible disorder, like broken windows or vandalism. All other forms of visible disorder that did not conform to the previous sub-codes were classified as “miscellaneous.”

A very common code in the thematic analysis was “Vigilance.” Participants often noted that they stayed constantly alert to the possibility of crime while in downtown Hamilton, for example,

> I generally feel unsafe, I’m often on edge and frequently survey my surroundings to ensure that no one is following or approaching me. I used to have to wait downtown for the bus and I would always stand against a wall to survey my surroundings because I was scared I would be a victim of a crime[.]

Not all of these responses indicated the presence of fear, many participants expressed that vigilance allowed them to navigate downtown Hamilton without fear of crime.

Another code that frequently arose was “Meaningful Time Spent,” which was coded when participants expressed that their fear of crime in downtown Hamilton had to do with how often they spent purposeful or important time there. One participant detailed,

> I came to Hamilton and was immediately told of the dangers of downtown. I have come to love downtown and feel that personal experience over the years, becoming comfortable and familiar with the area and developing a better

> relationship with the space have contributed to the evolution of my feelings about downtown.

This code had serious implications for the study, as the secondary hypothesis revolves around how meaningful time spent in downtown Hamilton affects people's fear of crime.

The code, "Independent Personal Beliefs," was frequently coded, and it referred to comments made by participants that expressed a personal understanding of elements of crime. This often had to do with feelings about crime statistics or the likelihood of victimization, for example, a participant stated,

> I know that generally when crime occurs it's usually not random, I try to rely on statistics regarding that. People hear about all kinds of stuff, but most of the people getting stabbed or robbed downtown are wrapped up in stuff that goes far beyond that single incident. Press loves to strip these things of context.

This individual had independent personal interpretations of crime statistics and scenarios surrounding violent incidents and even had certain beliefs about media surrounding crime. This code allowed researchers to understand that participants' fear of crime was often situated within their preexisting perception of the world.

The final significant code was "Word of Mouth," which was coded when participants stated that their fear of crime in downtown Hamilton had to do with hearing other people's perspectives of the area. For example, one participant stated,

> I would say it took me a while to venture into downtown Hamilton, because of all the warnings I received from upper years I knew, so the fear and the stigma prevented me from exploring that part of Hamilton in my first year.

The frequency of this code confirmed the personal experiences of the researchers, who had frequently witnessed other students expressing disdain about downtown Hamilton. By understanding that word-of-mouth comments can influence students' fear of crime, one can begin to understand what kinds of changes in student life could help them feel safer in the city. For example, McMaster University could host a panel of alumni who chose to stay in Hamilton to share their positive experiences with current students. This depth and exploration in the findings are what motivated the researchers to engage in the qualitative side of this research.

Discussion

Despite the plethora of research studying fear of crime in urban environments (Curtis, 2012; Fox & Hellman, 1985; Maier & DePrince, 2019; Schweitzer et al., 1999), a significant gap remains in understanding how personal, meaningful engagement with specific areas shapes perceptions of safety. Moreover, while current research on post-secondary student populations focusses on their fear of crime on campus (Fisher & May 2009; Jacobsen, 2022; Maier & DePrince, 2019), there is very little which addresses off-campus fear of crime, and none which looks at differences between local and domestic students. This study attempts to address and expand upon this gap in the literature by investigating whether there are differences between local and domestic McMaster University students' fear of crime in downtown Hamilton. We additionally considered the amount of meaningful time spent in the downtown core of Hamilton as a moderating factor. Based on the Social Integration Model, which suggests a relationship between the level of integration and feelings of safety in a community (Alper & Chappell, 2012; Franklin et al., 2008), we hypothesized that local students would report lower fear of crime than

domestic students (H1) and that spending meaningful time downtown would reduce students' fear of crime (H2).

Contrary to our predictions, our quantitative results produced no significant findings for either hypothesis, providing evidence that there are no differences between local and domestic McMaster students' fear of crime. However, qualitative findings supported our second hypothesis and provided compelling insights into both students' perceptions of their safety and the social factors that influence this evaluation. Consistent with our hypothesis, some students explicitly stated that spending meaningful time downtown helped to reduce their fear of crime, even though this effect was not reflected in the quantitative data. Though these findings were ultimately exploratory, our qualitative research helps to provide a deeper understanding of how students conceptualize, experience, and discuss their fear of crime. Moreover, we believe it helps to explain and broaden our understanding of our quantitative findings and emphasizes the usefulness of taking a mixed-methods approach to research, especially when dealing with subjective and nuanced ideas such as fear.

Interpretations

The lack of significance in the quantitative data suggests that the relationship between meaningful time spent and fear of crime may not be as straightforward as we initially thought. Our study solely looked at familiarity in the context of meaningful time spent, which we found was not a significant indicator of McMaster students' fear of crime downtown. However, it is possible that if we instead looked at place attachment (Altman & Low, 1992; Ujang, 2008; Zahnow & Tsai, 2019), we may have come across more significant findings. It has become clear that a distinction between familiarity and place attachment is important to consider. Familiarity is practical knowledge that is developed passively through routines that does not include a positive or negative emotional quality and does not necessarily consist of a sense of belonging or a personal stake in the area (Felder, 2021). While simply being in an area may contribute to a sense of familiarity, this alone is not enough to decrease fear of crime. Consequently, individuals may physically go downtown but still feel unsafe while they are there. For instance, a student who frequently walks through a downtown area may feel familiar with the layout and general atmosphere but still may not develop a meaningful connection to it. A student wrote that "my feelings about personal safety have not changed, I have lived in Hamilton my whole life and I have always thought of downtown Hamilton as being less safe than Hamilton on the mountain, [...]." Despite their familiarity, this student's fear of crime remained high. In contrast, someone who actively engages with the community by attending events and participating in local culture may be able to look past negative influences such as word of mouth.

> I didn't know much about Hamilton before coming [to McMaster]. First year they made it seem really bad but then as time went on I explored by myself and with friends and really lowkey fell in love with Hamilton. There's a lot of fun activities, cute restaurants, and art crawl!! Hamilton isn't an unsafe city in my head. I like it and I feel okay living here.

Going to events and having positive, community-oriented experiences leads to the development of place attachment. Place attachment, first conceptualized by Kasarda and Janowitz (1974), refers to the expansion of an emotional bond between an individual and a specific place or environmental setting, which is expressed through beliefs, behaviours,

and emotions (Altman & Low, 1992; Ujang, 2008; Zahnow & Tsai, 2019). Not only is place attachment more widely researched, but–as pointed out by Zahnow and Tsai (2019)–it may be particularly critical for disordered neighbourhoods. As many participants noted that downtown Hamilton contained physical disorder, it makes sense that familiarity with the environment alone would not be enough to facilitate a decrease in fear of crime. A genuinely positive place attachment may be necessary in reducing fear of crime for a disordered area such as downtown Hamilton. Ultimately, this is an important avenue to consider for future research on the integration of university students into the communities surrounding their campuses.

Theoretical Implications

Our findings contribute to and align with both facets of the Community Environment model, providing support for the dual influence of social integration and disorder. Despite previous research that indicates greater social integration is associated with lower fear of crime (Franklin et al., 2008), our quantitative results did not show a meaningful connection between these variables. However, our qualitative findings did provide evidence that supports this model, offering some valuable insights into the nuances of social integration in this context. Our finding that students who engaged in meaningful time in downtown Hamilton reported a reduction in their fear of crime aligns with the Social Integration Model's core proposition that a high sense of belonging and attachment to a community reduces fear of crime (Adams & Serpe, 2000; Franklin et al., 2008). Additionally, our research explores a potentially novel avenue by considering the concept of the campus bubble. This concept raises important questions about whether meaningful social integration with one's city can occur if people are confined to a limited environment. Our findings provide support for the idea that without venturing beyond the perceived safety of campus, students may struggle to develop the level of integration necessary for reduced fear of crime in the broader city. As one student explained, "I have a consistent belief that downtown Hamilton is dangerous and I believe that this has not changed because I have not tried going down there myself to prove myself wrong."

Our research also ran consistent with the Disorder Model of crime, including Broken Windows theory. The core premise of Disorder Models suggests that visible cues play a significant role in people's fear evaluations. We found that visible disorder was a very prevalent theme in our qualitative response set. People most notably referred to the presence of unhoused individuals, environmental conditions such as deteriorated buildings, and witnessing public acts of violence as indicators of neighbourhood disorganization and unsafety. These indications of disorder align with the broken windows theory, which suggests that signs of neglect and disorder are symbolic of the increased presence of criminal activity (Kelling & Wilson, 1982; Sas et al., 2022). This finding underscores the importance of addressing neighbourhood deterioration in improving perceptions of safety, reaffirming the concepts presented by these models.

Qualitative findings also provided support for the vulnerability model, which suggests that fear is highly impacted by both situational and contextual factors which shape an individual's sense of safety (Alper & Chappell, 2012; Brunton-Smith & Jackson, 2012; Franklin et al., 2008; Wu & Wen, 2014). A key insight from our qualitative data was that students evaluate their vulnerability as contingent on certain conditions being met. Students reported that being alone, it being nighttime or poorly lit, being part of a visible

minority group, and travelling to specific areas (e.g. Jackson Square, bus shelters, etc.) were all conditions they attached to their sense of fear. These external cues shaped students' situational fear, giving evidence to the model's premise that fear of crime is socially constructed and context-specific (Franklin et al., 2008). On the other hand, physical vulnerability is associated with an individual's perceived capacity to defend themself (Alper & Chappell, 2012; Franklin et al., 2008). Gender emerged as a significant factor in our analyses, with female students frequently identifying their gender as central to their sense of vulnerability downtown. This aligned with the vulnerability model's assertion that those who perceive themselves as less capable of defending themselves will experience heightened levels of fear (Alper & Chappell, 2012; Franklin et al., 2008). However, our results indicated that this fear went beyond the capability to self-defend. Gender was also associated with social vulnerability, as female students identified themselves as at increased risk of unwanted advances from men. Ultimately, our study's findings provide support for the vulnerability model by demonstrating that fear is context-dependent, challenging the notion that objective crime is the only influence on people's fear (Brunton-Smith & Jackson, 2012).

Together, the findings of this study not only contribute to theoretical dialogues within the field but also hold practical significance for community integration strategies. This may be useful for student outreach programs, which could attempt to address students' fear of crime by facilitating increased student presence downtown.

Limitations and Future Directions

The lack of quantitative significance, despite notable qualitative findings, highlights several methodological issues which may have impacted our results. First, our operationalization of meaningful time did not account for different types of engagement with downtown Hamilton, which may have resulted in an ambiguity bias in our results. That is, by allowing students to self-define meaningful time, we may have inadvertently captured a wide range of interpretations, weakening the overall consistency of our data. Additionally, asking students to self-report the amount of meaningful time they spent downtown left responses vulnerable to both central tendency bias, where students opt for neutral or middle-leaning responses as opposed to the extremes, as well as recall bias, as students may have struggled to accurately estimate their amount of meaningful time spent downtown. Future research should aim to address the methodological issues associated with the current study by using more nuanced approaches which better capture the complexity of engagement while minimizing response biases.

Secondly, our initial choice of comparison groups was flawed. Our study ran under the premise that grouping students based on whether they are local to Hamilton or domestic from other areas would show substantial differences in fear of crime, but the lack of significant findings suggests that these groups were not relevant. If this study were to be run again in the future, we would advise reconsidering the groups examined or providing a more well-defined boundary for who is local to Hamilton to ensure more consistency in responses. Moreover, our sample size may not have been sufficient to detect small effect sizes between these groups.

Even further, this study's scope was very narrow and did not account for external influences such as the role of the environment or social identity on students' fear of crime. Given that the responses from our qualitative questions and both the Disorder and

Vulnerability model support the influence of context on people's experiences of fear of crime, it would be beneficial to examine these influences in future research. For example, further research may aim to broaden the scope of the study to better understand the relationship between place attachment and fear of crime. Based on our qualitative findings, we believe that examining the role of external influences, such as environmental factors and social identity, may have a meaningful impact on the significance of the results. Additionally, accounting for specific experiences such as personal victimization may provide a more comprehensive and nuanced understanding of the relationship at hand.

Lastly, the representativeness and generalizability of the sample is limited, as our study involved only students attending McMaster University, who may not accurately reflect the broader population's fear of crime or demographic makeup. Future research could address generalizability limitations by examining different university populations and considering the role of both separate and integrated campuses and downtown areas. Finally, it is our belief that longitudinal research may be the best way to measure this potential relationship, as it would enable researchers to examine whether fear of crime changes with repeated exposure.

Conclusion

This research has deepened our understanding of the McMaster University student population's fear of crime within downtown Hamilton. These new insights form a baseline for future research on university student populations and their community integration. Future iterations of this study could lead to initiatives helping students push beyond McMaster University's restrictive bubble and feel more at home in Hamilton.

Contributions

This project was completed collaboratively. All group members contributed to the development of the research question, study design and process, and final editing of the paper. Individual contributions are outlined as follows:

Amanda Atkinson led qualitative data analysis and overall data cleaning, worked on study visuals, and was responsible for the discussion section.
Ryen-Mackenzie Cameron created the qualitative question set and was responsible for the abstract.
Lisa Mulhall worked on study visuals and was responsible for the methods section.
Ana Stoicheci was responsible for the literature review and introduction.
Sarah Uden was responsible for the literature review and introduction.
Anna Wienburg led quantitative data analysis and survey creation, worked on study visuals, and was responsible for the results section.

All members contributed to idea generation, participated in weekly meetings, coded qualitative responses, and reviewed drafts throughout the writing process.

References

Adams, R. E., & Serpe, R. T. (2000). Social integration, fear of crime, and life satisfaction. *Sociological Perspectives, 43*(4), 605–629. https://doi.org/10.2307/1389550

Alper, M., & Chappell, A. T. (2012). Untangling fear of crime: A multi-theoretical approach to examining the causes of crime-specific fear. *Sociological Spectrum, 32*(4), 346–363. https://doi.org/10.1080/02732173.2012.664048

Altman, Irwin., & Low, S. M. (Eds.). (1992). *Place attachment* (1st ed. 1992.). Springer US. https://doi.org/10.1007/978-1-4684-8753-4

Brunton-Smith, I., Jackson, J., & Ceccato, V. (2012). Urban fear and its roots in place. *In The Urban Fabric of Crime and Fear* (pp. 55–82). Springer Netherlands. https://doi.org/10.1007/978-94-007-4210-9_3

Camacho Doyle, M., Gerell, M., & Andershed, H. (2021). Perceived unsafety and fear of crime: The role of violent and property crime, neighborhood characteristics, and prior perceived unsafety and fear of crime. *Deviant Behavior*, *43*(11), 1347–1365. https://doi.org/10.1080/01639625.2021.1982657

Curtis, J. W. (2012). Integrating sketch maps with GIS to explore fear of crime in the urban environment: A review of the past and prospects for the future. *Cartography and Geographic Information Science, 39*(4), 175–186. https://doi.org/10.1559/15230406394175

Daigle, L. E., Hancock, K., Chafin, T. C., & Azimi, A. (2022). U.S. and Canadian college students' Fear of Crime: A Comparative Investigation of Fear of Crime and Its Correlates. *Journal of Interpersonal Violence*, *37*(15–16), 12901–12932. https://doi.org/10.1177/08862605211001477

Etopio, A., & Berthelot, E. (2022). Defining and measuring fear of Crime: A New Validated Scale Created from Emotion Theory, Qualitative Interviews, and Factor Analyses. *Journal of Criminology, Criminal Justice, Law & Society, 23*(1), 46–67. https://doi.org/10.54555/ccjls.4234.34104

Felder, M. (2021). Familiarity as a practical sense of place. *Sociological Theory*, *39*(3), 180–199. https://doi.org/10.1177/07352751211037724

Fisher, B., & May, D. (2009). College students' crime-related fears on campus: Are fear-provoking cues gendered? *Journal of Contemporary Criminal Justice, 25*(3), 300–321. https://doi.org/10.1177/1043986209335013

Fox, J. A., & Hellman, D. A. (1985). Location and other correlates of campus crime. *Journal of Criminal Justice, 13*(5), 429–444. https://doi.org/10.1016/0047-2352(85)90043-1

Franklin, T. W., Franklin, C. A., & Fearn, N. E. (2008). A multilevel analysis of the vulnerability, disorder, and social integration models of fear of crime. *Social Justice Research*, *21*(2), 204–227. https://doi.org/10.1007/s11211-008-0069-9

Google. (n.d.). [Google Maps satellite view of Hamilton, ON]. Retrieved December, 2024, from https://www.google.com/maps/place/Hamilton,+ON/@43.2608104,-79.9331491,10z/data=!3m1!4b1!4m6!3m5!1s0x882c986c27de778f:0x2b6aee56d8df0e21!8m2!3d43.2557206!4d-79.8711024!16zL20vMDNwemY?entry=ttu&g_ep=EgoyMDI1MDYwMy4wIKXMDSoASAFQAw%3D%3D

Jacobsen, S. K. (2022). “More of a girl thing?” Examining the role of gender and campus context in perceptions of risk and the shadow of sexual assault. *Journal of Interpersonal Violence, 37*(15–16), 13468–13496. https://doi.org/10.1177/08862605211005142

Kasarda, J. D., & Janowitz, M. (1974). Community attachment in mass society. *American Sociological Review, 39*, 328-339. doi:10.2307/2094293

Kelling, G. L., & Wilson, J. Q. (1982, March). Broken windows: The police and neighborhood safety. *The Atlantic Monthly, 249*(3), 29-38. https://www.theatlantic.com/magazine/archive/1982/03/broken-windows/304465/.

Lane, J. (2015). Fear of crime. *International Encyclopedia of the Social & Behavioral Sciences*, 854–859. https://doi.org/10.1016/b978-0-08-097086-8.45058-0

Lockey, S., Graham, L., Redman, T., Zheng, Y., Routledge, G., & Purves, L. (2019). The impact of a local community engagement intervention on residents’ fear of crime and perceptions of the police. *International Journal of Police Science & Management*, *21*(3), 168–180. https://doi.org/10.1177/1461355719856039

Maier, S. L., & DePrince, B. T. (2019). College students’ fear of crime and perception of safety: The influence of personal and university prevention measures. *Journal of Criminal Justice Education*, *31*(1), 63–81. https://doi.org/10.1080/10511253.2019.1656757

Sas, M., Hardyns, W., Reniers, G., & Ponnet, K. (2022). Unravelling college students’ fear of crime: the role of perceived social disorder and physical disorder on campus. *British Journal of Educational Studies, 70*(1), 65–85. https://doi.org/10.1080/00071005.2020.1870658

Schweitzer, J. H., Kim, J. W., & Mackin, J. R. (1999). The impact of the built environment on crime and fear of crime in urban neighborhoods. *The Journal of Urban Technology, 6*(3), 59–73. https://doi.org/10.1080/10630739983588

Spinney, Jamie. (2011). Geography, land values, and municipal taxation: A spatial paradigm for the estimation and reclamation of rent. https://www.researchgate.net/publication/254623900

Ujang, N. (2008). Place attachment, familiarity, and sustainability of urban place identity. *WSEAS Transactions on Environment and Development, 4*(6), 625–634.

Wu, Y., & Wen, J. (2014). Fear of crime among Chinese immigrants in Metro-Detroit. *Crime, Law, and Social Change, 61*(5), 495–515. https://doi.org/10.1007/s10611-014-9513-y

Zahnow, R., & Tsai, A. (2019). Crime victimization, place attachment, and the moderating role of neighborhood social ties and neighboring behavior. *Environment and Behavior, 53*(1), 40–68. https://doi.org/10.1177/0013916519875175

Examining the Moderating Effect of Agreeableness on the Relationship Between Forgiveness and Self-Esteem

Joely Bye[1], Avery Court[1], Lyla Faroogh[1], Hannah Guit[1], Natalie Kovac[1], and Ena Shin[1]

Abstract

Forgiveness is often viewed as a positive interpersonal quality associated with stronger relationships and better psychological well-being. However, the outcomes of forgiveness may vary depending on individual personality traits. This cross-sectional study explored the relationship between forgiveness, self-esteem and how agreeableness moderates this relationship. We hypothesized that when agreeableness is high, forgiveness will also be high, resulting in low self-esteem. Participants (*N* = 138) completed self-report measures of the traits forgiveness, self-esteem, and agreeableness through an online survey. We used a moderated regression analysis to examine whether agreeableness has an impact on the relationship between forgiveness and self-esteem. Results showed that higher levels of forgiveness were positively associated with higher self-esteem, but agreeableness did not moderate this relationship. In our exploratory analysis, we found that agreeableness was positively related to self-esteem when using the Forgiveness of Others subscale. However, agreeableness did not significantly moderate the relationship between forgiveness of others and self-esteem. Future research may benefit from investigating people-pleasing tendencies more directly to better understand when forgiveness is empowering versus compromising. These insights can help guide future research by highlighting which behavioural factors meaningfully influence forgiveness and which do not.

Introduction

Social relationships are fundamental to the human experience, and forgiveness plays a vital role in repairing them after a transgression (Tirrell, 2021). Our study seeks to explore how forgiveness can impact one's well-being. We were particularly interested in how forgiveness influences self-esteem, especially among individuals who may forgive to maintain harmony rather than to achieve genuine resolution. More specifically, our research explores how a tendency towards agreeableness shapes the relationship between forgiveness and self-esteem. This perspective offers insight into how forgiveness may relate to an individual's sense of self-worth in contexts involving interpersonal dynamics.

Forgiveness

Forgiveness is a broad concept that, in our research, encompasses self-forgiveness, situational forgiveness, and the forgiveness of others (Yamhure Thompson et al., 2005). At its core, forgiveness serves to resolve transgressions by transforming negative feelings toward others into more neutral or positive emotions

[1] Undergraduate Student, Honours Social Psychology Program, Faculty of Social Sciences, McMaster University, Hamilton, Ontario, Canada

(Tirrell, 2021). While contemporary research often highlights the psychological and relational benefits of forgiveness, it is important to note that this concept is not always viewed positively. Some historical philosophical perspectives, such as those of Nietzsche, have framed forgiveness as a potential sign of weakness, suggesting that it may reflect passivity or a lack of self-respect (Tirrell, 2021). This perspective suggests that forgiveness may stem from desires for personal ease or comfort, overshadowing higher goals, such as the maintenance of self-respect or justice (Turner, 2025). Forgiveness is a core component of repairing relationships with the self and others, and practicing it can increase psychological well-being, as well as decrease anger and anxiety (Freedman, 2018). Not practicing forgiveness can lead to stress, depression, and other negative outcomes (Kim et al., 2022). Research on the outcomes of forgiveness is conflicting, which underscores the complexity of the concept (Kim et al., 2022).

Existing research on forgiveness produces mixed findings. Some studies highlight forgiveness as a psychologically adaptive process that aids emotional regulation, improves relationships, and promotes well-being, thereby strengthening self-worth (Tiwari et al., 2023). In such contexts, forgiving may reflect resilience and a sense of secure self-concept. However, other research provides a more nuanced perspective, suggesting that forgiveness can have adverse consequences on self-esteem (Luchies et al., 2010). Specifically, over-forgiveness, defined as the tendency to forgive to reduce interpersonal tension despite not feeling ready to do so, has been associated with diminished self-respect (Luchies et al., 2010). These mixed findings suggest that forgiveness does not universally promote self-worth and can be disempowering under certain conditions.

When individuals forgive to resolve conflict rather than out of genuine readiness, they are likely engaging in people-pleasing tendencies, which are behaviours aimed at appeasing others, at one's own expense (Luchies et al., 2010). This form of compliance may undermine self-esteem (Luchies et al., 2010). Due to research producing conflicting results on the relationship between self-esteem and forgiveness, we seek to fill the gap. Research has depicted that depending on the *type* of forgiveness, correlations among personality traits such as agreeableness vary. For example, neuroticism can be a predictor of self-forgiveness, while agreeableness has been a predictor of other forms of forgiveness (Ross et al., 2004). Our research has evaluated individuals' total levels of forgiveness to develop a more comprehensive understanding. Research can be beneficial in understanding how forgiveness does not always elicit positive self-esteem outcomes.

Self-Esteem

Self-esteem reflects one's inner value and strongly influences their willingness to forgive (Tiwari et al., 2023). For at-risk adolescents deemed deviant, education on forgiveness was able to heighten their self-esteem and overall well-being (Freedman, 2018). Higher self-esteem tends to promote greater levels of forgiveness, enabling individuals to adopt compassionate perspectives towards themselves and others, which in turn, enhances subjective well-being (Tiwari et al., 2023). Conversely, low self-esteem has shown to diminish the likelihood of forgiveness, as individuals may perceive transgressions as more threatening and struggle to reconcile with personal offences (Strelan & Zdaniuk, 2014; Tiwari et al., 2023; Yao et al., 2017). Withholding forgiveness can strengthen self-respect, particularly when the offender has not expressed genuine remorse (Luchies et al., 2010). In such situations, choosing not to forgive may help individuals protect their sense of self-worth and heighten feelings of

personal value (Luchies et al., 2010). Because forgiveness and self-esteem each vary depending on the context, the relationship between the two often produces mixed findings. The majority of research focuses on how self-esteem affects an individual's willingness to forgive (Yao et al., 2017). However, a gap remains when exploring how forgiveness impacts self-esteem with agreeableness as a moderator.

Agreeableness

Despite its relevance in personality models and theories, agreeableness is not frequently regarded as a key personality trait compared to other dimensions of the Big Five (Wilmot & Ones, 2022). Agreeableness is distinguished from other personality traits because it relies on social interactions, resulting in more flexibility (Wilmot & Ones, 2022). Agreeableness is commonly associated with likability and friendliness, yet it encompasses individual differences in traits such as altruism, cooperation, and honesty (Wilmot & Ones, 2022). Agreeableness also shapes people's motivation to cultivate positive relationships, empathize with others' perspectives, and align personal goals with those of others (Graziano & Tobin, 2002).

Agreeableness is not a neutral personality trait, but one that carries an inherently positive social value (Graziano & Tobin, 2002). Research suggests that individuals who score high in agreeableness are more likely to exhibit behaviours that make them well-liked and accepted in social settings (Graziano & Tobin, 2002). Agreeableness scores vary across different contexts, suggesting that it is not a fixed trait, but one that can be adjusted to enhance social desirability (Graziano & Tobin, 2002). There is a well-established positive correlation between agreeableness and forgiveness, with those who are higher in agreeableness being more likely to forgive (Strelan, 2007). This raises the question of whether agreeableness can lead to people-pleasing behaviours when individuals decide to forgive others.

Agreeableness has been studied as a moderator for entitlement and forgiveness, showing that highly entitled individuals tend to be less agreeable, reducing their likelihood of forgiving others (Strelan, 2007). However, the extent to which agreeableness moderates other variables, such as forgiveness and self-esteem, has not been researched extensively. Furthermore, research has shown that those with low self-esteem and high agreeableness are motivated to repair negative moods when it benefits others (Cortes et al., 2019). While previous research has been hesitant to define agreeableness as a fundamental personality dimension, it remains crucial to study due to its pervasive role in social perception and cognition (Graziano et al.,1994).

Current Study

Our study aims to address a gap in the existing research on the relationship between forgiveness and self-esteem. We seek to learn if agreeableness is a moderating factor between the two and identify any possible correlations. The link between the three factors is currently unexplored, as prior research has only examined two at a time. Previous studies suggest that individuals high in agreeableness are more likely to forgive (Wang, 2008), which may be caused by people-pleasing tendencies. These findings highlight the complexity of forgiveness and self-esteem, suggesting that additional factors, such as emotional regulation or social expectations, may shape this relationship. Thus, given that agreeableness is closely tied to maintaining social harmony, we hypothesize that when agreeableness and forgiveness are high, self-esteem will be low in situations where individuals forgive out of wanting to please others.

Methods

Participants

Given the recruitment methods, it is likely that many participants were students at McMaster University. People were recruited through social media platforms such as Instagram and LinkedIn, physical posters displayed across the McMaster campus, and the SONA online experiment management system. The inclusion criteria for this study required participants to be at least 18 years old, fluent in reading and writing English, capable of self-assessing their trait levels using the provided measures and have online accessibility. To be included in the final analysis, participants had to provide informed consent, complete all items on the three measures used (the *Big Five Inventory Scale, Heartland Forgiveness Scale, and the Rosenberg Self-Esteem Scale*), and correctly respond to all four attention checks. This project received ethics approval from the McMaster Research Ethics Board (#7231).

Using the G*Power software, we conducted two power analysis tests to determine the sample size needed to detect a statistically significant effect in our study. To yield a small effect size between 0.1 and 0.3, 395 participants were needed. To yield a medium effect size between 0.3 and 0.5, 55 participants were needed, which suggests a meaningful relationship exists, although not an especially strong one. This indicates that our target sample size should be between 55-395 participants. A total of 194 participants initially entered the study. Following data cleaning, fifty-six participants were excluded for not meeting the required inclusion criteria. Two participants were removed for not providing consent, and fifty-four for failing to or incorrectly answering the attention check questions. The final sample for analysis consisted of 138 participants.

Most participants were recruited through social media and campus posters, with no incentives provided (71.7%). Additionally, a portion of participants were recruited through the SONA online experiment management system, which is available in various undergraduate courses as a means for students to earn course credit. This study was listed on SONA, allowing students to participate in exchange for 0.5 SONA credits, translating to 0.5% extra course credit. Participants recruited through SONA had two options if they wished to withdraw from the study. They could either exit the study without submitting their response, forfeiting their participation credit, or, if they provided consent, they could skip the remaining questions and submit the survey while still receiving credit. Of the 138 participants included in the final analysis, n = 39 completed the study through SONA (28.3%).

Demographic data was collected to understand the generalizability of this study. Participants who entered this study were obtained from the general adult population and ranged in age from 18 to 64 years old (M = 26.7, SD = 11.62). Out of 138 participants, the sample was dominated by women (76.8%), with the remainder being men (18.8%), non-binary (3.6%), and genderqueer (0.7%). Sexual orientation was reported to be heterosexual (65.9%), bisexual (18.8%), lesbian (4.3%), pansexual (4.3%), questioning (2.9%), queer (1.4%), asexual (1.4%), and gay (0.7%). In addition, many participants reported that they were currently single (46.4%), attending school full time (57.9%), and were completing or had already completed a four-year college or university degree or program (37%).

Participants were primarily European/White (65.9%), the remaining participants reported their ethnicity as East Asian (e.g., Chinese, Taiwanese, Japanese, Korean, etc.) (12.3%), South Asian (e.g., Afghan, Nepali, Tamil, Bangladeshi, Pakistani, Indian, Sri Lankan, Punjabi) (10.1%), West Asian (e.g., Iraqi, Jordanian, Palestinian, Saudi,

Syrian, Yemeni, Armenian, Iranian, Israeli, Turkish) (6.5%), African/Black (including African-American, African-Canadian, Caribbean) (5.1%), Southeast Asian (e.g., Vietnamese, Thai, Cambodian, Malaysian, Filipino/a, Laotian, Singaporean, Indonesian) (5.1%), Indo-Caribbean, Latin, South or Central American (2.9%), and Indigenous within Canada (e.g., First Nation, Métis, Inuit) (2.2%). Options were included for Indo-African, Indo-Fijian, West-Indian, or Polynesian (e.g., Samoans, Tongan, Niuean, Cook Island Māori, Tahitian Mā'ohi, Hawaiian Mā'oli, Marquesan, New Zealand Māori), although no participants reported their race or ethnicity as such. Refer to Table 1 for additional demographic information.

Table 1

Demographic Information: Age, Relationship Status, Employment Status, and Education Level

Variable		*n*	%
Age	18 - 29	112	81.2
	30 - 39	4	2.9
	40 - 49	7	5.1
	50 - 59	13	9.4
	60 - 69	2	1.4
Relationship Status	Single	64	46.4
	Dating my current partner exclusively	41	29.7
	Common-law (e.g., living in a conjugal relationship with a person who is not your married spouse)	4	2.9
	Engaged	3	2.2
	Married	24	17.4
Relationship Status: Prefer to self-describe	Casual dating (dating multiple people)	1	0.7
Current Employment Status	Working full time	33	23.9
	Working part time	58	42.0
	Unemployed (not working but looking for work)	15	10.9
	Not working and not looking for work	5	3.6
	Going to school full time	80	57.9
	Going to school part time	4	2.9
Current Employment Status is not on the provided list (please specify):	Retired	1	0.7
	Seasonal work	1	0.7
Highest Level of Education	Less than high school	1	0.7
	High school/GED	27	19.6
	Some college/technical school/university	41	29.7
	2-year college/technical school/university	15	10.9

degree/diploma (e.g., AA, AS)		
4-year college/university degree (e.g., BA, BS)	51	37
Master's degree (MA, MS, MEng, MBA)	2	1.4
Doctorate degree (e.g., PhD, EdD)	1	0.7

Procedure

Data collection for this cross-sectional observational study did not target a specific sub-population, as participants were drawn from the general adult population. The study was conducted through the online survey platform Qualtrics, with data collection occurring between January 27th, 2025, and February 16th, 2025. Eligible and consenting participants completed an anonymous online survey, which took 15-30 minutes to complete. All survey responses remain anonymous, containing no identifiable information.

The survey consisted of multiple-choice and Likert-scale questions, utilizing pre-existing scales to measure forgiveness, self-esteem, and agreeableness. Forgiveness was measured using the (1) *Heartland Forgiveness Scale* (HFS), self-esteem was assessed with the (2) *Rosenberg Self-Esteem Scale* (RSE), and agreeableness was measured with the (3) *Big Five Inventory Scale (BFI).* To ensure participant attentiveness, four attention check questions were embedded throughout the survey. Additionally, demographic questions were included to assess the generalizability of the sample, including age, gender, sexual orientation, relationship status, race/ethnicity, employment status, and level of education.

Measures

Forgiveness

Forgiveness was measured using the Heartland Forgiveness Scale (HFS) (Yamhure Thompson et al., 2005), a widely used measure that evaluates an individual's overall tendency to forgive. The HFS consists of three subscales, each capturing a distinct dimension of forgiveness: (1) Forgiveness of Self, (2) Forgiveness of Others, and (3) Forgiveness of Situations. The scale also includes a Total Forgiveness score, which reflects overall forgiveness tendencies. The HFS contains eighteen items, with each subscale comprising six items. Responses are rated on a 7-point Likert scale (*1 = almost always false of me, 7 = almost always true of me*). Of the eighteen items, nine are reverse scored and nine remain the same score rated by the participant.

Participants responded to items such as *"learning from bad things that I've done helps me get over them"* (non-reverse scored) and *"I hold grudges against myself for negative things I've done"* (reverse scored). Scores for each subscale were calculated by summing the respective six items, and the Total Forgiveness was obtained by summing all eighteen items. Higher scores indicate greater levels of forgiveness, while lower scores suggest lower levels of forgiveness. On this scale, scores range from a minimum of eighteen to a maximum of 126. In the present study, participant scores ranged from 30-120 and reported average levels of forgiveness, with the scale demonstrating good reliability. Please refer to Table 2 to view the descriptive statistics for this scale and correlations between variables.

The Heartland Forgiveness Scale includes three subscales measuring distinct dimensions of forgiveness: (1) Forgiveness of Self (sum of items 1-6), (2) Forgiveness

of Others (sum of items 7-12), and (3) Forgiveness of Situations (sum of items 13-18). The Forgiveness of Others subscale focuses on the shift of negative attitudes toward others (Ascioglu Onal & Yalcin, 2017) and is strongly associated with interpersonal traits such as empathy (Turnage et al., 2012). Scores range from a minimum of six to a maximum of forty-two. In the present study, participant scores on this subscale ranged from 8-42 indicating average levels of forgiveness of others, with the scale demonstrating good reliability. Refer to Table 4 to view the descriptive statistics for this subscale and correlations between variables.

Self-Esteem

Self-esteem was measured using the Rosenberg Self-Esteem Scale (RSE) (Avison & Rosenberg, 1981), one of the most widely used and validated measures of self-esteem (Blascovich & Tomaka, 1991). The 10-item scale does not contain subscales and was originally developed as a Guttman scale. However, this study used the adapted version where items are scored as a Likert scale. On average, responses are rated on a 4-point Likert scale where (*0= strongly agree, 3 = strongly disagree*). However, this study assigned values of 1-4 for all items, so responses were rated on a 4-point Likert scale where (*1 = strongly agree, 4 = strongly disagree*).

The RSE consists of five reverse-score items and five non-reverse-scored items. Participants responded to items such as *"on the whole, I am satisfied with myself"* (non-reverse scored) and *"at times I think I am no good at all"* (reverse scored). Total self-esteem scores were calculated by summing all ten items, with higher scores indicating greater levels of self-esteem. Traditional RSE scoring is based on a 0-3 scale, although for this study, thresholds were adapted to the 1-4 scale where scores ranged from a minimum of ten to a maximum of forty. In the present study, participants' scores ranged from 10-40 and reported average levels of self-esteem, with the scale demonstrating excellent reliability. Refer to Table 2 to view the descriptive statistics for this scale and correlations between variables.

Agreeableness

Agreeableness was measured using the Big Five Inventory (BFI) (John & Srivastava, 1999). This scale is the most widely used scale to measure the Big Five personality traits because of its accepted reliability and validity (Fossati et al., 2011). The BFI consists of 44 items rated on a 5-point Likert scale (*1 = disagree a lot, 5 = agree a lot*) and includes five subscales measuring agreeableness, extraversion, conscientiousness, neuroticism, and openness.

For this study, the Agreeableness subscale was used which consists of nine items, four of which were reverse scored. Participants responded to statements such as *"has a forgiving nature"* (non-reverse scored) and *"tends to find fault with others"* (reverse scored). Scores for the Agreeableness subscale were summed to produce a total score, with higher scores indicating greater levels of agreeableness. On this scale, scores can range from a minimum of nine to a maximum of forty-five. In the present study, participant scores ranged from 22-45 and reported high levels of agreeableness, with the scale demonstrating acceptable reliability. Refer to Table 2 to view the descriptive statistics for this scale and correlations between variables.

Results

Descriptive Statistics and Preliminary Analyses

After completing each of the three measures used in this study, participants displayed high levels of agreeableness, average levels of forgiveness, and average

levels of self-esteem. A two-tailed test with a confidence interval of 95% was used to detect correlations between the total scores for forgiveness, agreeableness, and self-esteem. The two-tailed test was used to detect correlations regardless of their direction, and significant correlations were found between each of the variables. Refer to Table 2 for the descriptive statistics and correlations between each of the scales used.

Table 2

Descriptive Statistics and Correlations Between Study Variables

		Descriptives and Reliability			Correlations		
	Variable	*M*	*SD*	α	1	2	3
1.	Forgiveness	82.02	15.88	0.87	–		
2.	Agreeableness	34.99	5.12	0.73	.45**	–	
3.	Self-Esteem	29.05	6.07	0.92	.53**	.28**	–

Note. **correlation is significant at the 0.01 level (2-tailed)

Analytic Approach

Moderated Regression Model

All three variables examined in this study are continuous. Therefore, a moderated regression model was used to analyse how the relationship between forgiveness (predictor) and self-esteem (outcome) varies when agreeableness is input as a moderator. A between-subjects design was utilized, as the study focused on individual differences. To accurately conclude what was higher or lower levels of forgiveness, self-esteem, and agreeableness, relative to average levels, the transformation technique of grand-mean centring was applied. This involved taking each individual score and subtracting the average across all individual elements, to compare how individual scores on the scale range in comparison to the representative variable for each category.

A hierarchical moderated regression model was conducted to examine the relationship between forgiveness (predictor), agreeableness (moderator), and self-esteem (outcome). An initial model was conducted where the independent variable and moderator were included as predictors of self-esteem, and they significantly predicted the outcome *(F (2, 135) = 25.88, p < .001)*, accounting for 27.7% of the variance in the outcome variable of self-esteem. Specifically, when both variables were included in the model, forgiveness significantly predicted self-esteem, but agreeableness did not. In the follow-up model, which included the interaction term between forgiveness and agreeableness, this interaction was not significant. This indicates that agreeableness did not moderate the relationship between forgiveness and self-esteem. Table 3 displays the moderated regression analysis used to examine the relationships between forgiveness (predictor), and agreeableness (moderator), on self-esteem in model one, and the interaction of forgiveness multiplied by agreeableness on self-esteem to view the moderating effect of agreeableness in model two. Figure 1 displays a graphical representation of the moderated regression model.

Table 3

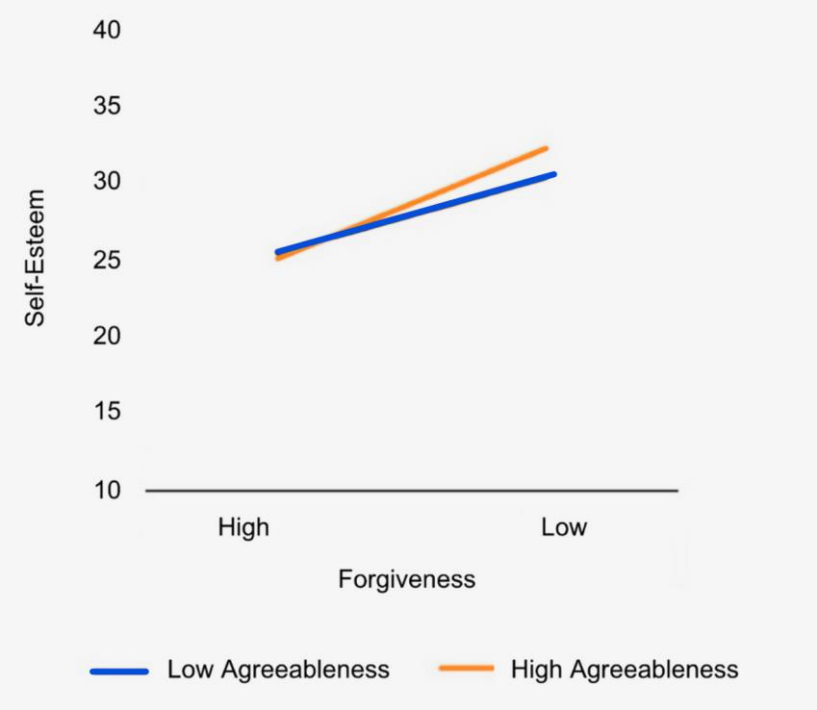
Moderated Regression Model

Model	Variable	B	Std. Error	Beta	t	Sig.
1	Forgiveness on Self-Esteem	3.45	.56	.50	6.13	< .001***
	Agreeableness on Self-Esteem	.53	.87	.10	.61	.543
2	Forgiveness by Agreeableness on Self-Esteem	1.10	.783	.10	1.41	.161

Note. *** p < .001, ** p < .01, * p < .05.

Figure 1

Moderated Regression Model



Exploratory Analyses

Our hypothesis did not focus on any specific dimension of forgiveness when examining how agreeableness moderates the relationship between forgiveness and self-esteem. Previous research has shown that the Forgiveness of Others subscale found within the Heartland Forgiveness Scale is correlated with agreeableness (Strelan, 2007; Turnage et al., 2012), possibly due to its focus on interpersonal relations (Charzyńska et al., 2025), much like agreeableness. An exploratory analysis

was conducted after running the initial moderated model to assess whether the Forgiveness of Others subscale of the HFS would yield a significant effect in the moderated regression model.

In the present study, the sample reported average levels of forgiveness of others. A two-tailed test with a confidence interval of 95% was used to detect correlations between the total scores for forgiveness of others, agreeableness, and self-esteem. Significant correlations were found between forgiveness of others and agreeableness, as well as between agreeableness and self-esteem, but no significant correlation was found between forgiveness of others and self-esteem. Refer to Table 4 to view the descriptive statistics and correlations between the total scores of each of the scales used.

Table 4

Descriptive Statistics and Correlations Between Study Variables

		Descriptives and Reliability			Correlations		
	Variable	*M*	*SD*	α	1	2	3
1.	Forgiveness of Others	27.52	6.90	0.84	–		
2.	Agreeableness	34.99	5.12	0.73	.444**	–	
3.	Self-Esteem	29.05	6.07	0.92	.125	.276**	–

Note. *** p < .001, ** p < .01, * p < .05.

Using the same model-building approach, a hierarchical moderated regression analysis was conducted with forgiveness of others as the predictor, agreeableness as the moderator, and self-esteem as the outcome. The model significantly predicted self-esteem, *(F (2, 135) = 5.58, p = .005)*, accounting for 7.6% of the variance in the outcome variable of self-esteem. Specifically, when both variables were included in the model, the opposite effect was found from the initial model. Forgiveness of others did not significantly predict self-esteem, but agreeableness did significantly predict self-esteem. In the follow-up model, another interaction term was created between forgiveness of others and agreeableness to test the moderating effect of agreeableness on forgiveness of others and self-esteem, which was also not significant. Table 5 displays the correlations found between forgiveness of others and agreeableness on self-esteem in model one, and the interaction of forgiveness of others multiplied by agreeableness on self-esteem in model two.

This indicates that when focusing specifically on forgiveness of others, agreeableness did not moderate the relationship between forgiveness and self-esteem. Although this interaction did not elicit a significant correlation, further research may be warranted to explore potential nuances in the relationship between forgiveness subtype, agreeableness, and self-esteem.

Table 5

Correlations Between Study Variables

Model	Variable	B	Std. Error	Beta	t	Sig.
1	Forgiveness of Others on Self-Esteem	.02	.49	.00	.035	.972
	Agreeableness on Self-Esteem	2.93	.98	.28	2.98	.003**
2	Forgiveness of Others by Agreeableness on Self-Esteem	1.07	.72	.13	1.49	.138

Note. *** p < .001, ** p < .01, * p < .05.

Discussion

Despite many scholars' examining self-esteem, forgiveness, and the Big Five personality trait of agreeableness, a gap existed regarding an examination of these concepts together. Our research addresses this gap using a cross-sectional study to examine the moderating effect that agreeableness has on the relationship between forgiveness and self-esteem. We found a positive correlation between high forgiveness and high self-esteem, supporting existing empirical evidence that relationship maintenance and reparation has positive outcomes on one's self-esteem (Freedman, 2018). We did not find significant evidence to suggest that being a highly agreeable person will moderate this relationship.

Discussion of Results

Those high in agreeableness have a higher tendency to forgive (Wang, 2008). On average, participants in this study reported high levels of agreeableness, and average levels of both forgiveness and self-esteem. Our results produced a positive correlation between forgiveness and self-esteem, indicating that those high in forgiveness were also likely to have higher self-esteem. This replicates previous research, showing that the act of forgiving others may lead to increased levels of self-esteem (Freedman, 2018). While agreeableness as a moderator of forgiveness and self-esteem did not show statistical significance, the results of this study offer insight into potential future research regarding people-pleasing behaviours and the act of over-forgiving.

To better understand the data, an exploratory analysis examined the relationship between forgiveness, agreeableness, and self-esteem by using the Forgiveness of Others subscale. The analysis revealed positive correlations between forgiveness of others and agreeableness, as well as between agreeableness and self-esteem. This indicates that when the Forgiveness of Others subscale is used, individuals who are more agreeable were more likely to be forgiving of others and have higher self-esteem. Additionally, when forgiveness of others was included in the model, a significant

correlation was found between agreeableness and self-esteem. However, agreeableness did not significantly moderate the relationship between forgiveness of others and self-esteem.

Theoretical Contributions and Implications

Our study examines how agreeableness plays a role in forgiveness and self-esteem. Previous research on the subject is conflicting, with some findings suggesting that forgiveness can elicit high self-esteem (Tiwari et al., 2023), whereas others suggest that high forgiveness can lower self-esteem (Luchies et al., 2010). To address the shortcomings of previous research, we hypothesized that self-esteem would be low when levels of forgiveness and agreeableness were high. No significant correlations were found between variables when agreeableness was used as a moderator. However, a more in-depth exploration of agreeableness could find significance in this research by measuring people-pleasing behaviours more directly. The BFI scale assesses levels of agreeableness which, while useful for investigating general personality traits, lacks specificity for pinpointing behaviours directly related to agreeableness and people-pleasing. A more nuanced agreeableness scale that focuses on specific people-pleasing behaviours could provide deeper insights into this trait and its effects.

Research indicates that low self-esteem is linked to depression and a diminished sense of well-being (Orth & Robins, 2013). Low self-esteem can lead to negative outcomes such as poor moods, depression, and reduced self-confidence (Luchies et al., 2010). Therefore, exploring how excessive agreeableness and people-pleasing behaviours can undermine self-esteem is important for understanding the broader implications on overall well-being. This study contributes to the understanding of personality factors in relation to forgiveness. Contrary to existing findings, forgiveness can lead to lower levels of self-esteem (Luchies et al., 2010) depending on the situation and context of when individuals decide to forgive.

Further research should focus on what defines ‘over-forgiveness’ and examine at what point levels of forgiveness become too high. This could be beneficial when examining the trait of agreeableness as a moderator, as those high in agreeableness tend to engage in behaviours that please others. More research must be conducted to evaluate how behaviours done to please others can lower self-esteem, since individuals prioritize others wants and needs over their own.

Limitations and Future Directions

Despite the valuable contributions from this study to research on personality factors and forgiveness, various limitations should be acknowledged. Prior to data cleaning, our sample consisted of 194 participants, of which a significant portion did not meet the inclusion criteria due to failure to provide consent or incomplete attention check questions. Although the remaining sample size falls within a medium effect size range (N = 138), a reduction in participants limits the statistical power and accuracy of our findings. Additionally, our sample predominantly consisted of young females of White/European descent, restricting the generalizability of our results to a narrower demographic. Furthermore, since the recruitment process relied primarily on social media, campus posters and the SONA system at McMaster University, our sample may be biased, reducing the representativeness of the broader adult population.

Collecting data online also posed various limitations. Participation was restricted to individuals with internet access, excluding those without access. Furthermore, the survey was available for 21 days, which may not be enough time to recruit a larger and

more diverse sample size. Time limitations restrict the opportunity for larger numbers of participants to sign up, causing a less generalizable study. Moreover, the study relied on self-report measures, which are subject to biases such as social desirability and inaccurate self-assessment, potentially affecting the validity of responses. In addition, the exclusion of non-English speakers and writers further limited the diversity of our sample, reducing the overall generalizability of our findings. Finally, our original model used a measure of total forgiveness. However, some of its subscales, specifically the Forgiveness of Self subscale, does not entirely align with agreeableness, as agreeableness focuses on interactions with others rather than the self. Forgiveness of self and agreeableness have not been strongly correlated in past research (Matuszewski & Moroń, 2022; Ross et al., 2004), therefore self-forgiveness as a measure of total forgiveness, could influence the results of this study. These limitations may have hindered the ability to effectively detect whether agreeableness moderates the relationship between forgiveness and self-esteem.

Future research could build from this study to gather more information on the relationship between forgiveness, agreeableness, and self-esteem. The correlations found in our moderated models were slightly above the threshold for statistical significance, and a larger sample size could find significant results. In addition, collecting a more diverse sample would not only improve the generalizability of the results but may provide new insights. In our sample, most participants were White North Americans. Alternative findings show that collectivist cultures demonstrate different predictors for forgiveness (Wang, 2008). Therefore, our results may be different because most of our participants are North American. By examining both collectivist and individualistic cultures, research could gain a deeper understanding of how forgiveness may vary based on geographical location.

Future research on this topic could be conducted using semi-structured interviews with participants to reduce potential biases of self-report measures such as those used in this study. Semi-structured interviews would provide more detailed information on the trait levels held by participants and potentially allow the researchers to establish stronger correlations between variables. Another improvement could involve deciding on a type of recent transgression that required forgiveness and recruiting participants who meet such criteria. Focusing on a specific recent transgression would incorporate participants who can accurately reflect on their experiences without a large time lapse biasing their responses. This could potentially allow for a stronger correlation to be found among forgiveness, agreeableness, and self-esteem when applied to a consistent type of transgression.

People-pleasing tendencies is an important topic to delve into as our thoughts and behaviours are shaped by our daily social interactions. A validated scale to measure these tendencies has not been developed. There are similarities between people-pleasing and the personality trait of agreeableness. Both work towards maintaining social harmony, which informed our decision for focusing on the trait of agreeableness. Those high in agreeableness were motivated to repair their moods when it benefited others, not just to increase their likeability (Cortes et al., 2019). This suggests that those who are agreeable do prioritize maintaining social harmony but will not compromise their moods at the expense of being liked by others (Cortes et al., 2019). This is where people-pleasing behaviours and agreeableness differ. Developing a specific scale to measure people-pleasing would be an interesting addition to this research as forgiving to resolve conflict, potentially due to people-pleasing tendencies, could lower self-esteem (Luchies et al., 2010).

Conclusion

Forgiveness can be a meaningful step towards emotional clarity and connection. Our results do not support a link between agreeableness, forgiveness, and lower self-esteem. However, the findings do show that higher levels of forgiveness are associated with higher self-esteem, suggesting that the ability to let go of resentment may reflect a secure sense of self-worth. In choosing to forgive, individuals may be giving themselves the chance to feel not just at peace with others, but also with themselves.

References

Ascioglu Onal, A., & Yalcin, I. (2017). Forgiveness of others and self? Forgiveness: The predictive role of cognitive distortions, empathy and rumination. *Eurasian Journal of Educational Research*, *17*(68), 99–122. https://doi.org/10.14689/ejer.2017.68.6

Avison, W. R., & Rosenberg, M. (1981). Conceiving the self. *Canadian Journal of Sociology / Cahiers Canadiens de Sociologie*, *6*(2), 212. https://doi.org/10.2307/3340091

Blascovich, J., & Tomaka, J. (1991). Measures of self-esteem. *Measures of Personality and Social Psychological Attitudes*, 115–160. https://doi.org/10.1016/b978-0-12-590241-0.50008-3

Charzyńska, E., Offenbächer, M., Halverson, K., Hirsch, J. K., Kohls, N., Hanshans, C., Sirois, F., & Toussaint, L. (2025). Profiles of well-being and their associations with self-forgiveness, forgiveness of others, and gratitude among patients with rheumatic and musculoskeletal diseases. *British Journal of Health Psychology*, *30*(1), 1-23. https://doi.org/10.1111/bjhp.12749

Cortes, K., Wood, J. V., & Prince, J. (2019). Repairing one's mood for the benefit of others: Agreeableness helps motivate low self-esteem people to feel better. *Journal of Social and Personal Relationships, 36*(11–12), 3835–3854. https://doi.org/10.1177/0265407519840707

Fossati, A., Borroni, S., Marchione, D., & Maffei, C. (2011). The big five inventory (BFI). *European Journal of Psychological Assessment*, *27*(1), 50–58. https://doi.org/10.1027/1015-5759/a000043

Freedman, S. (2018). Forgiveness as an educational goal with at-risk adolescents. *Journal of Moral Education*, *47*(4), 415–431. https://doi.org/10.1080/03057240.2017.1399869

Graziano, W. G., Kohnstamm, G. A., Halverson, C. F., & Martin, R. P. (1994). The development of agreeableness as a dimension of personality. *The developing structure of temperament and personality from infancy to adulthood* (1st ed., pp. 339–354). Psychology Press.

Graziano, W. G., & Tobin, R. M. (2002). Agreeableness: Dimension of personality or social desirability artifact? *Journal of Personality, 70*(5), 695-728. https://doi.org/10.1111/1467-6494.05021

John, O. P., & Srivastava, S. (1999). The big-five trait taxonomy: History, measurement, and theoretical perspectives. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality: Theory and research 2*, 102-138. New York: Guilford Press.

Kim, J. J., Payne, E. S., & Tracy, E. L. (2022). Indirect effects of forgiveness on psychological health through anger and hope: A parallel mediation analysis. *Journal of Religion and Health, 61*(5), 3729–3746. https://doi.org/10.1007/s10943-022-01518-4

Luchies, L. B., Finkel, E. J., McNulty, J. K., & Kumashiro, M. (2010). The doormat effect: When forgiving erodes self-respect and self-concept clarity. *Journal of Personality and Social Psychology*, *98*(5), 734–749. https://doi.org/10.1037/a0017838

Matuszewski, K., & Moroń, M. (2022). The HEXACO model of personality, religiosity, and trait forgiveness. *Pastoral Psychology*, *71*(4), 525–543. https://doi.org/10.1007/s11089-022-01006-2

Orth, U., & Robins, R. W. (2013). Understanding the link between low self-esteem and depression. *Current Directions in Psychological Science*, *22*(6), 455–460. https://doi.org/10.1177/0963721413492763

Ross, S. R., Kendall, A. C., Matters, K. G., Rye, M. S., & Wrobel, T. A. (2004). A personological examination of self- and other-forgiveness in the five-factor model. *Journal of Personality Assessment*, *82*(2), 207–214. https://doi.org/10.1207/s15327752jpa8202_8

Strelan, P. (2007). Who forgives others, themselves, and situations? The roles of narcissism, guilt, self-esteem, and agreeableness. *Personality and Individual Differences*, *42*(2), 259–269. https://doi.org/10.1016/j.paid.2006.06.017

Strelan, P., & Zdaniuk, A. (2014). Threatened state self-esteem reduces forgiveness. *Self and Identity*, *14*(1), 16–32. https://doi.org/10.1080/15298868.2014.889034

Talay Turner, Z. (2025). Nietzsche's ethics of forgiving and forgetting. *The European Legacy*, *30*(2), 187–202. https://doi.org/10.1080/10848770.2025.2450910

Tirrell, J. M. (2021). Forgiveness as a character strength: Toward a developmental model and research agenda. *Journal of Moral Education, 51*(3), 312–335. https://doi.org/10.1080/03057240.2021.1873754

Tiwari, G. K., Pandey, R., Parihar, P., & Rai, P. K. (2023). Self-forgiveness and human flourishing: understanding the mediating role of self-esteem. *Mental Health, Religion & Culture, 26*(5), 418–430. https://doi-org.libaccess.lib.mcmaster.ca/10.1080/13674676.2023.2238642

Turnage, B. F., Hong, Y. J., Stevenson, A. P., & Edwards, B. (2012). Social work students' perceptions of themselves and others: Self-esteem, empathy, and forgiveness. *Journal of Social Service Research*, *38*(1), 89–99. https://doi.org/10.1080/01488376.2011.610201

Wang, T.-W. (2008). Forgiveness and big five personality traits among Taiwanese undergraduates. *Social Behavior and Personality*, *36*(6), 849–850. https://doi.org/10.2224/sbp.2008.36.6.849

Wilmot, M. P., & Ones, D. S. (2022). Agreeableness and its consequences: A quantitative review of meta-analytic findings. *Personality and Social Psychology Review*, *26*(3), 242–280. https://doi.org/10.1177/10888683211073007

Yamhure Thompson, L., Snyder, C. R., & Hoffman, L. (2005). "Heartland forgiveness scale". *Faculty Publications, Department of Psychology*. 452. https://digitalcommons.unl.edu/psychfacpub/452

Yao, S., Chen, J., Yu, X., & Sang, J. (2017). Mediator roles of interpersonal forgiveness and self-forgiveness between self-esteem and subjective well-being. *Current Psychology, 36*(3), 585–592. https://doi.org/10.1007/s12144-016-9447-x

Beyond the Bubble: McMaster Students' Fear of Crime in Downtown Hamilton

Amanda Atkinson[1], Anna Wienburg[1], Sarah Uden[1], Lisa Mulhall[1], Ana Stoicheci[1], and Ryen-Mackenzie Cameron[1]

Abstract

Previous research has examined fear of crime within university campuses as opposed to the surrounding city. This study aimed to fill this gap by examining students' fear of crime beyond the university campus, using the idea of familiarity to guide the hypotheses. We explored the difference between local and domestic McMaster students' fear of crime in downtown Hamilton Ontario. Additionally, we investigated the role of meaningful time spent downtown as a factor that impacts students' fear of crime. Using a mixed-methods approach, 261 students completed an online survey about their fear of crime in downtown Hamilton. Quantitative findings revealed no statistically significant difference between the two groups, and meaningful time spent downtown did not moderate the relationship between group status and fear of crime. However, qualitative findings suggested that meaningful time may influence qualitative differences in fear of crime. These findings indicate that the relationship between meaningful time spent in a specific area and fear of crime is more complex than previously assumed, with familiarity alone being insufficient in reducing fear without deeper place attachment. Ultimately, the findings contribute to theoretical discussions on fear of crime while underscoring the importance of community integration strategies in enhancing students' overall sense of safety in their university's city.

Theoretical Models

A variety of theoretical perspectives help explain how fear of crime is elicited among the general population (Wu & Wen, 2014). The Community Environment model is a substantial framework that consists of both the Disorder Model and the Social Ties Model, also referred to as the Social Integration Model (Wu & Wen, 2014). The latter focuses on an individual's feeling of connectedness to their neighbourhoods and communities as it relates to the fear of crime (Alper & Chappell, 2012; Franklin et al., 2008). The Social Integration Model suggests that those who feel well-integrated into their communities experience less fear of crime compared to those who do not feel integrated (Franklin et al., 2008; Lockey et al., 2019). Based on this model we believed that students attending their local universities felt more integrated with their city and, therefore, would have a lower fear of crime compared to students from another town.

The Disorder Model explains how those who perceive their neighbourhood as in a state of disarray, including a prominent street population, vandalism, and neglected

[1] Undergraduate Student, Honours Social Psychology Program, Faculty of Social Sciences, McMaster University, Hamilton, Ontario, Canada.

establishments, experience a heightened fear of crime (Camacho Doyle et al., 2021). This model is in direct association with the broken windows theory, which states that obvious signs of disorder within communities inherently suggest to people that crime is occurring in the area– a belief that contributes to one's fear of crime (Kelling & Wilson, 1982; Sas et al., 2022). Experiential evidence from researchers and anecdotes of peers reveal that downtown Hamilton exhibits a lot of obvious physical disorder. From a large homeless population in the Jackson Square area, to vandalized and deteriorating businesses on main streets like King and Main Street, one does not have to look hard to see why students may feel fearful based on the Disorder Model. Together, the Community Environment model explains how those who do not feel integrated into their communities and perceive them as being in a state of disorder experience a heightened fear of crime (Franklin et al., 2008). We found this model to be ideal to use as a framework in developing our research.

We additionally considered the vulnerability model to analyze the prevalence of students' fear of crime. This model states fear of crime can be encouraged by both that real and perceived risk of vulnerability (Alper & Chappell, 2012). For example, women are more fearful of crime because they believe they are less able to defend themselves from offenders (Wu & Wen, 2014). In this way, individuals believe that a personal aspect of their identity makes them particularly vulnerable to crime. This concept is particularly relevant to student populations who may have limited access to resources, live away from familiar support networks, and/or belong to diverse and historically marginalized groups. Intersecting factors such as these may contribute to an increased sense of perceived vulnerability. Franklin and colleagues (2008) divided this concept of perceived vulnerability into two categories–physical and social vulnerabilities. The earlier example of women would fall into the category of physical vulnerabilities, as it pertains to how a lack of mobility or strength causes one to believe they cannot sufficiently defend themselves from violent attacks. Social vulnerabilities, on the other hand, refer to a variety of factors that contribute to one's victimization, such as living in economically distressed neighbourhoods, being in a marginalized group, or being unfamiliar with a certain space (Alper & Chappell, 2012; Franklin et al., 2008). These two categories heavily influence each individual's various feelings and perceptions of crime.

The Bubble

With these models in mind, the university setting provides a unique context for analyzing fear of crime because it creates a 'bubble' where students can stay and feel safe. Due to the many security measures of the university setting such as campus security, surveillance, and highly populated areas, students may feel safer compared to the city outside of the bubble (Sas et al., 2022). This is especially true for domestic students—those who previously did not reside in their university city or who commute—as they tend to have less familiarity with these areas than local students—those who previously lived in their university area. Importantly, this bubble also has the potential to hinder students' integration into local communities because it is a self-contained environment that separates students from the rest of the surrounding city (Maier & DePrince, 2019). If students feel uncomfortable with their surroundings and remain fearful, this can adversely impact their mental health and general university experiences (Daigle et al., 2022; Lane, 2015). With the McMaster University campus being separate

and distinct from downtown Hamilton, this bubble is intensified and makes for a unique case of students' experiences and fear of crime.

Existing discussions surrounding the fear of crime in urban areas tend to focus on general populations and dismiss subgroups within the larger population (Fisher & May, 2009; Jacobsen, 2022; Maier & DePrince, 2019). Focusing on a specific group may help uncover different patterns in the of fear of crime. While fear of crime on university campuses has been studied, there is limited knowledge on university students' fear of crime in relation to their surrounding communities, as well as how time spent in the area could inform their fear of crime (Maier & DePrince, 2019). Investigating these gaps in the literature with a focus on the bubble is critical in getting a better understanding of students' fear of crime.

Current Study

This study focused on the difference between local and domestic students' fear of crime in downtown Hamilton, and whether meaningful time spent there influences their fear of crime. We wanted to understand how these different McMaster student groups perceived the city and their feelings of safety in relation to downtown Hamilton depending on their level of integration into the community, potentially fostering a sense of safety and enhancing their overall well-being. We hypothesized that local students would have a lower fear of crime in downtown Hamilton than domestic students due to their familiarity with the area, and that the more meaningful time students spend there, the lower fear of crime they would report.

Methods

Participants

Participants were 261 McMaster University undergraduate and graduate students who were either local to Hamilton, Ontario (N = 59) or domestic, meaning they lived outside of Hamilton, Ontario prior to enrollment at McMaster (N = 202). Participants were recruited through McMaster's SONA Research Participation System (N = 156) and through posts on social media (Instagram, LinkedIn). Additionally, physical posters were distributed around the Westdale and downtown communities, including inside coffee shops and on community poster boards. Inclusion criteria required that participants must be (a) a current McMaster University student, (b) 18 years of age or older, and (c) able to read and speak fluent English. Of the 296 students who entered the study, 35 were excluded from the analysis due to not meeting the inclusion criteria. The final sample size consisted of 261 McMaster University students. Participants mostly identified as female (77.4%; 11.1% male, 11.1% nonbinary) and White (53.3%; 13.8% Southeast Asian, 13.4% East Asian, 19.5% other groups). Over half of participants identified as straight (59%; 16.5% Bisexual, 8% Queer, 12.6% other sexualities). In terms of student demographics, the dominant group was second-year undergraduates (34.6%; 26.8% fourth-year undergraduates, 26.8% third-year undergraduates, 9.7% other undergraduate and graduate years). Finally, the participant sample was made up of mostly 21-year-olds (27.6%; 26.8% 19-year-olds, 19.2% 20-year-olds, 13.8% 22-year-olds, and 6.8% other ages).

Procedure

Data was collected through an anonymous survey on the website Qualtrics. Participants consented and completed the inclusion criteria questions at the beginning of the survey and then were asked a series of quantitative and demographic questions, as well as four qualitative, open-ended questions. An attention check question ("What university is the focus of this study?") was asked mid-survey to ensure that participants were not answering questions randomly. Failure to choose the right answer resulted in the dismissal of all data collected in that participant's responses. The survey took approximately 5-20 minutes for most participants to complete. Participants who took the survey through SONA received 0.5 SONA credits when they reached the end of the survey, and no compensation was provided to those who completed a survey through social media posts or physical posters.

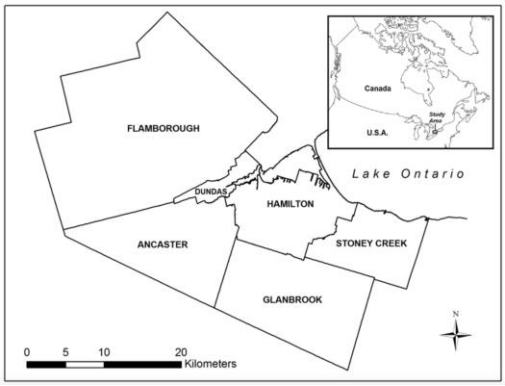
Measures

Local or Domestic

The primary independent variable in this survey was whether a student was local to Hamilton prior to their enrollment at McMaster University, or whether they were domestic and lived outside of Hamilton prior to enrollment. To obtain this information, the singular item "Did you live in Hamilton prior to enrollment at McMaster University?" was asked. A boundary map (Spinney, 2011) was provided that indicates the areas researchers defined as Hamilton. This boundary map included Ancaster, Dundas, Flamborough, Glanbrook, and Stoney Creek (see Figure 1). Response options were "*Yes*", "*No*", and "*Prefer not to answer*".

Figure 1

Map of Hamilton taken from Spinney (2011).

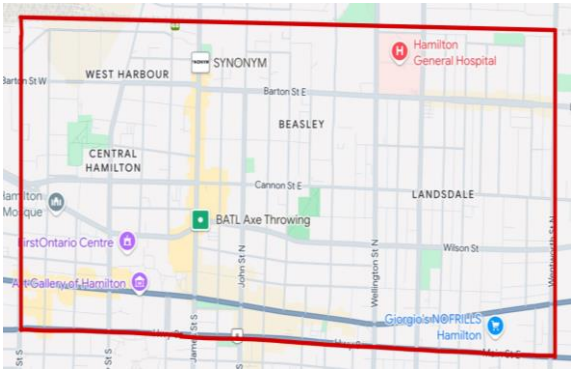


Meaningful Time Spent

Participants also indicated how much meaningful time they spent in downtown Hamilton (M = 3.89, SD = 1.53). A boundary map of what researchers considered to be the downtown core was provided (see Figure 2). Participants were allowed to define meaningful time for themselves, which was an intentional choice made to assess what each person considered to be their subjective idea of meaningful time. This independent variable was measured through a single-item statement, "During the duration of my time enrolled at McMaster University, I have spent a considerable amount of meaningful time

in downtown Hamilton," with responses rated on a 6-point Likert scale (1 = "*very untrue for me*", 6 = "*very true for me*").

Figure 2
Downtown Hamilton Boundary Map retrieved from Google (n.d.).



Fear of Crime

Participants completed a modified version of the Fear of Crime scale (Etopio & Berthelot, 2022) to assess their fear of crime in downtown Hamilton (e.g., "I'm afraid of a crime happening to me in downtown Hamilton", "I feel at risk of being victimized in downtown Hamilton"). The modified scale included nine items rated on a 6-point scale (1 = *Very untrue for me*, 6 = *Very true for me*; α = .945). The original scale included an additional item that could not be modified to logically involve downtown Hamilton ("Crime worries me in my day-to-day life") and therefore was not used in the fear of crime scale. Items were scored such that higher scores indicate a higher fear of crime, and an overall fear of crime score was created by averaging all nine items (*M* = 3.77, *SD* = 1.09).

Additional Qualitative Measures

Participants had the option to answer four open-ended qualitative questions at the end of the survey. These questions asked participants to elaborate beyond their quantitative responses and provide more insight into their fear of crime score. Qualitative questions included:

1) "Considering your experiences in downtown Hamilton, how would you describe your feelings of safety while you were there? If you have never been to downtown Hamilton, please write "N/A"."
2) "Has your fear of being a victim of crime ever prevented you from doing something you wanted to do in downtown Hamilton? Please elaborate if you feel comfortable."
3) "What influences your feelings about personal safety and fear of crime in downtown Hamilton?"
4) "Since coming to McMaster, how have your feelings about personal safety and fear of crime in downtown Hamilton changed? What do you think caused that change? If they have not changed, please elaborate on why."

Ethics

This study has been reviewed by the McMaster Research Ethics Board and received ethics clearance under project #7231.

Results

Hypothesis 1

An independent samples t-test was conducted to examine the differences between local and domestic students' fear of crime in downtown Hamilton. Results showed no significant difference between local (M = 3.75, SD = 1.19) and domestic students' (M = 3.78, SD = 1.07; t (258) = -.15, p = .878) fear of crime.

Hypothesis 2

A univariate ANOVA was conducted to investigate whether meaningful time was a moderator of the relationship outlined in Hypothesis 1. Results demonstrated that meaningful time spent in downtown Hamilton did not moderate the association between the two variables (F (1, 256) = .001, p = .976).

Exploratory Quantitative Research

A bivariate regression was conducted to examine whether meaningful time spent in downtown Hamilton, regardless of being a local or domestic student, predicted fear of crime. Results revealed that meaningful time spent accounted for 0.7% of the variability in fear of crime in downtown Hamilton. Additionally, the model predicted a 0.062 decrease in fear with every one-unit increase of meaningful time spent, though this effect was not significantly different from zero (t (1) = -1.389, p = 0.166).

Exploratory Qualitative Research

Exploratory qualitative analyses were conducted to gain deeper insights into participants' beliefs and feelings about their fear of crime beyond the limitations of the quantitative scale. A combination of content analysis and thematic analysis was conducted on the four open-ended, exploratory questions.

Researchers began with an approach more consistent with content analysis, where responses were coded for the more binary options they could choose to discuss for each question. For the first question, "How would you describe your feelings of safety while you were in downtown Hamilton? [...]" responses were categorized into "Safe" and "Unsafe" based on the main indication of the response. Far more participants responded that they felt unsafe while in downtown Hamilton. Answers to the second question indicated that slightly more participants had not been prevented from doing something they wanted to in downtown Hamilton due to their fear, while less than half had been prevented. The third question investigated the factors that influence participants' fear in downtown Hamilton; very few noted positive influences, whereas most responses discussed negative influences. The final question asked how participants' feelings about downtown Hamilton had changed throughout their time at McMaster. Three categories for responses emerged rather than two, with most participants expressing that their feelings about downtown Hamilton had not changed, fewer reporting their feelings improved, and the least saying their feelings had worsened. Table 1 displays these categorizations, with the first column of values indicating how many responses in total were coded into each category. This

type of coding allowed for an understanding of the main leanings of participants' responses, which created a more holistic picture of the data.

Table 1

Primary Codes for Qualitative Responses

Q1: "How would you describe your feelings of safety while you were in downtown Hamilton? If you have never been to downtown Hamilton, please write "N/A"."		
Safe	91	35.8%
Unsafe	163	64.2%
Q2: "Has fear of being a victim of crime ever prevented you from doing something you wanted to do in downtown Hamilton? If you are comfortable, please elaborate."		
Has prevented	92	40.7%
Has not prevented	134	59.3%
Q3: "What factors influence your feelings about personal safety and fear of crime in downtown Hamilton?"		
Positive influences noted	41	17.8%
Negative influences noted	189	82.2%
Q4: "Since coming to McMaster, have your feelings about personal safety and fear of crime in downtown Hamilton changed? If so, what do you think caused that change? If they have not changed, why do you think they have not changed?"		
Feelings improved	71	30.5%
Feelings worsened	52	22.3%
Feelings stayed the same	110	47.2%

The next step in the coding process examined response details using a thematic approach to get a broader understanding of themes. These codes were applied across all questions because similar themes arose regardless of the question. Some of these sub-codes were grouped into larger categories for ease of interpretation, for example, codes such as "nighttime/dark," "alone," "minority identity," "gender", and "specific area" were grouped into the "Conditional" category, indicating that a participant's fear was dependant on a certain condition being fulfilled. Responses sub-coded as "nighttime/dark" expressed that participants' feelings of fear in downtown Hamilton had to do with whether or not it was dark out, for example,

> [...] I'm fine with going to downtown during the day, but it definitely gets scarier at night with limited visibility and fewer people around. For

> example, if I wanted to get food at a restaurant downtown but the sun was setting soon, I would decide against it.

The “alone” conditional sub-code had to do with participants’ fears being present or absent depending on whether or not they are in the presence of others. One participant noted,

> “I try not to spend time in downtown Hamilton by myself. If I go through downtown Hamilton to do things other than go to McMaster, I usually bring a friend or I don't go at all.”

These two sub-codes were the most coded for. The “minority identity” and “gender” sub-codes were similar, both indicating a participant’s response had to do with having a vulnerable identity influencing their feelings in downtown Hamilton. The frequency of participants mentioning that their feelings came from being a gender minority indicated a need to separate the sub-codes for more detail in interpreting results. Lastly, the “specific area” sub-code labelled responses where participants expressed that their fears (or lack thereof) were associated with a certain physical space within downtown Hamilton.

Another broader category that commonly emerged was the “Visible Disorder” category, which included the sub-codes “people,” “violence,” “environment,” and “miscellaneous.” “Visible Disorder” had to do with responses that referenced themes of the Visible Disorder or Broken Windows theory. The “people” sub-code referred to responses that mentioned the more passive human elements of visible disorder, like homelessness or visible drug use. This sub-code was incredibly prevalent in the data, with responses like,

> Not to be stereotypical but there are lots of homeless and intoxicated people who often wander downtown at night. Some of which I have happened to come across or observe seem aggressive. This does influence my feelings of personal safety again as I said my friends and I would not be able to defend ourselves. [...]

Responses sub-coded as “violence” expressed concerns about active acts of violence (e.g. petty theft, etc.) or violent items (e.g. knives, guns, etc.) in downtown Hamilton. The “environment” sub-code was used to label responses which referenced the physical elements of visible disorder, like broken windows or vandalism. All other forms of visible disorder that did not conform to the previous sub-codes were classified as “miscellaneous.”

A very common code in the thematic analysis was “Vigilance.” Participants often noted that they stayed constantly alert to the possibility of crime while in downtown Hamilton, for example,

> I generally feel unsafe, I’m often on edge and frequently survey my surroundings to ensure that no one is following or approaching me. I used to have to wait downtown for the bus and I would always stand against a wall to survey my surroundings because I was scared I would be a victim of a crime[.]

Not all of these responses indicated the presence of fear, many participants expressed that vigilance allowed them to navigate downtown Hamilton without fear of crime.

Another code that frequently arose was “Meaningful Time Spent,” which was coded when participants expressed that their fear of crime in downtown Hamilton had to do with how often they spent purposeful or important time there. One participant detailed,

> I came to Hamilton and was immediately told of the dangers of downtown. I have come to love downtown and feel that personal experience over the years, becoming comfortable and familiar with the area and developing a better relationship with the space have contributed to the evolution of my feelings about downtown.

This code had serious implications for the study, as the secondary hypothesis revolves around how meaningful time spent in downtown Hamilton affects people's fear of crime.

The code, "Independent Personal Beliefs," was frequently coded, and it referred to comments made by participants that expressed a personal understanding of elements of crime. This often had to do with feelings about crime statistics or the likelihood of victimization, for example, a participant stated,

> I know that generally when crime occurs it's usually not random, I try to rely on statistics regarding that. People hear about all kinds of stuff, but most of the people getting stabbed or robbed downtown are wrapped up in stuff that goes far beyond that single incident. Press loves to strip these things of context.

This individual had independent personal interpretations of crime statistics and scenarios surrounding violent incidents and even had certain beliefs about media surrounding crime. This code allowed researchers to understand that participants' fear of crime was often situated within their preexisting perception of the world.

The final significant code was "Word of Mouth," which was coded when participants stated that their fear of crime in downtown Hamilton had to do with hearing other people's perspectives of the area. For example, one participant stated,

> I would say it took me a while to venture into downtown Hamilton, because of all the warnings I received from upper years I knew, so the fear and the stigma prevented me from exploring that part of Hamilton in my first year.

The frequency of this code confirmed the personal experiences of the researchers, who had frequently witnessed other students expressing disdain about downtown Hamilton. By understanding that word-of-mouth comments can influence students' fear of crime, one can begin to understand what kinds of changes in student life could help them feel safer in the city. For example, McMaster University could host a panel of alumni who chose to stay in Hamilton to share their positive experiences with current students. This depth and exploration in the findings are what motivated the researchers to engage in the qualitative side of this research.

Discussion

Despite the plethora of research studying fear of crime in urban environments (Curtis, 2012; Fox & Hellman, 1985; Maier & DePrince, 2019; Schweitzer et al., 1999), a significant gap remains in understanding how personal, meaningful engagement with specific areas shapes perceptions of safety. Moreover, while current research on post-secondary student populations focusses on their fear of crime on campus (Fisher & May 2009; Jacobsen, 2022; Maier & DePrince, 2019), there is very little which addresses off-campus fear of crime, and none which looks at differences between local and domestic students. This study attempts to address and expand upon this gap in the literature by investigating whether there are differences between local and domestic McMaster

University students' fear of crime in downtown Hamilton. We additionally considered the amount of meaningful time spent in the downtown core of Hamilton as a moderating factor. Based on the Social Integration Model, which suggests a relationship between the level of integration and feelings of safety in a community (Alper & Chappell, 2012; Franklin et al., 2008), we hypothesized that local students would report lower fear of crime than domestic students (H1) and that spending meaningful time downtown would reduce students' fear of crime (H2).

Contrary to our predictions, our quantitative results produced no significant findings for either hypothesis, providing evidence that there are no differences between local and domestic McMaster students' fear of crime. However, qualitative findings supported our second hypothesis and provided compelling insights into both students' perceptions of their safety and the social factors that influence this evaluation. Consistent with our hypothesis, some students explicitly stated that spending meaningful time downtown helped to reduce their fear of crime, even though this effect was not reflected in the quantitative data. Though these findings were ultimately exploratory, our qualitative research helps to provide a deeper understanding of how students conceptualize, experience, and discuss their fear of crime. Moreover, we believe it helps to explain and broaden our understanding of our quantitative findings and emphasizes the usefulness of taking a mixed-methods approach to research, especially when dealing with subjective and nuanced ideas such as fear.

Interpretations

The lack of significance in the quantitative data suggests that the relationship between meaningful time spent and fear of crime may not be as straightforward as we initially thought. Our study solely looked at familiarity in the context of meaningful time spent, which we found was not a significant indicator of McMaster students' fear of crime downtown. However, it is possible that if we instead looked at place attachment (Altman & Low, 1992; Ujang, 2008; Zahnow & Tsai, 2019), we may have come across more significant findings. It has become clear that a distinction between familiarity and place attachment is important to consider. Familiarity is practical knowledge that is developed passively through routines that does not include a positive or negative emotional quality and does not necessarily consist of a sense of belonging or a personal stake in the area (Felder, 2021). While simply being in an area may contribute to a sense of familiarity, this alone is not enough to decrease fear of crime. Consequently, individuals may physically go downtown but still feel unsafe while they are there. For instance, a student who frequently walks through a downtown area may feel familiar with the layout and general atmosphere but still may not develop a meaningful connection to it. A student wrote that "my feelings about personal safety have not changed, I have lived in Hamilton my whole life and I have always thought of downtown Hamilton as being less safe than Hamilton on the mountain, [...]." Despite their familiarity, this student's fear of crime remained high. In contrast, someone who actively engages with the community by attending events and participating in local culture may be able to look past negative influences such as word of mouth.

> I didn't know much about Hamilton before coming [to McMaster]. First year they made it seem really bad but then as time went on I explored by myself and with friends and really lowkey fell in love with Hamilton.

> There's a lot of fun activities, cute restaurants, and art crawl!! Hamilton isn't an unsafe city in my head. I like it and I feel okay living here.

Going to events and having positive, community-oriented experiences leads to the development of place attachment. Place attachment, first conceptualized by Kasarda and Janowitz (1974), refers to the expansion of an emotional bond between an individual and a specific place or environmental setting, which is expressed through beliefs, behaviours, and emotions (Altman & Low, 1992; Ujang, 2008; Zahnow & Tsai, 2019). Not only is place attachment more widely researched, but–as pointed out by Zahnow and Tsai (2019)–it may be particularly critical for disordered neighbourhoods. As many participants noted that downtown Hamilton contained physical disorder, it makes sense that familiarity with the environment alone would not be enough to facilitate a decrease in fear of crime. A genuinely positive place attachment may be necessary in reducing fear of crime for a disordered area such as downtown Hamilton. Ultimately, this is an important avenue to consider for future research on the integration of university students into the communities surrounding their campuses.

Theoretical Implications

Our findings contribute to and align with both facets of the Community Environment model, providing support for the dual influence of social integration and disorder. Despite previous research that indicates greater social integration is associated with lower fear of crime (Franklin et al., 2008), our quantitative results did not show a meaningful connection between these variables. However, our qualitative findings did provide evidence that supports this model, offering some valuable insights into the nuances of social integration in this context. Our finding that students who engaged in meaningful time in downtown Hamilton reported a reduction in their fear of crime aligns with the Social Integration Model's core proposition that a high sense of belonging and attachment to a community reduces fear of crime (Adams & Serpe, 2000; Franklin et al., 2008). Additionally, our research explores a potentially novel avenue by considering the concept of the campus bubble. This concept raises important questions about whether meaningful social integration with one's city can occur if people are confined to a limited environment. Our findings provide support for the idea that without venturing beyond the perceived safety of campus, students may struggle to develop the level of integration necessary for reduced fear of crime in the broader city. As one student explained, "I have a consistent belief that downtown Hamilton is dangerous and I believe that this has not changed because I have not tried going down there myself to prove myself wrong."

Our research also ran consistent with the Disorder Model of crime, including Broken Windows theory. The core premise of Disorder Models suggests that visible cues play a significant role in people's fear evaluations. We found that visible disorder was a very prevalent theme in our qualitative response set. People most notably referred to the presence of unhoused individuals, environmental conditions such as deteriorated buildings, and witnessing public acts of violence as indicators of neighbourhood disorganization and unsafety. These indications of disorder align with the broken windows theory, which suggests that signs of neglect and disorder are symbolic of the increased presence of criminal activity (Kelling & Wilson, 1982; Sas et al., 2022). This finding underscores the importance of addressing neighbourhood deterioration in improving perceptions of safety, reaffirming the concepts presented by these models.

Qualitative findings also provided support for the vulnerability model, which suggests that fear is highly impacted by both situational and contextual factors which shape an individual's sense of safety (Alper & Chappell, 2012; Brunton-Smith & Jackson, 2012; Franklin et al., 2008; Wu & Wen, 2014). A key insight from our qualitative data was that students evaluate their vulnerability as contingent on certain conditions being met. Students reported that being alone, it being nighttime or poorly lit, being part of a visible minority group, and travelling to specific areas (e.g. Jackson Square, bus shelters, etc.) were all conditions they attached to their sense of fear. These external cues shaped students' situational fear, giving evidence to the model's premise that fear of crime is socially constructed and context-specific (Franklin et al., 2008). On the other hand, physical vulnerability is associated with an individual's perceived capacity to defend themself (Alper & Chappell, 2012; Franklin et al., 2008). Gender emerged as a significant factor in our analyses, with female students frequently identifying their gender as central to their sense of vulnerability downtown. This aligned with the vulnerability model's assertion that those who perceive themselves as less capable of defending themselves will experience heightened levels of fear (Alper & Chappell, 2012; Franklin et al., 2008). However, our results indicated that this fear went beyond the capability to self-defend. Gender was also associated with social vulnerability, as female students identified themselves as at increased risk of unwanted advances from men. Ultimately, our study's findings provide support for the vulnerability model by demonstrating that fear is context-dependent, challenging the notion that objective crime is the only influence on people's fear (Brunton-Smith & Jackson, 2012).

Together, the findings of this study not only contribute to theoretical dialogues within the field but also hold practical significance for community integration strategies. This may be useful for student outreach programs, which could attempt to address students' fear of crime by facilitating increased student presence downtown.

Limitations and Future Directions

The lack of quantitative significance, despite notable qualitative findings, highlights several methodological issues which may have impacted our results. First, our operationalization of meaningful time did not account for different types of engagement with downtown Hamilton, which may have resulted in an ambiguity bias in our results. That is, by allowing students to self-define meaningful time, we may have inadvertently captured a wide range of interpretations, weakening the overall consistency of our data. Additionally, asking students to self-report the amount of meaningful time they spent downtown left responses vulnerable to both central tendency bias, where students opt for neutral or middle-leaning responses as opposed to the extremes, as well as recall bias, as students may have struggled to accurately estimate their amount of meaningful time spent downtown. Future research should aim to address the methodological issues associated with the current study by using more nuanced approaches which better capture the complexity of engagement while minimizing response biases.

Secondly, our initial choice of comparison groups was flawed. Our study ran under the premise that grouping students based on whether they are local to Hamilton or domestic from other areas would show substantial differences in fear of crime, but the lack of significant findings suggests that these groups were not relevant. If this study were to be run again in the future, we would advise reconsidering the groups examined or providing

a more well-defined boundary for who is local to Hamilton to ensure more consistency in responses. Moreover, our sample size may not have been sufficient to detect small effect sizes between these groups.

Even further, this study's scope was very narrow and did not account for external influences such as the role of the environment or social identity on students' fear of crime. Given that the responses from our qualitative questions and both the Disorder and Vulnerability model support the influence of context on people's experiences of fear of crime, it would be beneficial to examine these influences in future research. For example, further research may aim to broaden the scope of the study to better understand the relationship between place attachment and fear of crime. Based on our qualitative findings, we believe that examining the role of external influences, such as environmental factors and social identity, may have a meaningful impact on the significance of the results. Additionally, accounting for specific experiences such as personal victimization may provide a more comprehensive and nuanced understanding of the relationship at hand.

Lastly, the representativeness and generalizability of the sample is limited, as our study involved only students attending McMaster University, who may not accurately reflect the broader population's fear of crime or demographic makeup. Future research could address generalizability limitations by examining different university populations and considering the role of both separate and integrated campuses and downtown areas. Finally, it is our belief that longitudinal research may be the best way to measure this potential relationship, as it would enable researchers to examine whether fear of crime changes with repeated exposure.

Conclusion

This research has deepened our understanding of the McMaster University student population's fear of crime within downtown Hamilton. These new insights form a baseline for future research on university student populations and their community integration. Future iterations of this study could lead to initiatives helping students push beyond McMaster University's restrictive bubble and feel more at home in Hamilton.

Contributions

This project was completed collaboratively. All group members contributed to the development of the research question, study design and process, and final editing of the paper. Individual contributions are outlined as follows:

Amanda Atkinson led qualitative data analysis and overall data cleaning, worked on study visuals, and was responsible for the discussion section.

Ryen-Mackenzie Cameron created the qualitative question set and was responsible for the abstract.

Lisa Mulhall worked on study visuals and was responsible for the methods section.

Ana Stoicheci was responsible for the literature review and introduction.

Sarah Uden was responsible for the literature review and introduction.

Anna Wienburg led quantitative data analysis and survey creation, worked on study visuals, and was responsible for the results section.

All members contributed to idea generation, participated in weekly meetings, coded qualitative responses, and reviewed drafts throughout the writing process.

References

Adams, R. E., & Serpe, R. T. (2000). Social integration, fear of crime, and life satisfaction. *Sociological Perspectives, 43*(4), 605–629. https://doi.org/10.2307/1389550

Alper, M., & Chappell, A. T. (2012). Untangling fear of crime: A multi-theoretical approach to examining the causes of crime-specific fear. *Sociological Spectrum, 32*(4), 346–363. https://doi.org/10.1080/02732173.2012.664048

Altman, Irwin., & Low, S. M. (Eds.). (1992). *Place attachment* (1st ed. 1992.). Springer US. https://doi.org/10.1007/978-1-4684-8753-4

Brunton-Smith, I., Jackson, J., & Ceccato, V. (2012). Urban fear and its roots in place. *In The Urban Fabric of Crime and Fear* (pp. 55–82). Springer Netherlands. https://doi.org/10.1007/978-94-007-4210-9_3

Camacho Doyle, M., Gerell, M., & Andershed, H. (2021). Perceived unsafety and fear of crime: The role of violent and property crime, neighborhood characteristics, and prior perceived unsafety and fear of crime. *Deviant Behavior*, *43*(11), 1347–1365. https://doi.org/10.1080/01639625.2021.1982657

Curtis, J. W. (2012). Integrating sketch maps with GIS to explore fear of crime in the urban environment: A review of the past and prospects for the future. *Cartography and Geographic Information Science, 39*(4), 175–186. https://doi.org/10.1559/15230406394175

Daigle, L. E., Hancock, K., Chafin, T. C., & Azimi, A. (2022). U.S. and Canadian college students' Fear of Crime: A Comparative Investigation of Fear of Crime and Its Correlates. *Journal of Interpersonal Violence*, *37*(15–16), 12901–12932. https://doi.org/10.1177/08862605211001477

Etopio, A., & Berthelot, E. (2022). Defining and measuring fear of Crime: A New Validated Scale Created from Emotion Theory, Qualitative Interviews, and Factor Analyses. *Journal of Criminology, Criminal Justice, Law & Society, 23*(1), 46–67. https://doi.org/10.54555/ccjls.4234.34104

Felder, M. (2021). Familiarity as a practical sense of place. *Sociological Theory*, *39*(3), 180–199. https://doi.org/10.1177/07352751211037724

Fisher, B., & May, D. (2009). College students' crime-related fears on campus: Are fear-provoking cues gendered? *Journal of Contemporary Criminal Justice, 25*(3), 300–321. https://doi.org/10.1177/1043986209335013

Fox, J. A., & Hellman, D. A. (1985). Location and other correlates of campus crime. *Journal of Criminal Justice, 13*(5), 429–444. https://doi.org/10.1016/0047-2352(85)90043-1

Franklin, T. W., Franklin, C. A., & Fearn, N. E. (2008). A multilevel analysis of the vulnerability, disorder, and social integration models of fear of crime. *Social Justice Research*, *21*(2), 204–227. https://doi.org/10.1007/s11211-008-0069-9

Google. (n.d.). [Google Maps satellite view of Hamilton, ON]. Retrieved December, 2024, from https://www.google.com/maps/place/Hamilton,+ON/@43.2608104,-79.9331491,10z/data=!3m1!4b1!4m6!3m5!1s0x882c986c27de778f:0x2b6aee56d8df0e21!8m2!3d43.2557206!4d-79.8711024!16zL20vMDNwemY?entry=ttu&g_ep=EgoyMDI1MDYwMy4wIKXMDSoASAFQAw%3D%3D

Jacobsen, S. K. (2022). "More of a girl thing?" Examining the role of gender and campus context in perceptions of risk and the shadow of sexual assault. *Journal of*

Interpersonal Violence, 37(15–16), 13468–13496. https://doi.org/10.1177/08862605211005142

Kasarda, J. D., & Janowitz, M. (1974). Community attachment in mass society. *American Sociological Review, 39*, 328-339. doi:10.2307/2094293

Kelling, G. L., & Wilson, J. Q. (1982, March). Broken windows: The police and neighborhood safety. *The Atlantic Monthly, 249*(3), 29-38. https://www.theatlantic.com/magazine/archive/1982/03/broken-windows/304465/.

Lane, J. (2015). Fear of crime. *International Encyclopedia of the Social & Behavioral Sciences*, 854–859. https://doi.org/10.1016/b978-0-08-097086-8.45058-0

Lockey, S., Graham, L., Redman, T., Zheng, Y., Routledge, G., & Purves, L. (2019). The impact of a local community engagement intervention on residents' fear of crime and perceptions of the police. *International Journal of Police Science & Management*, *21*(3), 168–180. https://doi.org/10.1177/1461355719856039

Maier, S. L., & DePrince, B. T. (2019). College students' fear of crime and perception of safety: The influence of personal and university prevention measures. *Journal of Criminal Justice Education*, *31*(1), 63–81. https://doi.org/10.1080/10511253.2019.1656757

Sas, M., Hardyns, W., Reniers, G., & Ponnet, K. (2022). Unravelling college students' fear of crime: the role of perceived social disorder and physical disorder on campus. *British Journal of Educational Studies, 70*(1), 65–85. https://doi.org/10.1080/00071005.2020.1870658

Schweitzer, J. H., Kim, J. W., & Mackin, J. R. (1999). The impact of the built environment on crime and fear of crime in urban neighborhoods. *The Journal of Urban Technology, 6*(3), 59–73. https://doi.org/10.1080/10630739983588

Spinney, Jamie. (2011). Geography, land values, and municipal taxation: A spatial paradigm for the estimation and reclamation of rent. https://www.researchgate.net/publication/254623900

Ujang, N. (2008). Place attachment, familiarity, and sustainability of urban place identity. *WSEAS Transactions on Environment and Development, 4*(6), 625–634.

Wu, Y., & Wen, J. (2014). Fear of crime among Chinese immigrants in Metro-Detroit. *Crime, Law, and Social Change, 61*(5), 495–515. https://doi.org/10.1007/s10611-014-9513-y

Zahnow, R., & Tsai, A. (2019). Crime victimization, place attachment, and the moderating role of neighborhood social ties and neighboring behavior. *Environment and Behavior, 53*(1), 40–68. https://doi.org/10.1177/0013916519875175

Friend or Foe? The Impact of Generative AI on Student Academic Motivation

Jason Vander Horst[1], Russell Roberge[1], Sara Nazemi[1], Sahel Nazemi[1], & Maxime Gratton[1]

Abstract

As generative artificial intelligence (genAI) tools become increasingly integrated into higher education, their impact on students is still disputed. Grounded in Self-Determination Theory, this study investigated how genAI related autonomy, competence, and relatedness influence intrinsic motivation among undergraduate students in Ontario. A total of 114 participants completed measures assessing their psychological needs in relation to their experiences with genAI, as well as measures assessing their academic motivation. Regression analyses revealed that perceived autonomy significantly predicted intrinsic motivation across the full sample, while perceived competence emerged as the strongest predictor among frequent genAI users. Relatedness did not significantly predict motivation in either case. These findings suggest that freedom and perceived skill in using genAI tools may play a role in shaping students' motivational engagement. Implications of this study align with previous research suggesting a need for clear AI guidelines beyond strict prohibition, competency-based AI training, and open dialogue between all stakeholders to foster ethical and motivationally supportive use of genAI in academic settings.

Introduction

Artificial intelligence (AI) has advanced rapidly over the past decade, transforming various sectors and industries, including healthcare, media, finance, and, notably, education (Littman et al., 2021). AI in education is reshaping learning environments by enabling personalized instruction and enhancing educational outcomes for students while also relieving teachers of repetitive, time-consuming tasks like grading (Chan & Hu, 2023). Despite this, there is significant polarization among these groups regarding its usage (Petricini, Wu, & Zipf, 2023). As AI continues to develop at an unprecedented rate, outpacing previous estimations and growing exponentially (Littman et al., 2021), engaging in open and well-informed discussions about its implications on education becomes increasingly important. As such, our paper seeks to illuminate the relationship between Ontario students' perception of generative AI (genAI) and their academic motivation.

While lacking a universal definition, AI in this paper is defined as the simulation of human intelligence in machines to enable learning, reasoning, and self-improvement. The integration of artificial intelligence into educational contexts initially emerged from research institutions focused on advancing specialized, domain-specific applications of the technology (Kahn & Winters, 2021).

[1] Undergraduate Student, Honours Social Psychology Program, Faculty of Social Sciences, McMaster University, Hamilton, Ontario, Canada

Recently, the increasing popularity of genAI tools like ChatGPT have sparked considerable interest among researchers regarding its impact on student motivation. For instance, Bandura's Self-Efficacy Theory (1977) highlights the importance of believing in one's ability to succeed. GenAI can play a pivotal role in this context by providing individualized and interactive educational learning, as well as immediate, tailored feedback for problem-solving activities (Chiu, 2024; Chan & Hu, 2023). This support can enhance students' self-efficacy while simultaneously pointing out potential areas for improvement, ultimately building their academic confidence and fostering persistence through personalized, real-time guidance (Halkiopoulos & Gkintoni, 2024).

Similarly, Self-Determination Theory (SDT) emphasizes the importance of fulfilling three basic psychological needs to foster motivation: autonomy (feeling in control of one's actions), competence (feeling effective and capable), and relatedness (feeling connected to others) (Deci & Ryan, 2000). AI supports these needs by enabling autonomy through self-paced learning (Holmes et al., 2019), providing adaptive feedback to enhance competence (Chiu, 2024), and acting as supportive learning companions, which bolsters relatedness (Zawacki-Richter et al., 2019). By addressing these core needs, genAI has the potential to nurture intrinsic motivation, encouraging students to engage more deeply in their learning.

GenAI tools like ChatGPT are remarkably flexible, designed to adapt dynamically to user prompts, producing various outputs in textual, auditory, or visual formats (Feuerriegel et al., 2023). Though it lacks a genuine understanding of its responses and data sources, it can mimic human reasoning and creativity in increasingly complex ways (Feuerriegel et al., 2023). Students' recent unprecedented access to these powerful tools allows for the seamless utilization of genAI into their daily academic routines, assisting them with a variety of tasks, such as guidance in studying, problem-solving, content generation, data analysis, writing, research, critical thinking, and more (Lund & Wang, 2023).

While research is still in its early stages, studies suggest that genAI can have both positive and negative effects on student motivation. On the one hand, genAI use can enhance motivation by providing personalized learning experiences, improving engagement, and making complex tasks more manageable (Chiu, 2024; Halkiopoulos & Gkintoni, 2024). On the other hand, there are concerns from students, professors, and researchers that over-reliance on genAI could lead to decreased critical thinking skills and reduced motivation to engage in learning independently (Chan, 2023; Chan & Hu, 2023; Petricini, Wu, & Zipf., 2023). This dual impact highlights the urgent need to improve its implementation while mitigating risks. Consequently, researchers have identified the following factors that are critical for the successful integration of genAI into education:

1. ***AI Literacy:*** Both students and professors should have a foundational understanding of AI, covering essential topics like its applications, limitations, and ethical considerations (Chan & Hu, 2023; Milicevic et al., 2024; Ofosu-Ampong, 2024).
2. ***Clear Guidelines and Policies:*** Institutions should establish and regularly update guidelines for AI use, informed by ongoing student feedback and perceptions (Almasri, 2024; Chan & Hu, 2023; Ofosu-Ampong, 2024; Wang et al., 2023).
3. ***Supportive Academic Environment*****:** Creating supportive and inclusive learning environments is crucial for fostering AI acceptance and encouraging open exploration of

AI's applications and ethical implications (Wang et al., 2023; Chan, 2023; Miller, 2024; Ofosu-Ampong, 2024).

Despite these critical factors being identified, only a handful of universities have adopted policies on genAI, with fewer than one-third of top institutions implementing specific guidelines (Xiao et al., 2023). Universities that do address it tend to embrace genAI as a valuable educational tool, yet overall, guidance remains sparse, leaving many students uncertain about its proper use (Petricini, Wu, & Zipf., 2023). This lack of structured policy raises the risk of misuse and academic integrity issues, underscoring the need for clearer institutional policies to effectively integrate genAI tools into academia (Xiao et al., 2023).

Gaps in the research

Given the rate of technological change, the research on genAI has numerous identifiable gaps in regard to education. First, while the literature suggests that institutions have a wide range of responses to genAI– from outright bans, to not responding, to advocating its usage– (Xiao et al., 2023), there is limited examination of how students feel about these restrictions. Second, the importance of AI literacy is frequently stressed among researchers (Ofosu-Ampong, 2024), but less is known about whether students are keeping up with the technology and integrating it seamlessly into their education. Third, the literature suggests that genAI is a polarizing topic among students and faculty (Almasri, 2024), but to what extent this polarization is causing measurable harm to students' sense of connection is not well understood. Given its increasingly common usage (Yachouh, Maqbool, & Rao, 2024), it may just as well be a way for students to bond over or communicate more efficiently in group projects. Finally, while there is evidence that genAI can aid intrinsic motivation among students under the right conditions (Halkiopoulos & Gkintoni, 2024), it remains to be seen whether these conditions are met in Ontario universities.

For the present study, we address these gaps by exploring student perceptions of genAI in Ontario and the impact these perceptions have on students' intrinsic motivation. Our research questions will be framed using Self-Determination Theory (SDT), which forms the backbone of our study and aligns well with the fundamental elements for successful genAI integration: AI literacy, clear guidelines, and a sense of open communication among students are highly relevant within the SDT framework. AI literacy directly correlates with feelings of competence or mastery, interpretation of policy and restriction relates to autonomy, and the ability to connect with other students when using genAI fosters a sense of relatedness.

Purpose

The rapid integration of genAI tools into academic environments necessitates a deeper understanding of their impacts on student motivation and educational outcomes. Given intrinsic motivation's established role in predicting student engagement and academic achievement (Ryan & Deci, 2017), this study explores how the three basic psychological needs– autonomy, competence, and relatedness– associated with genAI usage influence intrinsic motivation among undergraduate students. Grounded in SDT, this research contributes to educational psychology and technology-enhanced learning by extending theoretical insights into motivation within contemporary educational contexts.

Examining the ethical dimension of genAI and the feelings associated with its use, this research provides practical implications for policy development and pedagogical strategies. Ultimately, our findings aim to guide institutions in ethically and effectively integrating genAI tools to optimize student motivation and improve educational outcomes.

Hypotheses

Hypothesis 1:

We hypothesize that higher feelings of competence in genAI usage will be positively associated with increased intrinsic academic motivation. According to Self-Determination Theory (SDT), the feeling of competence—an individual's belief in their ability to effectively perform tasks—fosters intrinsic motivation (Ryan & Deci, 2017). When students feel skilled at using AI tools, they may approach academic challenges with greater confidence, leading to increased engagement and enjoyment. Moreover, the pursuit of mastery has been shown to enhance intrinsic motivation (Rawsthorne & Elliot, 1999). Thus, we hypothesize that a stronger sense of competence in AI usage will enhance students' intrinsic motivation toward their academic tasks, encouraging them to persevere and find greater satisfaction in their educational pursuits.

Hypothesis 2:

Greater feelings of autonomy in genAI usage will be positively associated with intrinsic motivation. SDT posits that autonomy—feeling a sense of volition and control over one's actions—is a key driver of intrinsic motivation (Deci & Ryan, 2000). When students have the freedom to explore and utilize AI tools on their own terms, they may experience a heightened sense of self-direction. This autonomy, in turn, fosters a deeper connection to the learning process and increases intrinsic motivation towards academic tasks. Research has consistently shown that students who feel autonomous in their learning environments demonstrate greater self-efficacy, engagement, and perceived task value (Garcia & Pintrich, 1996). Thus, we hypothesize that allowing students more control over their AI usage will enhance their intrinsic motivation, leading to more meaningful and fulfilling academic experiences.

Exploratory Focus:

Due to genAI usage being a primarily solo activity, we do not offer any specific hypotheses about its role in fostering or impeding students' academic motivation. However, it is still relevant enough to include amongst our measures, and we plan to examine any patterns in the data that may emerge in the data that might help inform future research.

Method

Participants

Our study received 176 responses recruited through Instagram, posters, and McMaster's SONA system. Out of the 176 responses, we excluded 49 due to failing attention checks, 4 students due to lack of consent, 1 student due to a lack of proficiency in reading English, and 8 individuals who were not undergraduate students. The final sample consisted of 114 participants, primarily from McMaster University, enrolled in the Social Sciences.

Table 1. Participant Demographics

	M (SD)	%	n
Age	20.48	–	114
Gender	–		
Male	–	19.3	22
Female	–	76.3	87
Non-Binary	–	2.6	3
Transgender	–	.9	1
Prefer not to say	–	.9	1
University	–		
McMaster	–	95.6	109
Guelph	–	2.6	3
Brock	–	.9	1
Laurentian	–	.9	1
Program			
Arts and Humanities	–	2.6	3
Social Sciences	–	63.2	72
Natural Sciences	–	10.5	12
Engineering	–	7.9	9
Mathematics and Computer science	–	5.3	6
Business and Management	–	1.8	2
Other	–	8.8	10
Year			
First	–	4.4	5
Second	–	28.9	33
Third	–	35.1	40
Fourth	–	25.4	29
Fifth or beyond	–	6.1	7

Procedure and Measures

After recruitment, the participants were first directed to Qualtrics, an online survey platform, where they were asked to give informed consent to participate. They then completed the survey online through Qualtrics, taking approximately 15-20 minutes to complete. Participants received course credit if recruited through SONA; otherwise, no compensation was provided. The study procedures and measures were approved through the McMaster University Research Ethics Board.

Given the novelty of our research focus, we adapted questions from the Basic Psychological Need Satisfaction Scale (Deci & Ryan, 2000; Gagné, 2003) and the Basic Psychological Need Satisfaction at Work Scale (Deci & Ryan, 2000; Deci et al., 2001; Ilardi et al., 1993; Kasser et al., 1992).

Items were reworded and tailored to reflect participants' experiences and perceptions using genAI tools. Each construct-specific scale consists of questions rated on a 7-point Likert scale (1 = Strongly Disagree, 7 = Strongly Agree), with higher scores indicating greater perceptions of autonomy, competence, or relatedness in the context of genAI usage. Composite scores for each construct were calculated by averaging responses to the corresponding survey items. Internal consistency was evaluated using Cronbach's alpha.

Autonomy

Autonomy was measured using an 8-item scale that assessed students' perceived choice, freedom, and institutional support in their use of generative AI. Items captured whether students felt they could independently decide how to use AI in their studies. For example, one item stated, "I can decide how I use generative AI in my studies." The scale also explored whether students felt free to explore AI's applications without fear of negative consequences, and whether they believed their institution trusted them to make these decisions. To account for perceptions of constraint or concealment, three items were reverse-coded. One of these stated, "I feel I need to keep my use of generative AI private from professors or peers." Internal consistency was low but acceptable for exploratory research (Cronbach's $\alpha = .607$), with item-total correlations ranging from .117 to .477.

Competence

Competence was assessed using a 12-item scale that measured students' confidence, skills, and knowledge related to using genAI in academic work. Items addressed students' feelings of proficiency in terms of their genAI usage, as reflected in statements like "My ability to effectively integrate generative AI into my studies is impressive." The scale also assessed students' capacity for critical evaluation, such as "When generative AI gives me an answer, I can critically assess its accuracy." In addition, items captured students' awareness of more advanced methods, including "I am aware of advanced techniques in using generative AI that go beyond basic usage." The scale showed excellent internal consistency (Cronbach's $\alpha = .885$), with item-total correlations ranging from .200 to .813, indicating strong internal cohesion and a likely unidimensional structure.

Relatedness

Relatedness was measured using a 10-item scale focused on students' sense of connection to peers and the broader social climate surrounding AI use. Items examined

whether students felt comfortable using AI in collaborative academic contexts and whether genAI fostered a sense of belonging. For instance, one item stated, "AI makes it easier to work with classmates or communicate ideas in group work." Another item reflected the broadly unifying aspect of AI use: "Using generative AI makes me feel like I'm part of a forward-thinking community." Two reverse-scored items that captured tendencies to conceal AI use or feel socially disconnected were removed due to negative item-total correlations. After their removal, the resulting 8-item scale showed improved reliability (Cronbach's $\alpha = .674$), and retained items consistently reflected social and collaborative themes.

Academic Motivation

To measure academic motivation, we administered the 14-item Short Academic Motivation Scale (SAMS; Kotera, Conway & Green, 2020). This scale captures a range of motivational orientations, including intrinsic motivation (e.g., "For the pleasure that I experience while I am surpassing myself in one of my personal accomplishments"), extrinsic motivation (e.g., "In order to have a better salary later on"), and amotivation (e.g., "I don't know; I can't understand what I am doing in school").

Although only intrinsic motivation was used in the final analyses, all three subscales were assessed for internal consistency. The 6-item intrinsic motivation subscale showed strong internal reliability (Cronbach's $\alpha = .863$). The 6-item extrinsic motivation subscale showed acceptable internal reliability ($\alpha = .742$), as did the 2-item amotivation subscale ($\alpha = .720$).

Analysis

An a priori power analysis was conducted using G*Power to determine the minimum sample size needed for detecting medium effect sizes ($f^2 = .15$) with three predictors, $\alpha = .05$, and desired power of .80. This analysis indicated a minimum required sample of 77 participants. Our final sample of 114 participants exceeded this requirement, providing adequate statistical power. Prior to analysis, data was screened for quality and completeness.

Pearson's correlation coefficients were computed to examine relationships between AI-related autonomy, competence, relatedness, and motivation variables. Multiple regression models were employed to examine the predictive power of AI-related autonomy, competence, and relatedness on intrinsic and extrinsic motivation. Standardized beta coefficients were used to assess the relative contribution of each predictor, and model fit was evaluated using R^2 values.

Exploratory analyses were conducted to examine the influence of AI usage frequency on the relationships between our key variables. Participants were categorized based on their reported frequency of AI use, and separate regression models were tested for different usage groups to determine whether the relationships between AI-related psychological needs and motivation varied by usage pattern.

All analyses were conducted using SPSS version 28.0. Ethical approval for this study was obtained from the McMaster University Research Ethics Board, and all participants provided informed consent before completing the survey.

Results

Descriptive statistics were calculated for all key variables, which can be viewed in Table 2. Among the constructs, autonomy had the lowest average score (*M* = 3.62, *SD* = 0.82), suggesting that students generally perceive limited freedom or support in how they can use genAI in their studies. In contrast, students reported relatively high average levels of competence (*M* = 4.58, *SD* = 1.07) which indicates a strong sense of skill and confidence, though this feeling of mastery varies significantly. Relatedness showed a moderate mean score (*M* = 4.03, *SD* = 0.75), reflecting some degree of social connection or shared understanding around AI use among peers. Mean intrinsic motivation was relatively high (M = 4.92, SD = 1.17), suggesting that students generally feel intrinsically motivated.

Table 2

Descriptive Statistics for Measures

	n	Range	Mean	SD
Autonomy	114	3.88	3.62	.82
Competence	114	4.67	4.58	1.07
Relatedness	114	3.30	4.03	.75
Intrinsic Motivation	114	6.00	4.92	1.17

Bivariate Correlations

Pearson correlation analyses were conducted to examine the relationships between the key measures. As predicted, autonomy was significantly positively correlated with intrinsic motivation (r = .27, p = .004) and was also associated with competence (r = .23, p = .015) and relatedness (r = .37, p < .001). Competence was strongly related to relatedness (r = .52, p < .001) but was not significantly correlated with either intrinsic or extrinsic motivation.

Relatedness did not significantly correlate with either intrinsic or extrinsic motivation. However, extrinsic and intrinsic motivation were significantly positively correlated (r = .50, p < .001), suggesting that students who are motivated by internal interest may also report being motivated by external factors. No significant associations emerged between autonomy or competence and extrinsic motivation (ps > .05).

Multiple Regression Analysis

A multiple regression analysis was conducted to examine whether autonomy, competence, and relatedness predicted intrinsic motivation across the full sample (*N* = 114). The overall regression model was significant, $F(3, 110) = 3.21$, $p = .026$, accounting for 8.1% of the variance in intrinsic motivation ($R^2 = .081$, Adjusted $R^2 = .056$). Among the predictors, autonomy emerged as a significant positive predictor, $b = 0.367$, $SE = 0.140$, $\beta = .26$, $t(110) = 2.61$, $p = .010$, indicating that students who perceived greater freedom in their use of AI reported higher intrinsic motivation. In contrast, competence was not a

significant predictor, b = 0.129, SE = 0.116, β = .118, t(110) = 1.10, p = .272. Relatedness was also non-significant, b = –0.080, SE = 0.174, β = –.05, t(110) = –0.46, p = .646.

These findings suggest that perceived control over AI use plays a more central role in intrinsic motivation than students' self-assessed skill or sense of peer connection, particularly when examining a mixed group that includes both users and non-users.

Exploratory Analysis

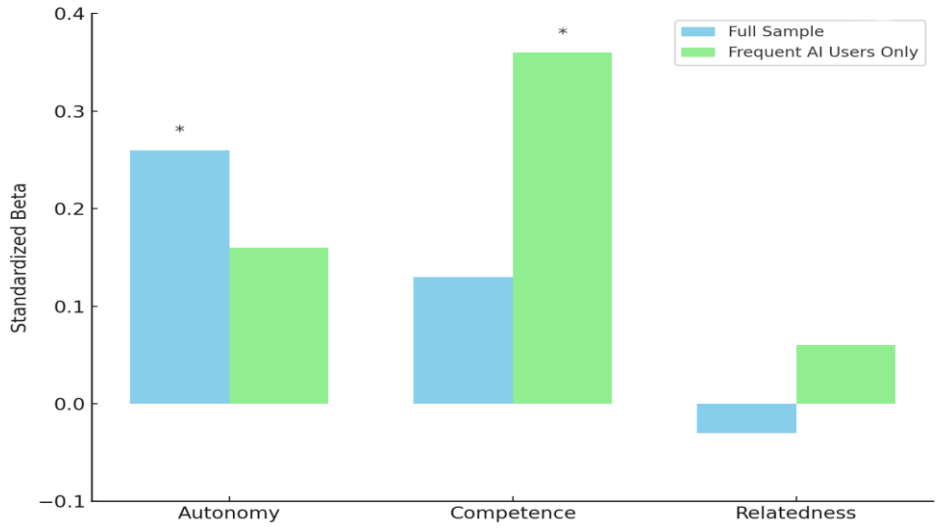
An exploratory regression was conducted among students who reported using generative AI multiple times per week (n = 64). This model remained statistically significant, F(3, 60) = 4.87, p = .004, with a notably higher explanatory power (R^2 = .196, Adjusted R^2 = .155). In this model, autonomy was no longer a significant predictor, b = 0.225, SE = 0.183, β = .16, t(60) = 1.23, p = .222. Although autonomy was no longer statistically significant in this model, the positive direction of the effect (b = 0.225) may still warrant further study. Competence was the only significant predictor, b = 0.690, SE = 0.229, β = .36, t(60) = 3.02, p = .004, suggesting that students who felt more skilled and confident in using AI reported greater intrinsic motivation. Relatedness remained a non-significant predictor, b = 0.099, SE = 0.234, β = –.06, t(60) = 0.43, p = .673.

Model Comparison and Interpretation

These results reveal a shift in predictive strength depending on students' prior AI experience (Figure 1). When considering the full sample, perceived autonomy appears to drive intrinsic motivation; potentially because having the *option* to explore AI, regardless of actual use, enhances motivational orientation. However, within the subset of actual AI users, competence emerged as the key predictor, underscoring the importance of perceived skill and efficacy in fostering motivation once students are actively engaging with the technology.

Figure 1

Standardized Beta Coefficients Predicting Intrinsic Motivation from Autonomy, Competence, and Relatedness



Discussion

The primary aim of this study was to provide clarity into a majorly understudied area within educational psychology: the impact of genAI tools on student academic motivation. Self-determination theory provides a robust and comprehensive framework from which we can begin to understand this impact more directly. Our findings suggest that the integration of genAI into learning environments has context-dependent effects on motivation, particularly in regard to frequency of usage, which warrants a nuanced look into the implications of this study.

Confirming our hypothesis, autonomy played a small but significant role as a predictor of students' intrinsic academic motivation. This aligns with prior research in SDT suggesting that autonomy can foster intrinsic motivation among students and anchor learning in personal meaning rather than external control (Kusurkar et al., 2011). Importantly, autonomy was the lowest score out of the three constructs, and many students feared that the use of genAI would result in academic penalties. This is not surprising, as academia is still skeptical of the tool being used unethically, prompting educators and institutions to default towards restriction (Xiao et al. 2023). However, the results indicate that such restriction might have unintended negative effects, isolating them from using tools that they see as potentially valuable or necessary. Students may be anxiously aware of the mounting value placed on AI-related skills and competencies in the job market.

In our exploratory analysis examining frequent AI users, we found that autonomy no longer became a statistically significant predictor of intrinsic motivation. This means that once an individual regularly uses genAI, the feeling of restriction no longer negatively impacts their motivation. This shift may reflect a process of cognitive dissonance reduction (Festinger, 1957), wherein students reconcile their continued use of genAI with institutional restrictions through rationalizations such as the tool’s utility, its future relevance, or its usage among peers. In any case, the motivational cost of restriction appears to diminish over time for frequent users, suggesting that adaptive psychological mechanisms may play a role in buffering the demotivating effects of perceived external control.

Contrary to our second hypothesis, competence did not play a significant role in predicting intrinsic motivation among the student body. This result is unexpected given the potential of genAI to aid the learning process and foster motivation when the need for competency is met (Chiu, 2024). Evidently, the mere feeling of competency in using genAI does not necessarily boost intrinsic motivation above normative levels, which could be explained by the discrepancy between perceived competence and actual competence. It may be that students think they are using the tool effectively to aid their studies, but lack the genuine depth of understanding, strategic thinking, or even metacognitive reflection necessary to harness the motivational potential of tools whose value emerges only through disciplined exploration or structured guidance.

Intriguingly, among students who used genAI frequently, competence became a moderately strong predictor of intrinsic motivation. These findings suggest two things: first, students can be highly intrinsically motivated in academic tasks as long as they feel they can use the tool effectively. However, this does not necessarily connote that the tool is in fact being used in ways that truly enhance deep learning. Secondly, some students report frequent use of AI tools despite lacking confidence in their ability to use them

effectively which in turn correlates with low levels of intrinsic motivation. This pattern may indicate that, even in restrictive academic environments, students are still knowingly engaging with AI in ways that are suboptimal or even inappropriate.

Relatedness was not correlated with intrinsic motivation; likely because using genAI is an individual rather than a social experience. It may be that we examined this construct from the wrong perspective. Perhaps what should be measured is the extent to which the student feels socially connected or personally understood by their AI learning system, which is what research suggests leads to higher motivation and improved learning outcomes (Ebadi & Amini, 2022). As genAI continues to become more personalized to each individual, this aspect of relatedness might be increasingly relevant to student motivation.

Implications

While this data is not enough to make any firm conclusions on its own, it echoes the existing concerns already present within the literature. GenAI is not going away any time soon and will continue to get more advanced and integrated into society over time (Littman et al., 2021). Concerns over its misuse are indeed warranted; but much like how the prohibition of alcohol forced the industry underground (Hall, 2010), or abstinence only education increases risky sexual behavior (Trenholm et al., 2008), simply banning genAI altogether may cause similar types of problems. Increasing numbers of students are leveraging genAI tools at McMaster (Yachouh, Maqbool, & Rao, 2024), but if they are afraid to ask questions regarding proper usage due to restriction, then their AI competency suffers, potentially lowering intrinsic motivation and harming learning outcomes. Further, the student might be motivated to gain competency in the wrong direction by learning how to avoid AI detection through prompt engineering, minor edits to generated content (Fishchuk & Braun, 2024) and using AI tools designed to bypass detection; tools that are notably marketed directly to students (Perkins et al., 2024). Ultimately, this creates an anxiety fueled arms race that unintentionally sidesteps the very purpose of education. Prohibitory restrictions could be substituted for clear, universalized guidelines designed to foster an open, stress-free environment where students and educators can discuss these challenging times in a safe space.

Reducing restriction might not be particularly beneficial on its own. GenAI tools are increasingly complex, and the boundary between productive usage and excessive cognitive offloading is by no means self-evident. It is not only educators who are concerned about this; students themselves have expressed concerns that their usage of genAI might be adversely affecting their actual learning and retention (Yachouh, Maqbool, & Rao, 2024). Any academic tool holds the potential for misuse, but responses to this fact have historically been centered around education rather than dismissal. In line with this, most researchers emphatically support AI literacy training among both students and staff (Barrett & Pack, 2023; Chan, 2023; Chan & Hu, 2023 Milicevic et al., 2024; Ofosu-Ampong, 2023; Țală et al., 2024; Wang et al., 2023).

Literacy and communication alone won't eliminate misuse of the tool, but there are other strategies beyond restriction that could alleviate this concern. Incorporating experiential or project-based learning, or new forms of assessment that are conducted in person, like oral exams, or even incorporating critical assessment of AI-generated outputs into the assignment itself, are cited as possible solutions (Evangelista, 2025).

Assessments that use structured frameworks to evaluate students' metacognitive reflections, such as key decisions made or challenges encountered during drafting encourage critical thinking and self-reliance, while potentially reducing the appeal of external tools (Ratto Parks, 2023). Although misuse will likely continue regardless of any strategies employed, such strategies still provide the best possible path towards successful genAI integration, reducing its harms and maximizing its benefits.

Limitations

While this study offers timely insight into the motivational impact of genAI tools in academic settings, several limitations should be considered when interpreting the findings. Most notably, the cross-sectional design prevents any conclusions about causality; we can identify associations, but not directional effects. Given the emerging nature of this research area, it is essential to interpret the results cautiously and in the context of other research until they can be replicated in future studies.

Another important consideration is the sample itself. The participants were predominantly Social Science students from McMaster University, which limits the generalizability of the findings across different academic disciplines and institutions. Moreover, because the sample was non-randomized and based on voluntary participation, there is a high risk of selection bias, which may have skewed the data toward students who are either particularly interested in or already engaged with AI technologies.

Finally, the study relied on self-report measures, which can be vulnerable to various forms of response bias. Social desirability, self-justification, and inaccurate recall may have influenced participants' responses, especially given the ambiguity surrounding what constitutes effective uses of genAI in academic contexts.

Future research directions

While perceived autonomy and competence in using genAI might be correlated with intrinsic motivation, further research could look into whether it actually directly impacts the ability to learn information and create high-quality academic work. While perceived competence is an important aspect of SDT, we recommend future research to include measures of actual competence in using AI to gain clarity as to what level of AI literacy students currently have beyond mere subjective opinion. In addition to this, future research could instigate a longitudinal design that can more accurately assess the impact of adopting genAI tools into the learning process.

Conclusion

The debate regarding genAI's application in higher education is far from settled. Yet, the present study does seem to indicate that restricting its usage altogether may have a negative impact on a student's academic motivation insofar as it reduces student autonomy and competence. Further, this restriction could limit students' ability to attain AI-related competency, which is an increasingly important skill as AI continues to percolate throughout various sectors. Students can be afforded the opportunity to engage with these tools ethically and think critically about their application in academic work rather than rely on them as substitutes for thought.

References

Almasri, F. (2024). Exploring the impact of artificial intelligence in teaching and learning of science: A systematic review of Empirical Research. *Research in Science* Education, *54*(5), 977–997. https://doi.org/10.1007/s11165-024-10176-3

Bandura, A. (1997). Self-efficacy: The exercise of control. W. H. Freeman.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*(2), 191–215. https://doi.org/10.1037/0033-295X.84.2.191

Barrett, A., & Pack, A. (2023). Not quite eye to A.I.: Student and teacher perspectives on the use of generative artificial intelligence in the writing process. *International Journal of Educational Technology in Higher Education*, *20*(1). https://doi.org/10.1186/s41239-023-00427-0

Chan, C. K. (2023). A comprehensive AI policy education framework for university teaching and learning. *International Journal of Educational Technology in Higher Education*, *20*(1). https://doi.org/10.1186/s41239-023-00408-3

Chan, C. K., & Hu, W. (2023). Students' voices on Generative AI: Perceptions, benefits, and challenges in higher education. *International Journal of Educational Technology in Higher Education*, *20*(1). https://doi.org/10.1186/s41239-023-00411-8

Chiu, T. K. (2024). A classification tool to foster self-regulated learning with generative artificial intelligence by applying self-determination theory: A case of chatgpt. *Educational Technology Research and Development, 72*(4), 2401–2416. https://doi.org/10.1007/s11423-024-10366-w

Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, *11*(4), 227–268. https://doi.org/10.1207/s15327965pli1104_01

Deci, E. L., Ryan, R. M., Gagné, M., Leone, D. R., Usunov, J., & Kornazheva, B. P. (2001). Need satisfaction, motivation, and well-being in the work organizations of a former Eastern Bloc country: A cross-cultural study of self-determination. *Personality and Social Psychology Bulletin, 27*(8), 930–942. https://doi.org/10.1177/0146167201278002

Ebadi, S., & Amini, A. (2022). Examining the roles of social presence and human-likeness on Iranian EFL learners' motivation using artificial intelligence technology: A case of CSIEC chatbot. *Interactive Learning Environments*, *32*(2), 655–673. https://doi.org/10.1080/10494820.2022.2096638

Evangelista, E. D. (2025). Ensuring academic integrity in the age of CHATGPT: Rethinking exam design, assessment strategies, and ethical AI policies in Higher Education. *Contemporary Educational Technology*, *17*(1). https://doi.org/10.30935/cedtech/15775

Festinger, L. (1957). *A theory of cognitive dissonance.* Stanford University Press.

Feuerriegel, S., Hartmann, J., Janiesch, C., & Zschech, P. (2023). Generative AI. *Business & Information Systems Engineering*, *66*(1), 111–126. https://doi.org/10.1007/s12599-023-00834-7

Fishchuk, V., & Braun, D. (2024). Robustness of generative AI detection: Adversarial attacks on black-box neural text detectors. *International Journal of Speech Technology*, *27*(4), 861–874. https://doi.org/10.1007/s10772-024-10144-2

Garcia, T., & Pintrich, P. R. (1996). *Assessing students' motivation and learning strategies in the classroom context: The Motivated Strategies for Learning Questionnaire. In Alternatives in assessment of achievements, learning processes and prior knowledge* (pp. 319-339). Dordrecht: Springer Netherlands.

Gagné, M. (2003). The role of autonomy support and autonomy orientation in prosocial behavior engagement. *Motivation and Emotion*, *27*(3), 199–223. https://doi.org/10.1023/a:1025007614869

Halkiopoulos, C., & Gkintoni, E. (2024). Leveraging AI in e-learning: Personalized learning and adaptive assessment through cognitive neuropsychology—a systematic analysis. *Electronics*, *13*(18), 3762. https://doi.org/10.3390/electronics13183762

Hall, W. (2010). What are the policy lessons of national alcohol prohibition in the United States, 1920–1933? *Addiction*, *105*(7), 1164–1173. https://doi.org/10.1111/j.1360-0443.2010.02926.x

Holmes, W., Bialik, M., & Fadel, C. (2019). *Artificial intelligence in education: Promises and implications for teaching and learning.* Center for Curriculum Redesign.

Ilardi, B. C., Leone, D., Kasser, T., & Ryan, R. M. (1993). Employee and supervisor ratings of motivation: Main effects and discrepancies associated with job satisfaction and adjustment in a factory setting. *Journal of Applied Social Psychology, 23*(21), 1789–1805. https://doi.org/10.1111/j.1559-1816.1993.tb01066.x

Kahn, K., & Winters, N. (2021). Constructionism and AI: A history and possible futures. *British Journal of Educational Technology*, *52*(3), 1130–1142. https://doi.org/10.1111/bjet.13088

Kasser, T., Davey, J., & Ryan, R. M. (1992). Motivation and employee^supervisor discrepancies in a psychiatric vocational rehabilitation setting. *Rehabilitation Psychology*, *37*(3), 175–188. https://doi.org/10.1037/0090-5550.37.3.175

Kotera, Y., Conway, E., & Green, P. (2021). Construction and factorial validation of a short version of the Academic Motivation Scale. *British Journal of Guidance & Counselling*, *51*(2), 274–283. https://doi.org/10.1080/03069885.2021.1903387

Kusurkar, R. A., Croiset, G., & Ten Cate, O. Th. (2011). Twelve tips to stimulate intrinsic motivation in students through autonomy-supportive classroom teaching derived from self-determination theory. *Medical Teacher*, *33*(12), 978–982. https://doi.org/10.3109/0142159x.2011.599896

Littman, M. L., Ajunwa, I., Berger, G., Boutilier, C., Currie, M., Doshi-Velez, F., Hadfield, G., Horowitz, M. C., Isbell, C., Kitano, H., Levy, K., Lyons, T., Mitchell, M., Shah, J., Sloman, S., Vallor, S., & Walsh, T. (2021, September). *Gathering strength, gathering storms: The One Hundred Year Study on Artificial Intelligence (AI100) 2021 study panel report*. Stanford University. http://ai100.stanford.edu/2021-report

Lund, B. D., & Wang, T. (2023). Chatting about ChatGPT: How may AI and GPT impact academia and libraries?. *Library hi tech news*, *40*(3), 26-29.

Milicevic, N., Kalas, B., Djokic, N., Malcic, B., & Djokic, I. (2024). Students' intention toward artificial intelligence in the context of digital transformation. *Sustainability*, *16*(9), 3554. https://doi.org/10.3390/su16093554

Miller, R. E. (2024). Pandora's can of worms: A year of generative AI in higher education. *Portal: Libraries and the Academy*, *24*(1), 21–34. https://doi.org/10.1353/pla.2024.a916988

Ofosu-Ampong, K. (2024). Beyond the hype: Exploring faculty perceptions and acceptability of AI in teaching practices. *Discover Education*, *3*(1). https://doi.org/10.1007/s44217-024-00128-4

Perkins, M., Roe, J., Vu, B. H., Postma, D., Hickerson, D., McGaughran, J., & Khuat, H. Q. (2024). Simple techniques to bypass Genai text detectors: Implications for inclusive education. *International Journal of Educational Technology in Higher Education*, *21*(1). https://doi.org/10.1186/s41239-024-00487-w

Petricini, T., Wu, C., & Zipf, S. T. (2023). *Perceptions about Generative AI and CHATGPT Use by Faculty and College Students*. https://doi.org/10.35542/osf.io/jyma4

Ratto Parks, A. (2023). What do we reward in reflection? assessing reflective writing with the index for Metacognitive Knowledge. *Journal of Writing Assessment*, *16*(1). https://doi.org/10.5070/w4jwa.1570

Rawsthorne, L. J., & Elliot, A. J. (1999). *Achievement goals and intrinsic motivation: A meta-analytic review. Personality and Social Psychology Review*, *3*(4), 326-344.

Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness*. Guilford Press.

Țală, M. L., Müller, C. N., Năstase, I. A., & Gheorghe, G. (2024). Exploring university students' perceptions of generative artificial intelligence in education. *Amfiteatru Economic Journal*, *26*(65), 71-88.

Trenholm, C., Devaney, B., Fortson, K., Clark, M., Quay, L., & Wheeler, J. (2008). Impacts of abstinence education on teen sexual activity, risk of pregnancy, and risk of sexually transmitted diseases. *Journal of Policy Analysis and Management*, *27*(2), 255–276. https://doi.org/10.1002/pam.20324

Wang, F., King, R. B., Chai, C. S., & Zhou, Y. (2023). University students' intentions to learn artificial intelligence: The roles of supportive environments and expectancy–value beliefs. *International Journal of Educational Technology in Higher Education*, *20*(1). https://doi.org/10.1186/s41239-023-00417-2

Xiao, P., Chen, Y., & Bao, W. (2023). Waiting, banning, and embracing: An empirical analysis of adapting policies for Generative AI in higher education. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.4458269

Yachouh, C., Maqbool, S., & Rao, S. (2024). *Undergraduate student perspectives on generative artificial intelligence at McMaster: Engagement summary and recommendations report*. McMaster University. https://macsphere.mcmaster.ca/handle/11375/29914

Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2019). Systematic review of research on artificial intelligence applications in higher education—Where are the educators? *International Journal of Educational Technology in Higher Education*, *16*(1), 39. https://doi.org/10.1186/s41239-019-0171-0

Hermeneutic Empowerment: Centring Disabled Testimony in Faith-Based Accessibility Research and Practice

Emma Albanese[1], Justin Carriere[1], Deanna Fraser[1], James Huh[1], and Honey Starr[1]

Abstract

This study investigates how disabled individuals navigate faith, particularly concerning structural and theological barriers to faith practice and belonging, as well as how the intersection of faith and disability shapes their identity, based on their narrative accounts. Participants (N = 111) filled out a five-question open-ended survey with various questions about their experiences with disability and faith-based identity (Figure 4). We conducted a qualitative thematic analysis of responses from disabled individuals regarding their experiences in religious and faith-based spaces through a lens of hermeneutic injustice, a type of epistemic injustice in which members of marginalized groups are disadvantaged in making sense of or communicating their experiences due to gaps in the shared interpretive resources caused by structural identity-based exclusion. Responses that fit the inclusion criteria (n = 59) revealed that many disabled participants had predominantly negative experiences within religious, faith-based, or spirituality-focused communities. Only when these communities were accessible and actively considerate of disabled individuals were these spaces positive experiences for participants. Our results complicate research that predominantly suggests religion improves the well-being of disabled individuals. Based on these findings, future research on the intersection of disability and religious participation should focus on centring lived experiences and incorporating mixed-methods approaches to record structural barriers and personal narratives that cannot be captured by quantitative research alone.

Introduction

The intersection of disability and religion occupies a complex territory shaped by both spiritual belonging and systemic ostracism. Current research often highlights the psychological benefits of religiosity for disabled individuals, but these studies can overlook the structural and theological obstacles that can challenge those benefits. This study investigates how disabled individuals navigate faith communities, with particular attention to how inaccessible practices, exclusionary doctrines, and stigmatizing beliefs shape their experiences and self-concept. Using a qualitative lens, we investigated our research question: What role does hermeneutic injustice—the exclusion of a subset of experience-based knowledge from the collective societal understanding (Fricker, 2007)—

[1] Undergraduate Student, Honours Social Psychology Program, Faculty of Social Sciences, McMaster University, Hamilton, Ontario, Canada

play in the self-conceptualization of disabled people who have previously or continue to engage in faith-based practices?

Literature Review

Disability Theology

Christian theology has historically framed disability through narratives of sin, punishment, and spiritual lack (Aquinas, 2006; Bultman, 1955; Block, 2002; Eiesland, 1994; Gould, 2018; Zahl, 2020). Augustine, quoting passages from Genesis and Romans, interpreted bodily suffering as evidence of God's wrath resulting from Adam's fall (cf. Gen. 2:3; Rom. 6:23) (Zahl, 2020). Medieval theologians such as St. Thomas Aquinas continued on this line of thinking by portraying the Christian's ultimate transformation in heaven as a perfect conformity to God's image—where all weakness, infirmity, and defect, understood as consequences of sin, are removed (*Summa Theologiae*, I q. 93 a. 4). These frameworks position disability as something to be overcome. On the other hand, suffering is honoured as a form of holiness–an imitation of Christ's passion–according to ancient medical texts like the Asklepieion inscriptions of Hippocrates and Galen (Moss et al., 2011). In many Christian traditions, disabled people are either invisible or objectified: symbols of sin, lessons of virtue, or examples for others' spiritual growth. According to Rudolf Bultmann (1955), healing stories in the Gospels often revealed Jesus' divine glory rather than centring the experiences of disabled individuals. Modern scholars such as Jeremy Gould (2018) argue for an understanding of disability that encapsulates disability as a form of suffering for God's people, insisting God's plan draws on capitalist ideals of functionality in a way that disability actively betrays. These understandings of disability, with harmful claims of demonic entities, divine punishment, optimal functioning, and sinful betrayal, take an individualistic model of blame over a systemic one for the difficulties disabled people experience (Lloyd, 2024). Gould's (2018) arguments follow a medical model of disability from a religious lens rather than the medical system itself (DasGupta, 2015), yet fails to encompass a social (Cameron, 2014b) or charity model (Cameron, 2014a) of disability, bringing into question whether there is an appropriate level of language available to describe the experiences of disabled people's complex relationship with God, religion, and faith.

Disability theology emerged in the late 20th century as a direct challenge to the traditional Christian frameworks that pathologized or spiritualized disability without consulting disabled voices. A pivotal text in this movement is Nancy Eiesland's *The Disabled God* (1994), where she recounts a moment of theological recognition in Luke 24:39–40: the resurrected Christ appears bearing the wounds of crucifixion, not healed or hidden, but intact. "I beheld God as a survivor, unpitying and forthright," she writes, recognizing in Jesus "the image of those judged 'not feasible,' 'unemployable,' with 'questionable quality of life'" (Eiesland, p. 89). For Eiesland, this disabled God subverts centuries of theology that conflated disability with sin and weakness, rejecting reductive binaries that position disabled people as either "defiled evildoers" or "spiritual superheroes" (p. 71). Courtney Wilder (2023), drawing on Sharon Betcher's work, insists that one's relationship with the Divine is "incomplete without the perspectives of disabled people" (p. 83). As Sharon L. B. Creamer notes (2006), theology has too often offered only superficial access to disabled people, while disability studies have ignored the constructive possibilities of religious thought.

Hermeneutic Injustice

The concept of hermeneutic injustice offers a powerful lens through which to understand how religious communities may perpetuate marginalization, particularly of disabled people. Fricker (2007) coined the term hermeneutic injustice as "[t]he injustice of having some significant area of one's social experience obscured from the collective understanding owing to a structural identity prejudice in the collective hermeneutical resource" (p. 155). In theological contexts, this means that entire categories of human experience—like disability, trauma, or mental illness—may be misinterpreted, diminished, or excluded from official or communal religious understanding. These injustices are not simply a result of individual biases but stem from institutionalized views that uphold the dominance of powerful groups. Because these views benefit those in power, there is little motivation to search for a better interpretation (Dotson, 2012).

Panchuck (2020) deepens this critique in religious contexts, noting that such injustice is often perpetuated through "normatively laden" language that is inaccessible or meaningless outside specific communities. These shared meanings affect what people believe is possible. For example, in a Catholic community, a woman claiming a divine call to priesthood is likely to be dismissed not because it is linguistically incoherent, but because the shared hermeneutic denies the legitimacy of women's ordination (Panchuck, 2020).

When communities lack the interpretive tools to name exclusion, those who suffer it may come to believe their pain is personal failure rather than systemic harm. Panchuk calls this biblically argued marginalization "religiously informed identity prejudice" (2020, p. 612). Kathy Black (1996) exemplifies this problem in her theological reading of Mark 7:31–37, where Jesus heals a man traditionally understood to be deaf and mute. Many disabled readers, she notes, observe that the man's speech impairment implies he was not deaf from birth, thus challenging the assumption that this story reflects a normative model of healing. Furthermore, some clergy have even used the passage to argue that God prefers speech over sign language—a conclusion that privileges able-bodied norms and has actively harmed the Deaf community (p. 94).

In religious settings, instead of elevating marginalized voices, the shared community hermeneutic may erase or skew negative experiences with positive language. Wellwood calls this phenomenon "spiritual bypassing" (1984) in reference to religion or spirituality. For example, the pervading Evangelical view holds that demonic manifestations, sin, or lack of faith are the cause of mental illness; if the illness persists, the sufferer is not praying enough (Lloyd et al., 2022). Lloyd also refers to this line of thought as "spiritual reductionism" (2024, p. 112), arguing that when it comes to mental health in religious environments, it is the discomfort brought on by people with negative interpretations, attitudes, and assumptions projected onto people that is the most pervasive disability (Lloyd, 2024), not the disability itself.

Religion as Beneficial to Disabled Individuals

While exclusionary theologies and hermeneutical injustice exist, religion also remains a meaningful and empowering resource for many within the disabled community. For many disabled individuals, religion can be a source of great comfort. Studies have shown that religion can promote resilience and connectedness with others (Iannello et al., 2022) and correlates with higher subjective well-being and life satisfaction for religious disabled folks than non-religious disabled folks (Kim, 2020; Marinić and Nimac, 2021). It has also

been shown to provide a sense of purpose for religious caretakers of disabled children (Zriker et al., 2024).

Perfectionism, Scrupulosity, & OCD

As previously discussed, religion can be both a source of healing and harm for disabled individuals. But this duality becomes especially pronounced in the intersection of religion and mental health. One such intersection involves scrupulosity—a form of religious or moral perfectionism often associated with obsessive-compulsive disorder (OCD), though it can also appear independently as a personality trait (American Psychiatric Association, 2013). This can manifest in religious contexts as repetitive prayers, confessions, and excessive efforts to seek forgiveness (Allen et al. 2023). In religious environments, a scrupulous person may just appear devoted. However, these compulsions negatively impact overall well-being through an increase in anxiety, guilt, and shame, sometimes leading to an aversion to God. Disabled individuals may even be more susceptible to scrupulosity if they have internalized the religious belief that their disabilities are due to sin or moral failing, as they may feel pressure to alleviate these feelings that spur anxiety with confession or prayer (Allen et al., 2023).

While scrupulosity can have damaging consequences, its severity and impact are shaped by how individuals engage with their faith. The relationship between religiosity and mental health is not uniform; instead, it varies based on internal versus external motivations for religious practice. This distinction becomes key in understanding how religious beliefs influence well-being among disabled populations.

Intrinsic vs. Extrinsic Religiosity

A growing body of research suggests that the psychological and spiritual outcomes of religiosity are less about belief itself and more about the motivation behind it. A scoping review by Iannello et al. (2022) emphasizes that religiosity's effect on individuals—whether positive or negative—largely depends on whether it is approached intrinsically or extrinsically. Intrinsic religiosity refers to engaging in faith for its own sake—motivated by personal conviction, internalized values, or a sincere relationship with the divine. In contrast, extrinsic religiosity reflects outwardly motivated practice—such as participating in religion to meet social expectations, please family members, or avoid community rejection (Steffen, 2014).

This distinction is especially relevant for disabled individuals. Steffen (2014) found that those who were intrinsically religious reported significantly lower levels of negative affect related to their faith experience. In contrast, extrinsic religiosity was correlated with maladaptive perfectionism and increased emotional distress. While adaptive perfectionism—characterized by intrinsically motivated goal-setting and personal growth—can be beneficial, maladaptive perfectionism, often rooted in external pressure and self-criticism, intensifies anxiety and shame (Steffan, 2014). Disabled individuals who feel compelled to conform to religious ideals or prove spiritual worthiness may experience their faith as an additional burden rather than a source of comfort. This distinction reinforces the need for religious spaces to cultivate authentic, supportive engagement with faith, especially for those navigating disability and spiritual identity simultaneously.

Research Question

What role does hermeneutic injustice—the exclusion of a subset of experience-based knowledge from the collective societal understanding (Fricker, 2007)—play in the self-conceptualization of disabled people who have previously or continue to engage in faith-based practices?

Rationale

Overall, we found a distinct lack of papers that engage critically with the intersections of religion and disability. Although researchers worked with disabled participants, papers we encountered were rarely written by and with disabled academics, aside from when the papers focused on disability theology. Since disability theology is an emerging field, there is a systemic lack of critical perspectives in papers that discuss the benefits and harms of religion on disabled people.

Scientific rationale aside, several members of this research team have their own lived experiences with the intersections of disability and religion, faith, and spirituality, and felt as though the existing research did not encompass their own experiences within these communities and theologies. Rather than applying a reductive approach to our own lived experience accounts, we allowed these experiences to guide our way through the project while remaining reflexive. Several members of the research team ensured reflexive practices were present throughout the project and challenged when certain analyses of data were biased, allowing us to both embrace our lived experiences and ensure an unbiased analysis. These experiences, alongside previous scientific research and perspectives, provided us with the necessary rationale to engage in this project.

Methods

Participants & Procedures

Participants included 111 individuals from various locations within North America, who were recruited through two main sources. The first source focused on Facebook groups that contained previously religious individuals or individuals who were currently religiously practicing. This method took on a convenience and snowball sampling technique, with these groups being asked to share the “call for participants” post, which was made on a personal account belonging to one of the researchers. The post received 51 total shares, 6 from Facebook groups and 4 from Facebook pages. The second source involved sharing a research poster on our personal social media accounts to garner attention from McMaster University students and peers, which also utilized a convenience and snowball sampling technique.

We conducted our qualitative survey through the Qualtrics platform. Once participants were screened for eligibility, they were either directed out of the survey or to our open-ended questions (Figure 4). The survey was created using Qualtrics and posted on Facebook and personal Instagram pages on January 22nd, 2025. The survey was closed on February 8th, 2025, after 17 days, as while we anticipated leaving the survey open longer, we decided to close our survey after considering the time constraints of this project alongside our capacity as students. Each survey took an average of ~18 minutes to complete when excluding outliers over 166 minutes/10000 seconds (n = 4). Participation in the survey was entirely voluntary, as no compensation was provided to participants for completing the survey.

Of the 111 total participants, 59 were selected for inclusion in the study. Those who were excluded (n = 52) were excluded due to ineligibility to participate (not disabled, not currently/previously religiously practicing, could not/did not consent) or because they did not respond to a minimum of one of the open-ended questions asked. Therefore, our final sample in our thematic analysis included 59 participants' responses to our open-ended questions.

Demographics

As visible in Figure 1, the average age of our sample (n = 59) was 41.8 years old, with our youngest participant being 19 and our oldest being 72. Our standard deviation (13.4) has a low coefficient of variation (CV = 0.32), indicating that most participants' ages are close to our mean (41.8 years old). Visible in Figure 2, the most prevalent gender identity reported by respondents in our study was female (66.1%), followed by male (18.6%). We received quite a high number of non-binary[2] respondents to our study (15.8%), a group that has remained absent in previous research on the relationship between disability, well-being, and religion (Kim, 2020; Marinić and Nimac, 2021). Our sample, while having a high heterosexual (42.4%) demographic, was also relatively highly bisexual (18.6%), followed by asexual (8.5%). Our sample tended to be most commonly married (32.2%), single (23.7%), or dating one person (18.6%). Despite the variety in gender, sexuality, and relationship status, our sample highly identified as European/white (88.1%), with the next highest identified racial identities being our self-identification category (3.4%) or multiracial (3.4%). Most participants reported having obtained a 4-year college or university degree (32.8%), with the next highest being a Master's degree (27.6%), followed by some college/university experience (19.0%).

Table 1: Descriptive Statistics of Age of Participants (n = 59)

	N	n	Missing	Mean	Median	SD	Min	Max
Age	111	59	52	41.8	41	13.4	19	72

Table 2: Frequency Table of Reported Demographics (n = 59)

	Counts	% of Total	Cumulative %
Gender			
Man (cis- or transgender)	11	18.6%	18.6%
Woman (cis- or transgender)	39	66.1%	84.7%

[2] Neither male nor female.

Non-Binary	3	5.1%	89.8%
Genderqueer	1	1.7%	91.5%
Prefer to self-identify:	5	8.5%	100.0%
Sexuality			
Lesbian	3	5.1%	5.1%
Gay	1	1.7%	6.8%
Bisexual	11	18.6%	25.4%
Pansexual	2	3.4%	28.8%
Straight (heterosexual)	25	42.4%	71.2%
Asexual	5	8.5%	79.7%
Queer	4	6.8%	86.5%
Questioning	3	5.1%	91.6%
Prefer to self-describe:	5	8.5%	100.0%
Relationship Status			
Single	14	23.7%	23.7%
Dating my partner exclusively	11	18.6%	42.3%
Common-law	3	5.1%	47.4%
Married	19	32.2%	79.6%
Divorced	7	11.9%	91.5%
Prefer to self-describe	5	8.5%	100.0%
Race			
East Asian (e.g., Chinese, Taiwanese, Japanese, Korean, etc.)	1	1.7%	1.7%
South Asian (e.g., Afghan, Nepali, Tamil, Bangladeshi, Pakistani, Indian, Sri Lankan, Punjabi)	1	1.7%	3.4%
European/White	52	88.1%	91.5%
Latin, South or Central American	1	1.7%	93.2%

Prefer to self-identify:	2	3.4%	96.6%
Multiple options selected*	2	3.4%	100.0%
Education			
Less than high school	1	1.7%	1.7%
High school/GED	2	3.4%	5.1%
Some college/technical school/university	11	19.0%	24.1%
2-year college/technical school/university degree/diploma (e.g., AA, AS)	2	3.4%	27.5%
4-year college/university degree (e.g., BA, BS)	19	32.8%	60.3%
Master's degree (e.g., MA, MS, MEng, MBA)	16	27.6%	87.9%
Doctorate degree (e.g., PhD, EdD)	3	5.2%	93.1%
My highest level of education is not on this list (please specify):	4	6.9%	100.0%

* We allowed some individuals to choose multiple options to best describe their race. However, only a few respondents chose to do this, so we have combined them into one group here.

Measures

Definitions & Inclusion Criteria

Disability.

For the sake of our dataset, we refrained from defining disability to our participants to accommodate the many ways disability exists in various societal hermeneutics. For a participant to meet the inclusion criteria of 'disabled' for our survey, we asked if the participant a) self-identified as disabled and b) could freely and, under legal definitions, consent despite their disability. This allowed us to include individuals in our sample who may have difficulties accessing official diagnoses (see: Overton et al., 2023) or individuals who may hold stigmatized diagnoses that they would be otherwise unwilling to disclose and therefore be dissuaded from participation (Rüsch et al., 2005). Therefore, if an individual identified as disabled and could freely consent, they met the inclusion criteria for our study.

Experience with Faith-Based Practices.

We required participants to claim that they had experience with faith-based practices. We asked, more specifically, if the participant had any past or present religious affiliation (currently religious, religious in the past, raised in a religious family, etc.). After receiving feedback from some participants, however, we realized that there were important differences in terms like *faith*, *religion*, and *spirituality* that we failed to consider when drafting our demographic and open-ended questions. Below are clear definitions of each term based on a review of relevant literature and suggestions provided by participants that we used to inform our thematic analysis and our discussion.

Table 3: Distinctions Between Faith, Religion, and Spirituality

Term	Definition
Faith	"based in obedience" (Gartenberg, 2025); "a firm and certain knowledge of God's benevolence towards us" (Bishop & McKaughan, 2023), a state of trust towards a figure. While religious institutions can act as a guiding force for the development of faith, faith can occur outside of religious institutions as well and exist independently of religion.
Religion	"the search for significance that occurs within the context of established institutions that are designed to facilitate spirituality" with goals that may be "psychological (e.g. anxiety reduction, meaning, impulse control), social (e.g. belonging, identity, dominance), and physical (e.g. longevity, evolutionary adaptation, death), as well as those that are spiritual" (Pargament et al., 2013, p. 15)
Spirituality	"the search for the sacred." Applying to God and also to "other aspects of life that are perceived to be manifestations of the divine or imbued with divine-like qualities, such as transcendence, immanence, boundlessness, and ultimacy" (Pargament et al., 2013, p. 7).

Questions & Intentions

Due to the nature of previous research, our study remained exploratory and therefore did not rely on any pre-existing measures. Because our goal was to explore and center the reported lived experiences of religiously practicing disabled participants, a goal absent in quantitative research of similar topics, we chose a qualitative research design. Since our focus was not on the extent to which individuals were disabled or engaged in faith, religion, and spirituality, but instead on the respondents' experiences, we did not take measurements of the strength of these identities through scales. Survey questions were

created by all researchers through a collaborative effort, who rigorously critiqued biased or confusing phrasing.

We administered 5 open-ended questions to participants, followed by a list of neutral prompts to help individuals find a way to respond to questions that best fit their personal experiences. The decision to list 5 questions allowed us to gather enough information from participants without risking participant drop-off. Leaving questions open-ended allowed participants to write as much as they deemed appropriate for each question.

Table 4: List of Open-Ended Research Questions

Question	Intention	Response rate (n = 59)
What does/did your faith mean to you? *(Prompts: How important is/was it to you? How does/did it impact your daily life? How does/did it impact your sense of self?)*	Intended to measure the level of importance of faith in the respondent's life. Taken into consideration in coding: Did the respondent engage in religion because of pressure or because of personal values? etc. Intended to provide insight into the respondent's identity with religion/faith.	98.3%
How do you feel your disabled identity/disability has shaped your relationship with your faith or spirituality, or vice-versa? *(Prompts: Has it played a role? Was it beneficial, or harmful? How? Does your disability enhance your faith, or feel like a barrier to it?)*	Intended to prompt participants to discuss the ways their faith/spirituality interacted with their disability, and the type of relationship existent. Was the relationship positive? Was it negative? Included prompts for both positive and negative experiences in hopes of mitigating any potential bias. Also intended to gather information on the reported impact of both religion/faith and disability on identity.	96.6%
How have religious teachings, practices, or communities responded to your disability? *(Prompts: Does/did your religious community include and represent your disabled identity/disability? Has your religious community had the*	Intended to gather insight about the general accessibility of reported religious communities/spaces. Hopes of informing why these spaces may not be considered beneficial to some individuals, which would contradict previous research on well-being, disability, and religiosity. Also curious about the language being utilized in	94.9%

proper language or understanding to talk about or address disability? How did/do you perceive your religious community to view your disability? Do they look at it as a positive or negative thing?)	religious spaces, given previous concerns about including hermeneutics in theologies.	
Is there anything else you would like people and the general public to know/understand about your experience with religion as a disabled person/person with a disability?	Intended to try and receive/prompt 'doorknob confessions', where an individual might have more to say but held off until the end of the survey. Because our main survey was only 3 questions, this added question serves as a catch-all for anything we may have missed that participants might reportedly find important.	69.5%
Is there anything else you would like the researchers to know?	Intended to receive feedback about the survey, receive information about other areas of concern for participants to inform future research, etc.	40.7%

Results

Coding Process

Once data collection was completed, each researcher went through all results individually and developed a personal codebook for round one. Each coder was provided with a transcript on Delve containing all responses for each of the five questions and went through the data without consultation from other coders. All responses for a given question were grouped under one transcript rather than separated by individual participants. Coders were informed to keep a journal of notes and to flag their emotional states so they could be aware of how this may impact their codes. Coders were not allowed to talk to each other about their codes. This process lasted about two weeks.

Once round one was finished, all coders met and discussed their findings, working together to identify common themes which were developed into the final codebook (Figure 5). Once the codebook was solidified, coders went back through the transcripts and coded the data accordingly in a second round. Due to time constraints, each coder was only assigned 1-2 question transcripts to code in the second round. This round, in contrast to the first, was collaborative: coders would look over each other's codes, ask questions to clarify whether codes applied or not, and were critical of each other's codes. Coders were informed not to stray from the codebook in this round.

Table 5: Codebook

Code Theme/Code/*Subcode*	**Description**
Individual Codes/No Specific Theme	
Neurodivergence impacted respondent's relationship with religion.	Respondent indicated that they are neurodivergent specifically and related their relationship with religion to their neurodivergent identity.
Retrospective reflections on experience with faith/community.	Respondent reflected on parts of their practice that they didn't think about while practicing/before taking the survey.
No relationship.	Respondent indicated that their faith had no impact on their disability/vice-versa.
Interesting quotes	A code used by coders for statements made by respondents that may be beneficial later but do not have coding significance.
Importance of Faith	
Religion as an important aspect the respondent's life.	Respondent indicated religion is a critical aspect of importance/meaning in their life.
No longer important.	*Respondent indicated that religion was a critical aspect of importance/meaning in their life, but that is no longer the case.*
Faith never important.	Respondent indicated that faith was not important to their life, despite practicing/having practiced.
Form of Faith	
Religion as structured/routine.	Respondent indicated that religion was heavily structured and followed some sort of routine every time, regardless of whether this was a positive or negative aspect of the practice to them.

Self-Guided Religion/Spirituality	Respondent indicated that their faith wasn't necessarily religious but based within themselves and their individual practices.
Distance from organized faith made respondent closer to individual faith.	Respondent expressed that religion was harsh, but once they distanced themselves from an organized practice, it was a more positive experience.
Faith provides moral framework for worldview.	Respondent indicated that faith provides a guidebook on how to live and work with others and the world.
Negative Associations Within Faith	
Scrupulosity	Respondent expressed that they monitor their behaviour/thoughts on a moral judgment because of faith.
Shame/Guilt	Respondent expressed a feeling of shame/guilt within faith.
Trauma	Respondent indicated that they developed a form of trauma because of faith. Due to the nature of this code, trauma-based language must be explicit and not implied.
Ostracization/hermeneutic exclusion within the church community due to disability.	Respondent indicated that they were ostracized from the community because of their disability. Occurs from the side of the religious organization itself; active action.
Unintended ignorance	Respondent indicated they were unintentionally ostracized from the community due to ignorance around their disability.
Faith/community avoids disability	Respondent indicated that their faith/community openly avoids talking about/to disability.
Structured, hermeneutic injustice around disability.	Respondent indicated that organized religion/faith/etc. is just not organized to support disabled followers. Structural/foundational issue.
Barriers to practice faith because of lack of accessibility.	Respondent indicated that they were unable to access the church because

	of barriers in their way; passive action.
Testimonial Injustice around disability.	Respondent indicated that the church/faith diminished their experiences as a knower of their disability.
Positive Associations Within Faith	
Faith as a coping mechanism for disability.	Respondent indicated that faith was a coping mechanism for disability. Indicated that faith was a form of survival when they felt hopeless about their disability/health.
Faith as a coping mechanism for negative parts of life.	Respondent indicated that faith was a coping mechanism for negative parts of life, and not necessarily disability.
Disability as an enhancement of faith.	Respondent indicated that disability enhanced faith and made them feel closer to God.
Disability-inclusive faith.	Respondent indicated that their community was inclusive/supportive of disability.
Religion brought community.	Respondent indicated that religion brought a sense of community and belonging in a way that they appreciated
Spiritual Bypassing	
"I'll Pray for You/Pray Away" mentality in others.	Respondent indicates that other followers insisted on prayer as a form of cure for disability.
Disability viewed as weakness; result of sin/lack of faith.	Respondent indicated that disability was viewed as a lack of faith or weakness of faith, even as a punishment from God as a result of sin.
Identity	
Disability as identity.	Respondent indicated that disability is an important facet of their identity.
Faith as identity.	Respondent indicated that faith is an important facet of their identity.

Identity conflict between faith and disability.	Respondent indicated that there was a conflict between religion and disability that caused them an identity 'crisis' / distress.
Disability as a Tool	
Performative Allyship/Activism	Respondent indicated that their religion/community doesn't/didn't actually engage in disability justice practices despite aiming to help people with disabilities; goals were performative in nature and did not actually help.
Charity Model	Respondent indicated that the organized religion utilized disability to their own advantages, like being perceived as more charitable.
Motivations Behind Practice	
Extrinsic motivation	Respondent indicated there were external pressures to join/practice faith. Practice came from external.
Intrinsic motivation	Respondent indicated there were internal factors to join/practice faith. Practice came internal.

Thematic Analysis

After reviewing codes, we were able to come up with 6 core themes present in the dataset: *negative experiences with faith & religion, positive experiences with faith & religion, disability as a tool for organized religion, faith as a tool for the individual, neurodivergence & faith, and no relationship reported.* For each theme, we provide a handful of anonymized quotes from our dataset below. This is done to place disabled voices at the forefront of this research, given that testimonial injustice in religious communities was highly reported by respondents in our data set.

Negative Experiences with Faith & Religion.

Our data set predominantly consisted of individuals who were frustrated with their experiences and expressed having a difficult time practicing because of the treatment towards disabled identities/disability in religion and faith. This contradicts research that shows these religious spaces were beneficial to the well-being of disabled and able-bodied people (Iannello et al., 2022). The sentiment shared by most respondents–that religious spaces and theologies were unsafe for and hostile toward disabled followers–was common in literature created by disabled theologians (Eiesland, 1994).

Scrupulosity, Guilt, & Shame.

Many responses contained discussions expressing feelings of scrupulosity, guilt, and shame that were created by and perpetuated in religious spaces and theologies and tied into their disability, especially for respondents with general anxiety. The idea that *"God can see all of [their] thoughts"* led respondents to report feeling like *"total garbage and doomed to hell"* especially when they were forced to confess their sins. Respondents who disclosed identifying with OCD or autism particularly dominated this subtheme:

> *"My OCD has made it harder for me to access a spiritual connection to any god or religion due to moral concerns and overthinking."*

> *"In some ways, religious teachings also had a negative impact on my OCD in particular. We were taught that God can see all our thoughts and they can also be sinful. As someone with intrusive thoughts as a result of my OCD, this led to internal compulsions as a response to guilt for thoughts that I now know are outside of my control."*

> *"I do feel like my [a]utism played a huge role in my relationship with religion in my youth. I did try to take things at face value. So when my priest told us that even thinking a bad thought was a sin, I believed him. I have intrusive thoughts alot, and did even back then. That convinced me I was committing horrible sins all the time, and couldn't make myself stop even when I wanted to. This led to me guilt, anxiety, profound depression."*

Testimonial & Hermeneutical Injustice.

Many respondents also indicated that experiences of hermeneutical and testimonial injustice toward their disability were prevalent in faith and religion. Respondents indicated that in religion and faith, disability was viewed as sin and that *"in heaven, all [bodies] would be made perfect and new ... any physical impairment would fade away"*. Disability was not considered a natural form of human existence in many theologies, which led respondents to report that their disability *"[was viewed as] a result of sin in [their] life and not a legitimate disability issue."* One respondent, who was an ordained minister, stated that religion's *"[i]nability to be open and accept[ing] regarding [their] disabilities was a major contributor to [their] leaving."* Particularly for mental health problems, individuals reported that treatment options present outside of religion and faith were demonized, and invisible illnesses were delegitimized. One participant mentioned how *"dehumanizing [it is] to discover post-disability how little regard the church now holds you in."*

Ostracization & Barriers.

Respondents most commonly reported that because of their disabled identity and need for accommodations, they were ostracized from religious communities for their needs and the countless barriers in their way. Many participants stated being generally unable to engage in the typical practices expected of followers because of a lack of accommodations provided for their (mostly physical) disabilities:

> *"I no longer attend in person church because of the lack of accessibility and after being told I could just watch church through a window since they could not accommodate me."*

> *"My disability is invisible--I live with chronic pain and fatigue. I felt strongly judged for being too tired to do meetings/services while working full time. I received a lot of comments about how I would just feel better once I push myself to go, even though I would feel even more exhausted after."*

> *"Accommodations were rare, and over time it made me trust my church less and less."*

Conflict Between Faith and Disability.

Respondents also reported feeling a conflict between their religion-, faith-, or spirituality-based identity and their disabled identity because of the way they were treated as disabled persons in both religious spaces and theologies. Some respondents stated that they no longer felt comfortable calling themselves both religious/faithful and disabled at the same time, reporting that their *"disability and [their] faith were sometimes at odds"* and that their disability *"caused [them] to question [their] beliefs."* Some participants made statements beyond just disability identity conflict, going as far as to state:

> *" … religion is an inadequate lens through which to view the self or the human person in all its complexity, and glaringly inadequate for understanding and accepting disability in general."*

Positive Experiences with Faith & Religion.

Although most respondents provided us with negative testimonies about their experiences in religious spaces and faith, a minority of participants mentioned that faith, religion, and spirituality were beneficial to their disabled identity.

Community.

Respondents indicated that faith and religion brought a sense of community and belonging that they were unable to achieve elsewhere. Participants stated: *"[it] helped me form community and friends, which also impacted my sense of self," "besides the higher power [,] having the support of a community is so very helpful," "[m]y disability has allowed me [to] go connect to people in my church. I have been open about it and find others with similar challenges,"* and that *"the many prayers of my faith family helped greatly to save my life. The many cards reminded me that even though I was not present, I was not forgotten."*

"Disability Enhances my Faith."

Some respondents indicated that their relationship with faith and spirituality was enhanced by their disability rather than hindered. Participants made statements such as:

> *" … my disability has influenced my faith/spirituality by having me heavily motivated to explore disability theology and follow other neurodiverse people of faith; my faith/spirituality has helped me to accept my disability and to look for ways that my disability can be put into the service of the Divine."*

Participants also stated that their unique relationship with God was fulfilling to them:

> *" … my belief that I am wonderfully made by God means that he made me this way, in his image, disabilities and all, and loves me all the same. I find the thought that this is how I am made to be and still in the image of God comforting."*
>
> *"With faith, even disability finds meaning and purpose. I have learnt far more about myself, my relationships and my trust of God through disability than I would have if I was able bodied."*

Disability-Inclusive Faith.

Some respondents indicated that their religious communities were making a genuine effort to include disabled followers or to practice what we described as 'disability-inclusive faith':

> *"I feel like recently there has been more supports available for disabled individuals, including culturally-sensitive therapeutic spaces (community circles, therapy sessions, mindfulness exercises, etc) for individuals with disabilities. I've also noticed a recent shift away from the ""pray it away"" approach to mental health in Canadian Muslim communities."*
>
> *"At Mass you will see the priest walk to those who can't to let them receive the Eucharist. There is an effort to include people and their life is just as important as anyone else's."*

Disability as a Tool for Religion.

Some respondents indicated that, although there were attempts to accommodate them, they felt as though their and others' disabilities were being used as a tool of moral profit for the religious organization. Concerning both theologies and religious spaces, respondents made claims that tokenism and saviour complexes were prevalent, stating more specifically:

> *"I have observed a sense of tokenism when I have seen people with visible disabilities in faith circles--people who speak to them out of a desire to be seen as good, as opposed to actually wanting to get to know them."*
>
> *"I often felt there wasn't room to be neurodiverse/mentally ill as an adult, as the focus was on disabled children and a savior complex around disabled children and their families."*
>
> *"I found in my church community that people wanted to "help" with lots of things. But that this often led to saviorism."*

In addition, participants indirectly referenced how the charity/pity model of disability was prevalent in religious spaces and theologies. Respondents stated that *"many religious people take on a 'pity-based' approach to disabled people, which rubs me the wrong way,"* or that *"[d]isabled people not being able to do things made them need to be*

saved … and that the rest of the faith community would recognize their good deed of helping a disabled person."

Faith as a Tool for the Individual.

On the other hand, some respondents reported that faith was a beneficial tool for them in surviving the world. In the same way, someone with chronic pain may use a cane or a student may use accommodations, faith became a way for these respondents to cope with the day-to-day challenges of disability. This theme falls in line with the narratives present in current well-being research on disability and faith/religion/spirituality (Iannello et al., 2022).

Structure/Organization.

A surprisingly prevalent subtheme in our dataset was our respondents' enjoyment of the structure and organization that religious practices brought them. Not surprisingly, however, was the higher rate of disclosures of autism and OCD associated with this subtheme. Respondents stated that they frequently attended religious services, sometimes multiple times a week, and that *"[their] faith [offered them] a routine."* This routine and structure was *"a reason for enjoying practicing [their] faith,"* and *"[b]eing able to come back to traditional practices despite the rapid changes in [their] life provided security … [they] felt [they were] able to remain grounded and connected to [themselves]."*

Coping with Life & Disability.

For quite a few respondents, both their faith and religious communities brought a sense of comfort that allowed them to cope with the daily stressors of life and disability in general. *"[R]eligion provided a sense of familiarity when [they were] dealing with health issues in the long term."* Respondents also stated:

> *"My faith was my past, present, and future, the source of truth, and a place of warmth and safety and virtually all of my identity."*
>
> *" … faith has been very important to me … in the context of hope and joy, not … through a lens of criticism or condemnation."*
>
> *"Faith is just one of many methods that disabled people can use to find hope in a world that often seems bent on preventing a future for those with disabilities."*

Interestingly, some respondents also used faith/religion/spirituality as a means to express the difficulties of living with disability in an ableist society. Some respondents disclosed that they had used religion to *"[pray God] would just let me cease to exist"* and that religion was *"an expression of the pain and difficulty I experience in society and internally that helps me process it."* For one respondent, this sentiment was especially clear:

> *"I would instead BEG God to just unmake me. I suppose, in a way, this kept me alive. I wanted to die, but knew that if I killed myself, I would go to hell. Since God was all powerful, as miserable as I was, I was certain that God could make hell somehow even worse. So, instead, I prayed he would just let me cease to exist."*

Neurodivergence & Faith.

Although we did not ask respondents to disclose the nature of their disability, we received disclosures of respondents' neurodivergent identities and how these identities particularly related to their faith and religion. For Autistic respondents, sentiments were shared about how their *"logical thinking approach [made] matters of faith challenging to reconcile"* and that *"[they] took all theology literally and as seriously as a matter of life and death, since that's how it was presented."* For participants with ADHD, their disorder *"[made them] a sensitive person with a need to have personal investment and creativity in [their] faith practice."* As mentioned previously, many respondents with OCD grappled with the difficulties of scrupulosity pervasive in religious theologies. For neurodivergence more broadly, one respondent stated that *"[they are] a parent to a child who is [n]euro divergent and [they] wouldn't classify the church or religion in general to be a safe place for them."*

No Relationship Reports.

Some respondents reported that there was no relationship or impact between their disabled identity and their faith, religion, or spirituality. While this theme was small amongst our dataset, it is still important to consider how faith, religion, spirituality and disability do not intersect for some individuals. They reported that *"[t]he disability is annoying but hasn't affected [their] faith"* or that *"[they] didn't notice any overlap between the two."* For some participants, existing as both disabled and religious was *"[n]either a positive or negative. It just [was] - deal with it as such."*

Discussion

Faith-based communities have the potential to be powerful, deeply meaningful, and enriching communities. At the same time, they have the very real potential to impart lasting harm on their community members. The majority of participants in this study reported experiencing significant barriers within their religious communities. These barriers, as seen in the dataset, arose both from theological frameworks and physical inaccessibility, contributing to the physical and hermeneutical exclusion of disabled individuals from religion and faith.

Although negative reviews predominated, some of the data aligned with previous research on positive intersections of disability and religion, which suggests religion and faith act as a source of improved well-being for some disabled participants (Kim, 2020; Marinić and Nimac, 2021).

Experiences of discrimination are shown to negatively impact the well-being of individuals through their self-esteem, life satisfaction, depression, and more (Schmitt et al., 2014). For disabled individuals in religious or faith-based spaces, the stakes are often quite literally heaven or hell. The previous research on this topic acts as a foundational framework for this study; however, previous research comes predominantly from quantitative analyses, while this project takes an exclusively qualitative analysis. As a result, this study is uniquely positioned to capture more personal testimonial accounts that may not be fully represented in existing quantitative research surrounding this topic.

Qualitative research provides disabled individuals with the space to defy expectations of ability that are not achievable in quantitative research. Data injustice is a term used by disability advocates to express a general distaste toward quantitative data practices that discriminate and exclude disabled perspectives because of their inaccessibility (Charitsis

& Lehtiniemi, 2023). Automated systems and code rely on individuals who fit strict criteria, who do not stick out, and who abide by the rules, expectations which are typically defied by disabled research participants. When considering the research that explores relationships between well-being, religion, and disability, this research is dominated by quantitative approaches that fail to encapsulate the holistic disability experience, one full of creativity, defiance, complexity, and difference (Jones, 2022). Our focus on qualitative over quantitative data, in consideration of unjust data practices towards disabled participants, may therefore explain why our results included alternative perspectives to existing research on the topic.

Methodological concerns aside, the responses we received were important to consider for those looking to create a disability-inclusive religion and faith. Many respondents came with complaints about the physical and theological barriers that prevented access to faith, religion, and spirituality. This limited their ability to contribute to dominant hermeneutic resources and reportedly increased experiences of testimonial injustice and levels of shame, guilt, and anxiety. Symbolic interactionism, which states that the meanings we hold are generated through our repeated interactions with both symbols and each other (Carter & Fuller, 2015), would posit that the theological approaches to disability play a role in the meanings ascribed to disabled people in religion and faith. This links the hermeneutic resource from which they are excluded to their personal source of meaning within disabled identity, allowing them to be used as mere objects of pity usable to increase the moral standings of able followers instead of allowing them to reap the benefits of social inclusion that come with participation in religion.

In addition, System Justification Theory posits that regardless of the harm caused to individuals by dominant systems, there is a pressure to uphold oppressive systems and practices to maintain order (Jost & Toorn, 2012). In religion and faith, where disability is often viewed as a failure on the individual's part or as a test to be endured, disabled individuals may internalize these meanings. This could lead to reports of self-doubt, diminished confidence, and lower self-esteem. When negative beliefs remain unchallenged due to their theological dominance, discrimination may continue as a norm in religion and faith.

As previous research predicts, the reported factor that allowed individuals to have positive experiences and relationships with God, faith, religion, and spirituality was the extent to which their own experiences were valued in the core hermeneutic resource, or theology, of their religion and faith. The disability theologies that Betcher (2007) and Wilder (2023) stated would be beneficial to disabled followers were highly prevalent in positive responses to our survey questions, such as the idea of God being disabled or disability being considered an alternative way of life rather than sin. When disabled people were physically included in services and practices, and the spaces and practices were made accessible, they were reportedly beneficial in the respondents' relationship with religion, faith, and their disabled identity. Considering the negative impacts ostracization has on well-being (Wesselmann & Williams, 2017), it is fitting that disability-inclusive faith, religion, and theologies would reportedly have a beneficial impact on disabled respondents. Therefore, it is essential that faith communities be shaped by the voices, needs and values of disabled people to create safer and more supportive communities that are inclusive of everyone.

Limitations

While this study makes valuable initial progress in understanding the complex intersection of disability and faith, it is not without its limitations. Participant recruitment may be subject to bias, given that the majority of participants were recruited from ex-religious communities and support groups specifically oriented toward religious disengagement, trauma, and healing. As a result, the sample may lean toward more negative perceptions of religious and faith experiences, ultimately impacting participant responses. This study also relied on self-reported data collected through surveys, which can be subject to social desirability bias or recall bias. The nature of self-report bias may have also led participants to provide certain responses based on their perceived expectations of the study. Finally, there was limited diversity regarding religious affiliation and race, as the vast majority of participants identified with Christianity as their primary faith or as white. As such, the present study may not fully account for the lived experiences of all disabled people of faith, especially within less institutionalized religious practices such as Indigenous faiths. Future research should seek to address these limitations and use mixed methods approaches that combine qualitative and quantitative data for a more well-rounded understanding of the barriers that impact disabled individuals.

Conclusion

This study begins to address a significant gap in the existing research on the experiences of disabled individuals within faith-based spaces, an area that has been unexplored. Within faith and religion, disabled individuals face significant barriers that keep them from fully participating in and reaping the full rewards of these communities. These barriers come in two distinct forms: structural/physical barriers and theological/social barriers. Our findings suggest that these spaces often fail to be truly inclusive for disabled individuals, with physical inaccessibility and harmful theological frameworks contributing to stigmatization and harm. When these spaces are accessible and open-minded, they have the potential to offer positive experiences. This research highlights the importance of rethinking how faith-based spaces and narratives of disability are designed. Future research on this topic must continue to consider the lived experiences of disabled individuals.

References

Allen, G. E. K., Norton, A., Pulsipher, S., Johnson, D., & Bunker, B. (2023). I worry that I am almost perfect! Examining relationships among perfectionism, scrupulosity, intrinsic spirituality, and psychological well-being among Latter-Day Saints. *Spirituality in Clinical Practice (Washington, D.C.)*, *10*(4), 316–325. https://doi.org/10.1037/scp0000273

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (5th ed.)*. https://doi.org/10.1176/appi.books.9780890425596

Aquinas, T. (2006). *Summa Theologiae* (T. Gilby, Trans., Vol. 10). Cambridge University Press. (Original work published ca. 1274).

Betcher, S. V. (2007). Monstrosity, miracle, and mission: Religion and the politics of disablement. In *Spirit and the Politics of Disablement* (pp. 48–67). essay, Fortress Press.

Bishop, J., & McKaughan, D. (2023). Faith. *Stanford Encyclopedia of Philosophy.*

Black, K. (1996). *A healing homiletic: preaching and disability*. Abingdon Press.

Bultmann, R. (1955). *Theology of the New Testament*. SCM Press.

Cameron, C. (2014a). Charity. In C. Cameron (Ed.), *Disability studies: A student's guide* (pp. 24-26). SAGE Publications Ltd. https://doi.org/10.4135/9781473957701

Cameron, C. (2014b). The social model. In C. Cameron (Ed.), *Disability studies: A student's guide* (pp. 137-140). SAGE Publications Ltd. https://doi.org/10.4135/9781473957701

Carter, M. J., & Fuller, C. (2015). Symbolic interactionism. *Sociopedia. isa*, *1*(1), 1-17.

Charitsis, V., & Lehtiniemi, T. (2023). Data ableism: Ability expectations and marginalization in automated societies. *Television & New Media*, *24*(1), 3–18. https://doi.org/10.1177/15274764221077660

Clare, E. (2017). *Brilliant imperfection: Grappling with cure*. Duke University Press.

Creamer, D. (2006). Theological Accessibility: The Contribution of Disability. *Disability Studies Quarterly, 26*(4). https://doi.org/10.18061/dsq.v26i4.812

DasGupta, S. (2015). Medicalization. In R. Adams, B. Reiss & D. Serlin (Ed.), *Keywords for Disability Studies* (pp. 120-121). New York, USA: New York University Press. https://doi-org.libaccess.lib.mcmaster.ca/10.18574/nyu/9781479812141.003.0041

Dolmage, J. (2017). *Academic ableism: Disability and higher education*. University of Michigan Press.

Dotson, K. (2012). A cautionary tale: On limiting epistemic oppression. *Frontiers: A Journal of Women Studies*, *33*(1), 24–47.

Eiesland, N. L. (1994). *The disabled God: Toward a liberatory theology of disability*. Abingdon Press.

Fricker, M. (2007). *Epistemic injustice: Power and the ethics of knowing*. Oxford University Press.

Gartenberg, Z. M. (2025). Spinoza's Definition of Faith. In D. Rutherford (Ed.), *Oxford Studies in Early Modern Philosophy* (Vol. 12, pp. 36–65). Oxford University Press.

Gould, J. B. (2018). Christian faith, intellectual disability, and the mere difference/bad difference debate. *Philosophy and Theology: Marquette University Quarterly*, *30*(2), 447–477.

Iannello, N. M., Inguglia, C., Silletti, F., Albiero, P., Cassibba, R., Lo Coco, A., & Musso, P. (2022). How do religiosity and spirituality associate with health-related outcomes of adolescents with chronic illnesses? A scoping review. *International Journal of*

Environmental Research and Public Health, *19*(20), 13172-. https://doi.org/10.3390/ijerph192013172

Jones, D. R. (2022). Reclaiming disabled creativity: How cultural models make legible the creativity of people with disabilities. *Culture & Psychology*, *28*(4), 491-505. https://doi.org/10.1177/1354067X211066816

Jost, J. T., & van der Toorn, J. (2012). System justification theory. In P. A. M. Van Lange, A. W. Kruglanski, & E. T. Higgins (Eds.), *Handbook of theories of social psychology* (pp. 313–343). Sage Publications Ltd. https://doi.org/10.4135/9781446249222.n42

Kim, D. (2020). The effect of becoming disabled on the subjective well-being of religious and nonreligious people. *Journal of Religion and Health*, *59*(2), 816-827.

Lloyd, C. E. M., Mengistu, B. S., & Reid, G. (2022). "His main problem was not being in a relationship with God": Perceptions of depression, help-seeking, and treatment in Evangelical Christianity. *Frontiers in Psychology*, *13*, 831534–831534. https://doi.org/10.3389/fpsyg.2022.831534

Lloyd, C. (2024). "Prayer is fine, but don't then quickly move on, as if you're done and dusted": How can the Evangelical church better support those with mental illness? *Journal of Disability & Religion*, *28*(2), 110–131. https://doi.org/10.1080/23312521.2023.2173712

Marinić, M., & Ćučković Nimac, J. (2021). The correlation of some characteristics of religious identity with the quality of life of persons with disabilities. *Bogoslovni Vestnik*, *81*(1). https://doi.org/10.34291/BV2021/01/Marinic

Moss, C., Schipper, J., Schipper, J., & Moss, C. R. (2011). In Sickness and in Health: Ancient "Rituals of Truth" in the Greco-Roman World and 1 Peter. *In Disability Studies and Biblical Literature* (pp. 185–203). Palgrave Macmillan. https://doi.org/10.1057/9781137001207_12

Overton, G. L., Marsà-Sambola, F., Martin, R., & Cavenagh, P. (2023). Understanding the self-identification of autism in adults: A scoping review. *Review Journal of Autism and Developmental Disorders, 11*(4), 682–702. https://doi.org/10.1007/s40489-023-00361-x

Panchuk, M. (2020). Distorting concepts, obscured experiences: Hermeneutical injustice in religious trauma and spiritual violence. *Hypatia*, *35*(4), 607–625. https://doi.org/10.1017/hyp.2020.32

Pargament, K. I., Exline, J. J., & Jones, J. W. (2013). *APA handbook of psychology, religion, and spirituality (Vol 1): Context, theory, and research* (pp. xxvii-740). American Psychological Association.

Prus, R. (1996). Studying human lived experience: An introduction to the intersubjective enterprise. In *Symbolic interaction and ethnographic research*, Chapter 1. New York, NY: Suny Press.

Rüsch, N., Angermeyer, M. C., & Corrigan, P. W. (2005). Mental illness stigma: Concepts, consequences, and initiatives to reduce stigma. *European Psychiatry*, *20*(8), 529-539.

Saroglou, V. (2011). Believing, bonding, behaving, and belonging: The big four religious dimensions and cultural variation. *Journal of Cross-Cultural Psychology*, *42*(8), 1320-1340.

Schmitt, M. T., Branscombe, N. R., Postmes, T., & Garcia, A. (2014). The consequences of perceived discrimination for psychological well-being: A meta-analytic review. *Psychological Bulletin*, *140*(4), 921.

Steffen, P. R. (2014). Perfectionism and life aspirations in intrinsically and extrinsically religious individuals. *Journal of Religion and Health*, *53*(4), 945–958.

Wellwood, J. (1984). Principles of inner work: Psychological and spiritual. *Journal of Transpersonal Psychology*, *16*(1), 63–73.

Wesselmann, E. D., & Williams, K. D. (2017). Social life and social death: Inclusion, ostracism, and rejection in groups. *Group Processes & Intergroup Relations*, *20*(5), 693-706.

Wilder, C. (2023). Disability and embodied theology. In *The Routledge Handbook of Religion and the Body* (pp. 69–85). essay, Routledge.

Yorulmaz, O., Gençöz, T., & Woody, S. (2009). OCD cognitions and symptoms in different religious contexts. *Journal of Anxiety Disorders*, *23*(3), 401–406. https://doi.org/10.1016/j.janxdis.2008.11.001

Zahl, S. (2020). Sin and bodily illness in the psalms. *Horizons in Biblical Theology, 42*(2), 186–207. https://doi.org/10.1163/18712207-12341412

Zriker, A., Freund, A., Erlich, R., & Shoker, Y. (2024). “Faith comes and removes all questions. Faith helps me a lot”: The unique perspective of mothers of children with intellectual and developmental disabilities in the ultra-orthodox society. *Journal of Disability & Religion*, *28*(3), 437–452. https://doi.org/10.1080/23312521.2024.2320645