Social determinants of support for violent radicalization: a moderated mediation model of perceived financial difficulties, perceived discrimination, and depressive symptoms among

young adults

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A thesis submitted to McGill University in partial fulfillment of the requirements

of the degree of Master of Science in Psychiatry

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Abstract

Purpose

The COVID-19 pandemic brought greater social polarization along with economic and psychological burdens, creating an ideal environment for violent radicalization. This paper examines the relationship between perceived financial difficulties and support for violent radicalization (SVR) through depressive symptoms, while assessing the moderating role of perceived discrimination on this pathway, among Canadian adults during the COVID-19 pandemic.

Methods

A total of 5007 participants between the ages of 18 to 40 from the provinces of Québec, Ontario, and Alberta were invited to complete an online web-survey in English or French from May 21^{st} to June 14th, 2021 (mean age = 28.8 and SD age = 5.63, 59.1% women). A structural equation model was implemented to examine the direct effects of perceived financial difficulties on SVR and to test whether perceived discrimination moderates the indirect effects of perceived financial difficulties on SVR through depressive symptoms.

Results

Perceived financial difficulties were positively and significantly associated with SVR ($\beta = 0.057$, SE = 0.018, p < .001). The index of moderated mediation showed that perceived discrimination moderated the association between perceived financial difficulties and SVR through depressive symptoms ($\beta = 0.015$, Boot SE = 0.005, 95% CI = 0.005, 0.026). The association between perceived financial difficulties and SVR through depressive symptoms was greater for those that experienced discrimination in at least one or more contexts ($\beta = 0.051$, Boot SE = 0.008, Boot 95%

CI = 0.036, 0.068) in comparison to those that did not experience discrimination ($\beta = 0.036$, Boot SE = 0.006, Boot 95% CI = 0.025, 0.048).

Conclusion

The present study is the first to show that perceived financial difficulties are associated with SVR through depressive symptoms above and beyond income and perceived discrimination moderated this association. This study's conclusions suggest that existing violent radicalization prevention programs that utilize a public health approach should consider the role of perceived financial difficulties, experiences of discrimination, and mental health when providing psychosocial support to their service users.

Résumé

Objectif de l'étude

La pandémie de COVID-19 a entraîné une plus grande polarisation sociale ainsi que des fardeaux économiques et psychologiques, créant un environnement idéal pour la radicalisation violente. Cet article examine la relation entre les difficultés financières perçues et le soutien à la radicalisation violente par le biais de symptômes dépressifs, tout en évaluant le rôle modérateur de la discrimination perçue sur cette voie chez les Canadiens des provinces du Québec, de l'Ontario et de l'Alberta âgés de 18 à 40 ans pendant la pandémie du COVID-19.

Méthodes utilisées

Au total, 5007 participants âgés de 18 à 40 ans et originaires des provinces du Québec, de l'Ontario et de l'Alberta ont été invités à répondre à une enquête en ligne en anglais ou en français du 21 mai au 14 juin 2021 (âge moyen = 28,8 ans et écart-type = 5,63 ans, 59,1 % de femmes). Un modèle d'équation structurelle a été mis en œuvre pour examiner les effets directs des difficultés financières perçues sur le SVR et pour tester si la discrimination perçue modère les effets indirects des difficultés financières perçues sur le SVR par le biais des symptômes dépressifs.

Résultats

Les difficultés financières perçues étaient positivement et significativement associées au SVR (β = 0,057, SE = 0,018, p < .001). L'indice de médiation modérée a montré que la discrimination perçue modérait l'association entre les difficultés financières perçues et la SVR par le biais des symptômes dépressifs (β = 0,015, Boot SE = 0,005, 95% CI = 0,005, 0,026). L'association entre les difficultés financières perçues et la SVR par le biais de symptômes dépressifs était plus importante chez les personnes ayant subi une discrimination (β = 0,051, Boot SE = 0,008, Boot

95% CI = 0,036, 0,068) que chez les personnes n'ayant pas subi de discrimination (β = 0,036, Boot SE = 0,006, Boot 95% CI = 0,025, 0,048).

Conclusion

La présente étude est la première à montrer que les difficultés financières perçues sont associées à la SVR par le biais de symptômes dépressifs au-delà du revenu et que la discrimination perçue modère cette association. Cette étude démontre que les programmes existants de prévention de la radicalisation violente utilisant une approche de santé publique peuvent prendre en compte les difficultés financières perçues, les expériences de discrimination et la santé mentale lors de l'apport d'un soutien psychosocial.

I dedicate this thesis to my father Syed Pervez Akhtar who is no longer with us. Your unconditional support and encouragement continue to be a source of inspiration for me. I am forever grateful for all your sacrifices, without you none of this would have been possible.

Acknowledgements

First and foremost, I would like to express my deepest gratitude to Dr. Cécile Rousseau and Dr. Diana Miconi for taking me under their supervision. I consider myself fortunate to have had such outstanding mentors. Thank you for trusting me and allowing me the freedom to pursue research in topics of my interests. I am eternally grateful for your unwavering support and guidance during this challenging journey. Cécile, you truly are an inspiration and I admire your dedication to this field, I aspire to be a clinician of your calibre in the future. Words cannot express my gratitude for your exceptional mentorship, support, patience and the endless opportunities I was provided with throughout this masters that further my career. Diana, I am deeply grateful to you for the unwavering support and guidance that you provided at every step of the way, from our lengthy email discussions to our meetings on Zoom. I am forever grateful for your immediate and indepth feedback without which this masters would not have been possible. I hope to emulate your work ethic and commitment to research in the future. It has truly been an honour and privilege to work along side both of you.

I would like to express my deepest appreciation to my committee member Dr. Frank Elgar. Dr. Elgar, words cannot express how grateful I am for your support and guidance throughout this degree. I am deeply thankful to you for always sharing your unique expertise and techniques in socioeconomic inequalities which have played a crucial role in my advancement as a young researcher.

I would also like to thank Dr. Rochelle Frounfelker for all the constructive feedback throughout my degree and contributions to this thesis.

A special shoutout to the Moonshot team, Grégoire and Théo it has been a pleasure working along side you guys. Thank you to Cindy and Tara for all their help throughout this degree.

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A special thanks to the ADP Dream Team (past and present). Sofia, I am forever grateful for all your support and kindness during this process. Thank you for always taking the time to check-in and always being there. Thank you to Maysaloun, Araceli, Seerat, Bluma and the rest of the ADP team for being a part of this journey and for always listening to my rants. It has been a pleasure working and hanging out with all of you throughout this degree.

Finally, I am deeply grateful to my family and friends for their support throughout this masters. I would like to thank my Mother Farah for all her support and sacrifices that have allowed me to pursue higher education. I would like to thank my brother Zain for all his support throughout my life, you are the best brother that anyone could ever ask for. Thank you to my sister Sara for always guiding and trusting me. Thank you to my father-in-law and my mother-in-law for always encouraging me.

I would like to express my deepest gratitude to my wife. Sehar, without you none of this would have been possible. Thank you for all your encouragement, support, and sacrifices from high school until now.

Contribution of authors

I, Mohammed Akhtar, conceptualized research questions and objectives, conducted data analyses, interpretation of results, literature review, and wrote the thesis. Dr. Cécile Rousseau, my supervisor provided overall guidance in all aspects of the thesis, interpretation of results, reviewing and editing the final thesis. Dr. Diana Miconi, my co-supervisor provided overall guidance in all aspects of the thesis, reviewing and editing the final thesis, data analysis, interpretation of results, reviewing and editing the final thesis. Dr. Frank Elgar, my committee member provided overall guidance in all aspects of the thesis, data analysis, interpretation of results, reviewing and editing the final thesis, data analysis, interpretation of results, reviewing and editing the final thesis, data analysis, interpretation of results, reviewing and editing the final thesis. Dr. Rochelle Frounfelker provided guidance in interpretation of the results and feedback on the manuscript.

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List of Abbreviations

Activism and Radicalism Intention Scales (ARIS)

Analysis of Variance (ANOVA)

Comparative Fit Index (CFI)

Full Information Maximum Likelihood (FIML)

General Strain Theory (GST)

Hopkins Symptom Checklist-25 (HSCL-25)

National Health Interview Survey (NHIS)

Ridit (relative to an identified distribution integral transformation)

Radical Intention Scale (RIS)

Root Mean Squared Errors of Approximation (RMSEA)

Socioeconomic Status (SES)

Standardized Root Mean Squared Residual (SRMR)

Support for Violent Radicalization (SVR)

Tucker-Lewis Index (TLI)

United Kingdom (UK)

United States (US)

Variance Inflation Factor (VIF)

Violent Radicalization (VR)

Chapter 1: Introduction

The COVID-19 pandemic exacerbated levels of depression, anxiety, and financial insecurity in the general population across many countries (Gloster et al., 2021; Nelson et al., 2020). Along with these mental and financial burdens, the COVID-19 pandemic fueled existing social polarization, creating a fertile environment for violent radicalization to flourish. Social polarization refers to the crystallization of social attitudes around opposed extremes which divide members of society belonging to specific races, religions, classes, or political orientations (Chakravarty, 2015; Miconi et al., 2021). Polarization has been observed in the political realm in terms of COVID-19-related attitudes and behaviours (Kerr et al., 2021). In a socially polarized context, individual and collective feelings of threat may contribute to an individual's support for violent radicalization (SVR), in which the individual legitimizes positive attitudes towards violent action for a social, religious, or political cause (Miconi et al., 2021).

The aim of this thesis is to investigate the associations of perceived financial difficulties, mental health (e.g., depressive symptoms), and perceived discrimination with SVR in a Canadian sample during the COVID-19 pandemic. The following section describes the literature on social and individual determinants of SVR, the lack of consensus on the use of a single definition for violent radicalization, limitations in this area with respect to objective and subjective financial indicators, and the hypothesised role of perceived financial difficulties, depressive symptoms, and perceived discrimination in explaining associations with SVR.

Overview of the current study

In recent years, research on violent radicalization has shifted from a focus on risk detection toward a public health approach of understanding its social determinants. A public health approach grounded in the social-ecological framework emphasizes that violent radicalization is not the consequence of any one single factor. Instead, individual, interpersonal, community, and societal factors interact in complex ways to influence the individual's propensity for violence (Eisenman & Flavahan, 2017). Within this framework, a wide array of risk and protective factors for violent radicalization have been documented, often designated as push, pull, and personal factors. Push factors are rooted in structural or political conditions such as poverty, relative deprivation, injustice, objective and subjective economic factors, perceived discrimination, and state repression (Vergani et al., 2020). On the other hand, pull factors focus on socio-cognitive explanations for violent radicalization, such as attraction to the ideology or belonging to a group (Vergani et al., 2020). Finally, personal factors consist of psychological wellbeing (e.g., depressive symptoms), personality traits, or traumatic life experiences (Vergani et al., 2020). Thus, the social-ecological framework suggests that it is the interaction between individual and contextual factors that determine the likelihood of violent radicalization.

A point of contention in the radicalization literature is raised when push factors such as objective and subjective financial indicators depict inconsistent associations with SVR (Franc & Pavlović, 2018), highlighting a need to explore this area of research further. Notably, several studies have found mixed associations between socioeconomic indicators and support for violent radicalization across Global North countries. Research on socioeconomic differences in SVR has mostly focused on objective indicators such as income, education, and employment status (Franc & Pavlović, 2023), but less is known about subjective financial indicators. In fact, in North America, only two previous studies have explored the association between perceived financial difficulties (as a subjective financial indicator) and SVR (Levinsson et al., 2021; Miconi et al., 2022), between them reporting mixed findings. However, in neither of these two studies were

perceived financial difficulties the primary variable of interest nor was objective socioeconomic status controlled, warranting further exploration of this issue.

Within a social-ecological framework, General Strain Theory (GST) has also been used to explain why individuals may support violent radicalization. This theory aims to explain the sociopsychological pathways between strains and crime, in addition to outlining situations that strengthen or weaken the impact of such strains (Agnew, 1992; Nivette et al., 2017). Strains categorized as subjective at the individual (e.g., perceived financial difficulties) or collective (e.g., perceived discrimination) level can elicit adverse emotional outcomes such as anger, frustration, and depressive symptoms and push an individual to explore adaptive or maladaptive coping mechanisms (Agnew, 2010, 2017), including the legitimization of violent means to respond to the situation.

In line with GST, this paper investigates whether perceived financial difficulties beyond objective socioeconomic indicators initiate loss of hope, despair, and pessimism in certain individuals, resulting in more depressive symptoms, which in turn allow support for violent radicalization to become a promising avenue to express frustrations. Furthermore, I hypothesize that factors associated with structural violence, such as perceived discrimination, represent sources of strain that interact with perceived financial difficulties and thereby intensify their association with SVR via depressive symptoms.

"Radicalization": History of the concept and definitions

Scholars to date do not agree on one single definition of the term "radicalization," highlighting how the conceptualization of this phenomenon can be a complex, sensitive, and controversial issue. Indeed, the term radicalization has had different meanings depending on the context and socio-historical period. Traditionally positively connotated among progressive

politicians and scholars, radicalization as a term shifted toward a negative connotation after its significant increase in popularity after the September 11 attacks, reaching its peak in 2005 and 2007 following the London bombings (Sedgwick, 2010). In this context, the term was increasingly used as a synonym of terrorism (Borum, 2011).

Radicalization was primarily used to describe the extent to which one deviates from mainstream or moderate beliefs (Neumann, 2013). Its use within specific social and political contexts is complicated by the fact that what is considered moderate differs from group to group within and between societies (Sedgwick, 2010). For example, North American societies currently accept beliefs that were considered radical in the past, including equal rights for women and gay marriage, which are now integral parts of many democratic societies (Neumann, 2013). Introducing societal change often requires "radical thinkers" who utilize a critical perspective (e.g., an anti-oppression lens) to shift culture (Rousseau et al., 2021, p. 604). Beyond seeing it as a problem or as a form of progress, radicalization can also be conceptualized as a process that informs where an individual stands on a spectrum, which Sedgwick (2010, p. 480) refers to as "relative" radicalization. Despite it being a complex and controversial process, various researchers have stated that radicalization needs to be appropriately defined (Schmid 2013), since the lack of consensus on a widely accepted definition has resulted in considerable confusion in the violent radicalization literature. Therefore, it is crucial to clearly operationalize the concepts of radicalization, violent radicalization, as well as support for violent radicalization to advance research with replicable findings and avoid pathologizing dissent, civic engagement, and legitimizing ideological violence.

Academic and research settings differentiate between cognitive and behavioural radicalization. Cognitive radicalization refers to developing attitudes or beliefs that differ vastly

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from mainstream ones. In contrast, behavioural radicalization entails involvement in legal or illegal action on behalf of one's beliefs to achieve a specific goal (Hafez & Mullins, 2015). Importantly, not all radicalization processes result in violence or in the legitimization of violence. The term violent radicalization was introduced to explain more specifically the process through which radicalization can lead to legitimize violent action (Bartlett & Miller, 2012). In the present thesis, I utilize Schmid's definition, which states that violent radicalization is the process by which radical beliefs translate into the acceptance of violence to achieve a political, social, or religious goal (Rousseau et al., 2021; Schmid, 2013). More specifically, my research focuses on SVR, a form of cognitive radicalization that captures *attitudes or intentions* towards violent radicalization and not necessarily the action or behaviour (McCauley & Moskalenko, 2017; Wolfowicz et al., 2020). I focus on SVR because it is an appropriate way to measure attitudes toward the legitimatization of violence in the general population, and by doing so, provide essential information to inform primary prevention from a public health lens (Miconi et al., 2024).

Recently, researchers have applied a public health perspective to explaining SVR, unlike earlier models such as the "Four-Stage Model of the Terrorist Mindset" and "Staircase to Terrorism" that focused on linear trajectories and psychological profiling (King & Taylor, 2011). The public health approach emphasizes that adopting positive attitudes towards violent radicalization is a multifactorial process that includes multiple risk and protective factors as well as numerous pathways and trajectories towards and away from SVR (Ghosh et al., 2023). Its focus is to identify risk and protective factors for SVR (Clemmow et al., 2023). Although the association between cognitive and behavioral radicalization is not a linear one (Moskalenko & McCauley, 2009), a public health perspective focuses on ways to reduce positive attitudes towards violence and violent radicalization in society and thus contribute to a context that is more likely to discourage at-risk individuals to engage in violence.

Inconsistent associations between objective socioeconomic indicators and SVR

As stated above, most of the research on violent radicalization in the Global North has focused on objective socioeconomic status (SES) indicators and found weak or inconsistent associations with SVR. In this section, I will briefly review studies of objective SES indicators and their association with SVR. Given the limitations of objective indicators, I propose that research must shift towards considering the potential role of the subjective perception of economic problems, which may better capture other dimensions of individuals' economic situations and in particular their association with depressive symptoms and SVR.

Objective indicators of SES consist of direct measures that include but are not limited to household income, education, and employment status (Huang et al., 2017; Kraus & Stephens, 2012). Often, these indicators account for a small amount of variation in economic worries (Agnew, 2015). In the early years of violent radicalization research, it was thought that objective SES could be a significant risk factor for violent radicalization. As research progressed, the relationship between SES and violent radicalization yielded inconsistent results (Wolfowicz et al., 2020). Pedersen and colleagues (2018) examined the association of objective SES with SVR in a cross-sectional sample of Norwegian adolescents. The researchers derived objective SES based on parental education, and the number of books and material assets at home. The results revealed that objective parental SES, in this case, was not associated with SVR in adolescents (Pedersen et al., 2018), suggesting that SES factors may play a lesser role in adolescents in comparison to young adults. Additionally, Bhui et al. (2014) examined the association between objective SES measures (e.g., income and education) and SVR in a sample of Muslims aged 18 to 45 in the United Kingdom

(UK). Their findings revealed that those with higher income and education showed greater SVR. Conversely, Zych and Nasaescu (2022) in their meta-analysis demonstrated that higher objective SES was associated with lower levels of SVR. These mixed findings show the limitations of objective SES indicators in quantifying the amount of strain or difficulties experienced by participants. Thus, this calls for a closer examination of subjective indicators, as these may better capture the dynamic between an individual's self-rated economic situation, their micro- and mesoenvironment, and SVR.

Subjective financial indicators, perceived financial difficulties, and SVR

Although fewer studies focused on subjective indicators and SVR, similar inconsistencies in results were observed. Subjective financial indicators capture an individual's perception of a wide range of problems related to a lack of economic resources. These measures include perceived financial difficulties, strain, stress, problems, and worries (Howe et al., 2010; Operario et al., 2004).

Agnew (2015) explains that SES and perceived financial difficulties are not linearly related, for example individuals higher on the SES spectrum may experience worries due to unsustainable financial habits, while individuals on the lower end of the SES spectrum may have adjusted to their circumstances and normalized them. Thus, subjective indicators of economic problems, such as perceived financial difficulties, can be appropriate tools to understand the intersection of financial strains, mental health, and violent radicalization. Indeed, previous research has shown that subjective indicators such as perceived financial strain are more strongly associated with depressive symptoms than objective SES indicators (Butterworth et al., 2009; Dijkstra-Kersten et al., 2015). Economists often utilize perceived financial difficulties as a proxy for an individual's self-rated subjective view of their economic well-being (Fusco, 2016), and distinguish

it from the concept of relative deprivation, which is a direct measure of social comparisons among one's reference group (Smith et al., 2012).

This thesis operationalizes perceived financial difficulties as an individual's self-rated experience of difficulties related to a lack of money at home. It is important to reiterate that perceived financial difficulties are not limited to individuals at the lower end of the SES spectrum since this is a subjective measure. Instead, individuals at the middle or upper end of the SES spectrum may also experience difficulties related to a lack of money (Agnew, 2015), emphasizing that individuals may respond differently to their economic challenges despite their SES circumstances (Ryu & Fan, 2023).

A recent Statistics Canada report shows that in the fall of 2022, 35% of Canadian households reported difficulties meeting their financial needs (Canada, 2023). The report revealed that young Canadians were more concerned about their ability to meet economic needs. At the same time, 46% of adults aged 35 to 44 had experienced financial difficulties in the past 12 months; the reported financial difficulties decreased with age (Canada, 2023). The sources of financial difficulties or stressors emphasized included income, debt, affordability of daily expenses (e.g., clothing or groceries), housing and rent, and job insecurity (Canada, 2023; Choi et al., 2020; Guan et al., 2022). This trend indicates that financial difficulties are widespread, especially among younger Canadians across the SES spectrum.

Only three prior studies have examined the association between perceived financial difficulties and SVR. Levinsson et al. (2021) showed that endorsement of COVID-19 conspiracy theories was positively associated with SVR, and that this relationship was stronger for those experiencing psychological distress in a sample of adults from major cities in Canada. In this study, perceived financial difficulties were included in the model as a simple control variable, where

multivariate analysis indicated that only moderate levels of perceived financial difficulties were associated with more SVR (Levinsson et al., 2021), suggesting that the relationship between perceived financial difficulties and SVR may be nonlinear and requires further research (Levinsson et al., 2021). Miconi et al. (2022) reached different conclusions while examining the relationship between perceived financial difficulties and SVR in a sample of CÉGEP/College students in Québec. More than half of the participants (52.7%) did not report any perceived financial difficulties and these were not associated with SVR (Miconi et al., 2022). Perceived financial difficulties in this study were also included as a covariate in the main models.

In their multilevel meta-analysis of adolescents, Emmelkamp et al. (2020) considered a measure of poverty that combined objective and subjective socioeconomic measures and demonstrated that poverty was positively associated with SVR. Specifically, their poverty variable included both objective (e.g., low SES of parents, family, and net income) and subjective (e.g., family financial problems) indicators and displayed minimal effects in its relationship with SVR (Emmelkamp et al., 2020). However, grouping objective and subjective indicators under the umbrella of poverty fails to provide the independent effects of each. Overall, available empirical evidence seems to suggest that subjective financial indicators may play a lesser role as determinants of SVR in youth who are still partly dependent on their families (Emmelkamp et al., 2020; Miconi et al., 2022). Therefore, subjective financial indicators can be more important determinants of SVR in young adults. A sample of adults aged 18 to 40 can be appropriate to investigate the association between perceived financial difficulties and SVR. The inclusion of separate objective and subjective economic measures in one study would also allow to disentangle their independent contributions and shed light on whether perceived financial difficulties are associated (or not) with more SVR beyond objective measures of SES (e.g., income). Having

explored links between financial indicators and support for violent radicalization, the following section will provide an overview of the literature on the relationship between perceived financial difficulties and depressive symptoms.

Perceived financial difficulties and depressive symptoms

Throughout the literature, subjective financial indicators including perceived financial difficulties, stress, well-being, worries, and strains have been associated with poor mental health (Butterworth et al., 2009; Canada, 2024; Dijkstra-Kersten et al., 2015). For instance, Ryu and Fan (2023) examined the association between perceived financial worries and psychological distress in a large nationally representative sample of US adults from the National Health Interview Survey (NHIS). Perceived financial worries were measured by asking participants about their worries related to standard living expenses, medical bills, housing, health insurance, retirement, and monthly bills, from which a total score was derived. The study demonstrated that increased perceived financial worries were associated with higher levels of psychological distress, especially among those who were unmarried, unemployed, low-income, and renters (Ryu & Fan, 2023). Various forms of perceived financial difficulties or worries can have a negative impact on an individual's mental health, further perpetuated by an individual's life circumstances (e.g., employment, income, housing, and marriage). A longitudinal study conducted by Richardson et al. (2017) of British undergraduate students depicted that increased perceived financial difficulties (e.g., difficulties paying rent) were associated with greater symptoms of depression and anxiety. Findings from this study add to the evidence that perceived financial difficulties result in greater mental health problems, such as depressive symptoms.

The COVID-19 pandemic was a period of significant financial difficulties (Canada, 2024). A nationally representative survey in Canada showed that 45.6% of individuals had financial

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concerns, 31.4% had stress related to job loss or insecurity, and 20.4% exhibited stress related to not having enough food to meet household needs during the first wave of the COVID-19 pandemic (Gadermann et al., 2021). Similar trends were seen in studies in other countries. In an Argentinian sample of adults during the COVID-19 pandemic, Trógolo and colleagues (2022) demonstrated that perceived financial problems were more significantly associated with depression and anxiety in comparison to objective indicators (e.g., loss of income). Similar results were observed in a Thai sample during COVID-19, in which perceived financial problems showed stronger associations with depression and anxiety in comparison to objective measures (e.g., income loss) (Ruengorn et al., 2021; Trógolo et al., 2022). These studies suggest that the COVID-19 pandemic was a financially challenging time, and that financial challenges significantly contributed to the observed decline in mental health. In such studies, the subjective evaluations of one's financial circumstances were more robust correlates of mental health than standard objective financial measures such as income or education. Therefore, the available evidence confirms the pertinence of assessing subjective financial indicators such as perceived financial difficulties, as these may more strongly predict depressive symptoms in the context of the COVID-19 pandemic.

Mediating role of depressive symptoms

As previously shown, subjective financial indicators such as perceived financial difficulties can result in significant psychological distress that includes depressive symptoms. Depressive symptoms are associated with lower life satisfaction, greater use of healthcare services, and reduced daily functioning (Beekman et al., 2002; Deschênes et al., 2015; St John et al., 2021).

The evidence also suggests that depressive symptoms play a mediating role in pathways from diverse psychosocial stressors to SVR, suggesting a similar mechanism could be operating in the path between perceived financial difficulties and SVR. For instance, Rousseau et al. (2019) examined the role of depressive symptoms, religiosity, and social support in the relationship between social adversity (e.g., perceived discrimination and exposure to violence) and SVR in a sample of CÉGEP/College students in Québec. Depressive symptoms were shown to mediate the association between social adversity and SVR, explaining 47 and 25% of the total effect (Rousseau et al., 2019). A more recent study conducted during the COVID-19 pandemic illustrated that depressive symptoms maintained their mediating role in the relationship between COVID-19related social adversity and SVR (Miconi et al., 2022). Together, these findings suggest that the higher propensity for SVR among those facing social adversity is partially explained via depressed mood.

Beyond their mediating role, depressive symptoms also exhibit a direct association with SVR. In the UK, higher levels of depressive symptoms were observed in individuals who showed greater SVR in a Pakistani and Bangladeshi sample (Bhui et al., 2014). Similar results were yielded in the Québec context among CÉGEP/College students, demonstrating that increased depressive symptoms were directly associated with higher SVR (Miconi et al., 2021; Miconi et al., 2020; Rousseau et al., 2019). Individuals with higher levels of depressive symptoms, regardless of any financial difficulties, may also have a poor outlook of the future, resulting in supporting violent radicalization as a response mechanism (Bhui et al., 2014; Miconi et al., 2020; Rousseau et al., 2019).

Most of the studies reviewed in this section have been conducted in the Québec CÉGEP/College student context, leaving a gap in research in other Canadian provinces and among young adults who are seeking employment or are unemployed, and who may have suffered more directly from the financial consequences of the COVID-19 pandemic. It would be pertinent to investigate the mediating role of depressive symptoms in the relationship between perceived

financial difficulties and SVR among young adults in multiple Canadian provinces during the COVID-19 pandemic.

The moderating role of perceived discrimination

In 2022, Statistics Canada reported that 35.7% of Canadians experienced discrimination or unfair treatment due to ethnicity/culture, race/skin colour, physical appearance, sex, and age (Canada, 2022). Discrimination is a stressor defined as the unjust or prejudicial treatment of people based on their group membership (Goosby et al., 2018). Discrimination at the micro-level includes negative day-to-day interactions with group members, while macro-level discrimination is structural and institutional (Canada, 2024). Determining the underlying reason for discrimination is often difficult since various forms can be experienced by individuals simultaneously (Canada, 2024; Harnois et al., 2022), meaning an individual may not be discriminated against for a single reason; instead, there can be multiple reasons for discrimination at the micro, meso, and macro levels. For instance, a person of colour may experience discrimination while searching for housing due to their race or ethnicity. In contrast, they may experience discrimination in the justice system due to their religious affiliation, and in other contexts for both reasons combined (Harnois et al., 2022).

Experiences of discrimination can occur at all levels of the social-ecological framework (Syed & Juan, 2012) and have both well-established direct and indirect consequences on mental health (Pascoe & Smart Richman, 2009). Pascoe and Smart Richman (2009) show in a metaanalytic review that perceived discrimination is associated with a wide range of adverse mental health outcomes. In the Canadian context, similar associations between perceived discrimination and depressive symptoms have been observed. Cénat et al. (2021), demonstrated in their study of Black Canadians that perceived everyday racial discrimination was associated with increased depressive symptoms. They argue that Canada's longstanding approach of ignoring the realities of racial discrimination, especially across health and education domains, can explain this association, which they attribute to the lack of institutional support (Cénat et al., 2021). During the COVID-19 pandemic, Lee et al. (2022) examined the association of everyday discrimination with depressive symptoms and suicidal ideation in a large sample of participants from the US. In this study, perceived discrimination was measured by deriving a sum score from a 9-item scale asking about discriminatory experiences in the past month. The study showed that perceived discrimination was associated with moderate to severe depressive symptoms and suicidal ideation during the initial phases of the COVID-19 pandemic (Lee et al., 2022). With regards to discrimination and perceived financial difficulties, multiple studies have showed that discriminatory experiences can impact the material conditions of individuals, inducing more significant economic hardships, financial difficulties and stress, especially among marginalized groups (Bertrand & Mullainathan, 2004; Canada, 2024; Ro & Choi, 2009).

Perceived discrimination has frequently played a moderating role in various studies related to both physical and mental health outcomes (Fox, 2021; Kaur et al., 2024; Murry et al., 2001; Park et al., 2018; Wamala et al., 2007). Indeed, perceived discrimination has been conceptualized as one among multiple stressors and strains that can cumulatively and jointly contribute to psychological distress. This also holds true for interactions with stressors and strains that are not ascribed to discrimination, as it can amplify the effects of existing stressors or strains (Kaur et al., 2024; Williams & Mohammed, 2009). Kaur and colleagues (2024) examined the moderating role of both everyday and lifetime discrimination on the relationship between daily stressors not due to discrimination (e.g., arguments with others, work, or school related stress) and negative affect in a diverse sample in the US. Perceived everyday discrimination amplified the effect of nondiscriminatory stressors on negative affect. In contrast, lifetime discrimination showed a similar effect when everyday discrimination was removed from the model suggesting that lifetime discrimination may function through everyday discrimination (Kaur et al., 2024). Similarly, Murry et al. (2001), revealed that stressor pile up (e.g., job loss, financial strain, and stressful life events) increased maternal distress with perceived racial discrimination, amplifying this association in African American populations. Additionally, studies have also shown the interactive effects of subjective and objective economic indicators and perceived discrimination. Wamala and colleagues (2007), examined the interaction effect of perceived discrimination and socioeconomic disadvantage on seeking medical treatment in a population-based sample in Sweden. The researchers developed a Socioeconomic Disadvantage Index, which consisted of welfare, unemployment, financial crisis (difficulties paying bills), and limited cash reserves (Wamala et al., 2007). The interaction effect between high frequency of perceived discrimination and increased socioeconomic disadvantage was associated with a reduction in seeking medical treatment, especially among women (Wamala et al., 2007). Finally, perceived discrimination has also played a moderating role in studies evaluating acculturation, cultural values, and mental health (Fox, 2021); anger expression and cardiovascular risk factors (Park et al., 2018); and political interest and voting (da Rosa et al., 2023). These studies lend support to the idea that perceived discrimination may strengthen the association between perceived financial difficulties and depressive symptoms, as it is not only a risk factor for depressive symptoms but can also interact with other strains that people are confronting.

Existing literature also establishes that various forms of perceived discrimination are directly associated with SVR. Ellis et al. (2021) found that increased everyday discrimination and lower social support were associated with higher SVR scores in a Somali sample from Toronto,

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Ontario, while such associations were not observed in a Somali sample from Boston, Massachusetts. Discrimination related to language, political views, and the justice system was also positively associated with SVR in a Belgian sample (Frounfelker et al., 2019).

Perceived discrimination has also been repeatedly implicated in the pathway to SVR through depressive symptoms. Rousseau and colleagues (2019) showed that perceived discrimination was associated with SVR directly and through depressive symptoms in Québec CÉGEP/College students. In this case, perceived discrimination was measured by self-reported discrimination in employment, housing, academia, health, social services, and within the justice system while reporting implicit and explicit forms of discrimination (Rousseau et al., 2019). Similarly, COVID-19-related discrimination was also associated directly with greater SVR, while depressive symptoms mediated this association (Miconi et al., 2022).

These studies show the unique role that perceived discrimination has in the pathway to depressive symptoms and SVR. In light of this evidence, perceived discrimination and financial difficulties together appear to have a profoundly negative effect on mental health symptoms, making perceived discrimination a potential moderator, as it may strengthen the association between perceived financial difficulties and depressive symptoms. For this reason, I propose that experiencing discrimination in various domains of life may amplify the effect of perceived financial difficulties on depressive symptoms, as both stressors can have an independent and interactive association with depression and SVR during the COVID-19 pandemic. Specifically, grounded in the literature and supported by the GST framework, I posit that perceived financial difficulties may interact with perceived discrimination to exhibit higher depressive symptoms which correlate with greater SVR.

Theoretical framework: General Strain Theory

The GST, developed by Agnew (1992), provides a theoretical framework for the current study to understand the pathway from perceived financial difficulties to SVR through depressive symptoms at varying levels of perceived discrimination. The GST has recently been applied to investigate factors associated with SVR (Nivette et al., 2017). It asserts that both objective and subjective strains can result in negative emotions such as anger, frustration, and depressive symptoms, leading to crime as a coping mechanism (Agnew, 2017). The classical strain theory introduced by Robert Merton focused on reduced economic opportunity and relative deprivation as strains producing negative emotions (Agnew, 2015; Merton, 1938). In contrast, the GST introduced additional sources of strains arranged into three categories (Agnew, 2015). The first category of strains is when individuals cannot achieve economic or status-related goals. The second category is when an individual loses something they cherish, such as money, employment, family, or friends. The third category of strains is when an individual is mistreated by their family, friends, or employers (Agnew, 2015). Agnew (2015, p. 4) differentiates between objective and subjective strains, stating that objective strains are situations that are collectively "disliked," whereas subjective strains are "disliked" by those directly affected making them more susceptible to negative emotions.

Before applying the GST to SVR, it is critical to understand how it explains perceived financial problems or difficulties. Economic problems are illustrated by Agnew (2015) in three steps: (1) lack of money for specific items, resources, and entertainment, (2) stress associated with the potential loss of such goods and services, and (3) the desire to participate in maladaptive activities. For example, perceived financial difficulties can prompt individuals to reduce their daily entertainment, downsize, and find extra work (Agnew, 2015). Strains such as perceived financial difficulties can coincide with "goal blocking and relative deprivation," since those who experience

such challenges would like to increase their finances and be on par with their peers (Agnew, 2015, p. 9). It is critical to note that objective economic status and perceived economic problems or difficulties are different measures that are not necessarily associated. For instance, individuals low on the SES spectrum can indicate having none or few financial problems, while those higher on the SES spectrum can report more financial problems (Agnew, 2015). From the perspective of the GST, perceived financial difficulties are distinct from objective SES indicators and can capture distress experienced by individuals across the SES spectrum.

Applied to the current study, the GST proposes that particular strains can increase the likelihood of supporting violent radicalization via a compounding effect when coupled with other strains to produce adverse emotional outcomes (Agnew, 2010; Nivette et al., 2017). Agnew (2010) refers to these as "collective strains" since supporting violent radicalization has an underlying ideological component rooted in social, religious, or political factors (Nivette et al., 2017). Collective strains have three distinct elements described as "high in magnitude," "civilian victims," and "caused by powerful others" (Agnew, 2010, p. 136). In the current study, perceived discrimination is conceptualized as a collective strain as it fits the criteria outlined by Agnew (2010) and also functions at the individual, interpersonal, community and societal levels of the social-ecological framework (Syed & Juan, 2012), producing feelings of injustice and exclusion (Emmelkamp et al., 2020; Jahnke et al., 2023; Miconi et al., 2024). Collective strains such as perceived discrimination elicit negative emotions such as anger, humiliation, and hopelessness, fostering an ideal environment to support violent radicalization (Agnew, 2010; Nivette et al., 2017).

As shown previously, perceived discrimination and financial difficulties are both associated with increased depressive symptoms (Pascoe & Smart Richman, 2009), which in turn are found to be associated with more SVR (Miconi et al., 2022; Rousseau et al., 2019). According to the GST, perceived discrimination as a collective strain can have a compounding effect on other strains, such as perceived financial difficulties, thereby strengthening their association with depressive symptoms, which is further associated with higher levels of SVR. In other words, an individual experiencing financial difficulties may already harbour negative emotions such as depressive symptoms, and experiencing discrimination in various aspects of their social ecology can amplify the relationship between perceived financial difficulties and depressive symptoms. The GST suggests that a person experiencing both discrimination and financial difficulties would be more likely to support violent radicalization as a coping response to their negative emotions (e.g., depressive symptoms).

The present study: objectives and hypotheses

Given that SVR is a multifaceted phenomenon with many contributing factors (Ghosh et al., 2023), the study of multiple risk factors within the GST can help us better understand the mechanisms that can contribute to SVR. Research in the Global North has shown that discrimination and depressive symptoms are associated with SVR (Miconi et al., 2020; Rousseau et al., 2019). Yet the literature on the association of subjective economic indicators such as perceived financial difficulties and SVR is limited and demonstrates inconsistent findings.

The current study is the first to address this gap in the literature by investigating the role of perceived financial difficulties on SVR through depressive symptoms among Canadians aged 18 to 40 in Québec, Ontario, and Alberta during the COVID-19 pandemic, while simultaneously controlling for objective SES (e.g., income). Furthermore, this study will assess whether experiences of discrimination in various domains of life (e.g., seeking employment, workplace, housing, school, public spaces, health and social services, and justice system and police) strengthen

the expected association between perceived financial difficulties and SVR via depressive symptoms.

The objectives of the current study are threefold:

(1) Examine the direct association between perceived financial difficulties and SVR.

(2) Determine the mediating role of depressive symptoms in the expected association between perceived financial difficulties and SVR.

(3) Determine the moderating role of perceived discrimination on the association between perceived financial difficulties and SVR through depressive symptoms.

Based on these objectives, a moderated mediation model (Figure 1) will be implemented to test the following hypotheses:

H1: Greater perceived financial difficulties will be associated with higher levels of SVR.

H2: Depressive symptoms will mediate the association between perceived financial difficulties and SVR.

H3: The magnitude of the association between perceived financial difficulties and SVR through depressive symptoms will be larger for those who experienced discrimination in various domains of life.

Figure 1

Conceptual model



Chapter 2: Methods

Data collection

The current study is a secondary analysis of data collected as part of the larger study "Social polarization and behavioral intentions during the COVID-19 pandemic: A multi-site study of risk and protective factors in Canadian youth." This study received ethics approval by the Institutional Review Board at McGill University Faculty of Medicine (A04-B38-21A) and was funded by the Canadian Institutes of Health Research. I did not collect data nor design recruitment strategies for this study.

Léger collected data for this cross-sectional study among Canadians aged 18 to 40 residing in Québec, Ontario, and Alberta. Léger selected participants from the Leo panel (Léger Opinion), which contains 61% of individuals recruited through random sampling via phone in the previous ten years, and the remaining participants from partner programs, advertising, and social media platforms (Facebook and Twitter).

Léger recruited participants by randomly distributing the web survey to potential participants' emails in the Leo panel. Respondents were provided with a unique single-use survey link via email, preventing the survey from being shared or completed more than once. An electronic informed consent form was completed by participants prior to starting the survey. Participants were allowed to save and return to the survey without losing data to ensure convenience and those with incomplete surveys were sent reminders to complete the survey. Compensation was provided to participants in the form of gift cards worth approximately \$2.50 depending on the time spent on completing the survey. On May 21st, 2021, a pretest was conducted in English and French with 71 participants to ensure data collection quality. Data collection lasted

from May 21st to June 14th, 2021, and the average survey completion time was 12 minutes and 38 seconds.

Setting

The setting of data collection for the Léger study focused on the provinces of Québec, Ontario, and Alberta since these provinces had the greatest burden of COVID-19 infections in Canada, as well as an increase in hate-motivated crime and extremist activity (Canada, 2023; Perry & Scrivens, 2016). As mentioned previously, factors such as gender, age, immigration generation, no religious affiliation, and depressive symptoms have shown to play a role in SVR in the Québec context, making it an important province to examine (Ellis et al., 2021; Levinsson et al., 2022; Rousseau et al., 2021). In Ontario, a 67% increase in hate crimes was reported from 2016 to 2017, indicating a move toward right wing and masculinist extremism (Perry & Scrivens, 2016), further exemplified by the 2018 van attack in Toronto (Rocca, 2021) and the 2021 London truck attack (Freeze, 2023). Lastly, similar increases in extremist groups adhering to xenophobic and nationalist ideologies have been observed in Alberta (Michele et al., 2019).

Participants

Participants from the provinces of Québec, Ontario, and Alberta were invited to complete a cross-sectional online web survey in English or French during the second wave of the COVID-19 pandemic. The eligibility criteria for the current study required participants to be between 18 and 40 years old, reside in Québec, Ontario, or Alberta, and speak English or French. Léger distributed 50,845 invitations to complete the survey. Of the 50,845 participants invited, 428 refused to participate, 414 were not eligible, 333 did not complete the survey, and 44,663 were non-responders (Figure 2), for a survey participation rate of 9.8%. In total, 5,007 eligible individuals across Québec, Ontario, and Alberta participated in the web survey, of which 59.1%
were women (mean age = 28.8, SD age = 5.63) (Table 1). The sample consisted of 36.1% (n = 1809) of individuals from Québec, 41.3% from Ontario (n = 2066), and 22.6% (n = 1132) from Alberta (Table 1).

Figure 2

Eligible participants for data analysis



Measures

Independent variable: Perceived financial difficulties

Perceived financial difficulties were measured by asking participants, "Presently, in your household, are you experiencing difficulties related to lack of money?" The response options

consisted of "Not at all," "A little," "A moderate amount," "A lot," and "Prefer not to answer." Perceived financial difficulties were transformed using a "relative to an identified distribution integral transformation" also known as ridit, to create a normally distributed index of perceived financial difficulties that "represent the cumulative proportion (P) of responses in all lower categories plus one-half the proportion of cases in the category itself" (Bross, 1958; Elgar et al., 2017, p. 11). The equation for the ridit transformation is as follows (Elgar et al., 2017):

$$Ridit_{j} = \sum_{n=1}^{j-1} \frac{(P_{2n} + P_{2j})}{2}$$

This technique allowed me to convert this perceived financial difficulties measure from an ordinal variable to a normally distributed continuous one. The resulting index of perceived financial difficulties ranged from 0 to 1 with a mean of 0.5 and standard deviation of 0.286 (Elgar et al., 2017). A higher ridit score is indicative of greater perceived financial difficulties.

Moderating variable: Perceived discrimination

The Perceived Discrimination Scale was utilized to measure perceived discrimination (Noh et al., 1999). Participants were first provided with the following definition: "Discrimination refers to the feeling of being treated unfairly because of physical (skin color, disability, etc.) or personal characteristics (gender, language, religion, ethnicity etc.). Discrimination can be explicit (insults, threats) or implicit (microaggression)." Second, perceived discrimination was measured by asking participants, "Have you ever been a victim of discrimination?" The response options consisted of "Yes" or "No." If participants answered "Yes," they proceeded to a question asking about the context in which discrimination was experienced. Seven domains of life were suggested as contexts of discrimination: "Looking for a job," "The workplace (where you work)," "Looking for an apartment or house," "School," "Public spaces (public transport, restaurant, grocery shops,

streets...)," "Health and/or social services," and "Justice and/or police." As done by Miconi et al. (2021), perceived discrimination based on these responses was categorized into two groups. Group one consisted of participants who experienced discrimination in at least one or more contexts, and group two consisted of participants who did not experience discrimination in any of the contexts. *Mediating variable: Depressive symptoms*

Depressive symptoms were measured by the 15-item scale from the Hopkins Symptom Checklist-25 (HSCL-25) (Derogatis et al., 1974). Participants reported problems and complaints related to "Difficulty falling or staying asleep," "Feeling hopeless about the future," "Feeling sad," "Feeling lonely," and more on a four-point Likert scale ranging from "Not at all" to "Extremely." In the sample used for the current analysis, the Cronbach's alpha was 0.97 and McDonald's omega was 0.98. Higher scores on the HSCL-25 item were indicative of greater depressive symptoms.

Dependent variable: SVR

SVR was measured by the Radical Intention Scale (RIS), a four-item scale from the Activism and Radicalism Intention Scales (ARIS) (Moskalenko & McCauley, 2009). Participants responded to questions about how much they approve or disapprove of the following behaviours: "Supporting an organization that fights for my group's political and legal rights even if the organization sometimes breaks the law," "Supporting an organization that fights for my group's political and legal rights for my group's political and legal rights even if the organization sometimes resorts to violence," "Participating in a public protest against oppression of my group even if the protest might turn violent," and "Attacking police or security forces if they were beating members of my group" on a seven-point Likert scale ranging from "Disapprove completely" to "Completely approve." The Cronbach's alpha in our sample was 0.92, and McDonald's omega was 0.94.

Covariates

Covariates were selected based on previous literature and in consultation with experts in the field of violent radicalization. A directed acyclic graph (Figure 3) was created to identify confounders in the relationships between perceived financial difficulties, depressive symptoms, and SVR. The current study controlled for income, gender, and age, which have been found to be associated with perceived financial difficulties, depressive symptoms, and SVR in previous literature. Income was controlled for in modeling the associations of perceived financial difficulties with depressive symptoms and SVR. Income was coded as: "19,999 or less" = 0, "Between \$20,000 and \$39,999" = 1, "Between \$40,000 and \$59,999" = 2, "Between \$60,000 and \$79,999" = 3, "Between \$80,000 and \$99,999" = 4, and "\$100,000 or more" = 5, and treated as a continuous variable for data analysis with skew and kurtosis between -2 and 2. Gender and age were found to be associated with perceived financial difficulties (Canada, 2024), depressive symptoms (Nwachukwu et al., 2020; Salk et al., 2017) and SVR (Ellis et al., 2021; Levinsson et al., 2022; Rousseau et al., 2021) in previous literature, qualifying them as confounding variables in this study (Figure 3). Gender was coded as "Women" = 0, "Men" = 1, and age was modeled as a continuous variable.

Figure 3

Direct Acyclic Graph



Statistical analyses

Data analyses were conducted in R version 4.3.2 (2023-10-31) and RStudio (2022.07.1+554) (R Core Team, 2023). First, descriptive statistical analyses were performed to examine sample characteristics and the distribution of the variables. Normality, linearity, and equal variance were visually assessed using a histogram, normal p-p plot of regression standardized residuals, and regression scatterplots to determine whether the data met the assumptions of a structural equation model. The histogram of the regression standardized residuals displayed a slight right skew, while the normal p-p plot showed points falling approximately on a straight line (see supplemental material: Figure S1 and S2). This provided evidence that the data were approximately normally distributed. The points on the residual scatterplot formed an approximate

oval shape, indicating that the assumptions of linearity and homoscedasticity were met (Figure S3). The current study met the assumption of independence based on the research design. A posthoc power analysis was conducted, and the results revealed that the current study was perfectly powered (see limitations), meaning the probability of finding statistically significant results was high (Faber & Fonseca, 2014). For this reason, path coefficients and their confidence intervals were standardized to a mean of 0 and standard deviation of 1 to produce comparable effect sizes (Kelley & Preacher, 2012; Kline, 2011). The magnitudes of the standardized effects were utilized to determine practical significance of the results in the context of existing violent radicalization literature, as practical significance differs from field to field (Kelley & Preacher, 2012). For general reference, the standardized direct effects of < 0.10, approximately 0.30, and > 0.50 are categorized as "small," "medium," and "large" (Kline, 2011, p. 185). Structural equation models provide greater effect size estimates in comparison to multiple linear regression and ANOVA (Kline, 2011), making it an optimal technique for the current study.

Second, bivariate statistical analyses were conducted to investigate correlations and multicollinearity between all variables. Pearson correlations were utilized to determine the correlation between variables (Table 2). All Variance Inflation Factor (VIF) scores were below 10, while threshold values were above 0.10, indicating multicollinearity was not present (see supplemental material: Table S1) (Kline, 2011).

Third, a moderated mediation model was implemented using structural equation modelling in the lavaan package in R (Rosseel, 2012) to examine (1) the direct effects of perceived financial difficulties on SVR, (2) whether depressive symptoms mediate the association between perceived financial difficulties and SVR, and (3) whether the effect of perceived financial difficulties on SVR through depressive symptoms is conditional on levels of perceived discrimination. A separate confirmatory factor analysis was conducted to create latent variables for depressive symptoms and SVR using the 15-item scale of the HSCL-25 and 4-item scale from the RIS. Factor loadings at the threshold of ≥ 0.5 were assessed for practical significance (Hair Jnr et al., 2010).

Model fit was determined for the measurement and full structural equation model using the Comparative Fit Index (CFI) and the Tucker-Lewis Index (TLI) as relative fit indices. The Root Mean Squared Error of Approximation (RMSEA) and Standardized Root Mean Squared Residual (SRMR) indices were used to evaluate absolute fit. Acceptable fit values are 0.90-0.95 for CFI and TLI, ≤ 0.06 for RMSEA, and ≤ 0.10 for SRMR (Hooper et al., 2007). The chi-square test is sensitive to large sample sizes and was not used to assess model fit for these models (Cheung & Rensvold, 2002), but the chi-square test values are still provided for reference. Maximum likelihood was selected as an estimator since the data were normally distributed. Full Information Maximum Likelihood (FIML) was implemented to address missing values (Allison, 2003). As suggested by Hayes (2009), mediation and moderated mediation were tested by 95% biascorrected bootstrapped confidence intervals with 5000 bootstrapped samples, where the absence of zero within the confidence interval was indicative of statistical significance.

Chapter 3: Results

Descriptive statistics

Table 1 shows 41.6% of the sample reported no financial difficulties at all, while 37.2% reported a little financial difficulty. A smaller number of participants reported moderate (11.4%) and a lot (7.2%) of financial difficulties. The mean perceived financial difficulty ridit was 0.500 and the standard deviation was 0.268. Almost half (45.8%) of the sample reported experiencing discrimination in one or more contexts. The mean depression score in the sample was 1.81 with a standard deviation of 0.661, with 47.8% of the sample above the HSCL-25 clinical cut off of 1.75. Table 2 displays the Pearson correlation matrix of key variables. Perceived financial difficulties were positively and significantly correlated with perceived discrimination, while the strength of the correlation was weak (r = 0.223, p < 0.001). Perceived financial difficulties were positively and moderately correlated with depressive symptoms (r = 0.378, p < 0.001), whereas perceived financial difficulties exhibited a small but positive and significant correlation with SVR (r = 0.114, p < 0.001). Perceived financial difficulties were negatively and moderately associated with income (r = -0.384, p < 0.001). Depressive symptoms showed a small but positive and significant correlation with SVR (r = 0.168, p < 0.001), while its correlation with perceived discrimination was moderate (r = 0.274, p < 0.001).

Table 1

01	
	Overall (N=5007)
Perceived financial difficulties	
Not at all	2082 (41.6%)
A little	1864 (37.2%)
A moderate amount	573 (11.4%)
A lot	361 (7.2%)

Sociodemographic Characteristics

	Overall (N=5007)
Missing	127 (2.5%)
Discrimination	
No	2522 (50.4%)
≥1 experience of discrimination	2293 (45.8%)
Missing	192 (3.8%)
Gender	
Man	2013 (40.2%)
Woman	2959 (59.1%)
Other	22 (0.4%)
Missing	13 (0.3%)
Income	
\$19,999 or less	365 (7.3%)
Between \$20,000 and \$39,999	648 (12.9%)
Between \$40,000 and \$59,999	747 (14.9%)
Between \$60,000 and \$79,999	764 (15.3%)
Between \$80,000 and \$99,999	701 (14.0%)
\$100,000 or more	1279 (25.5%)
Missing	503 (10.0%)
Province	
Alberta	1132 (22.6%)
Ontario	2066 (41.3%)
Québec	1809 (36.1%)
Perceived financial difficulty ridit	
Mean (SD)	0.500 (0.268)
Median [Min, Max]	0.618 [0.213, 0.963]
Missing	127 (2.5%)
Depressive symptoms	
Mean (SD)	1.81 (0.661)
Median [Min, Max]	1.67 [1.00, 4.00]
Missing	266 (5.3%)
Support for VR	
Mean (SD)	11.4 (6.24)
Median [Min, Max]	10.0 [4.00, 28.0]

	Overall (N=5007)
Missing	432 (8.6%)

Table 2

Descriptive statistics and correlation matrix of key variables

	Mean	SD	1	2	3	4	5	6	7
1. Perceived financial difficulties ridit	0.500	0.268	-						
2. Depressive symptoms	1.81	0.661	0.378***	-					
3. SVR	11.40	6.24	0.114***	0.168***	-				
4. Perceived discrimination ^a	0.479	0.500	0.223***	0.274***	0.157***	-			
5. Income	3.02	1.66	-0.384***	-0.202***	-0.097***	-0.137***	-		
6. Gender ^c	0.404	0.491	-0.086***	-0.165***	0.116***	-0.028	0.026	-	
7. Age	28.79	5.63	-0.010	-0.107***	-0.107***	-0.060***	0.170***	0.101***	-

Note: "Perceived discrimination ("No experience of discrimination" = 0 and " ≥ 1 experience of discrimination" = 1). ^bGender ("Women" = 0, "Men" = 1). ***p < 0.001

Measurement model

The confirmatory factor analysis for the two-factor model displays acceptable model fit (Table 3). The relative fit indices exhibit acceptable fit (CFI = 0.927, TLI = 0.917), while absolute fit indices range from good (SRMR = 0.040) to moderate (RMSEA = 0.072) model fit despite a significant chi-square test (χ^2 (151) = 4091.270, p < 0.001). The standardized factor loadings ranged from 0.51 to 0.87, indicating practical significance (Figure 3) (Hair Jnr et al., 2010). Moreover, there was a positive correlation between the depressive symptoms and SVR factors (β = 0.183, SE = 0.014, p < 0.001) (Table 4).

Table 3

Model	χ^2	р	CFI	TLI	RMSEA	SRMR	AIC	BIC
Measurement Model	4091.270	< 0.001	0.927	0.917	0.072	0.040	222460.939	222838.715
Moderated Mediation	5288.692	<0.001	0.911	0.900	0.063	0.039	278052.117	278677.902

Model fit indices of measurement and moderated mediation model

Note: Acceptable fit values are CFI and TLI 0.90-0.95, RMSEA \leq 0.06, and SRMR \leq 0.10 (Hooper et al., 2007).

Table 4

Measurement model for depressive	symptoms and SVR latent variables
----------------------------------	-----------------------------------

Constructs	Item	Estimate
Depressive symptoms (HSCL-25)		$(\omega = 0.98)$
	Feeling low in energy, slowed down	0.657
	Blaming yourself for things	0.738
	Crying easily	0.621
	Loss of sexual interest or pleasure	0.515
	Poor appetite	0.558
	Difficulty falling or staying asleep	0.577
	Feeling hopeless about the future	0.796
	Feeling sad	0.847
	Feeling lonely	0.759
	Thoughts of ending your life	0.601
	Feeling of being trapped or caught	0.733
	Worrying too much about things	0.743
	Feeling no interest in things	0.795
	Feeling everything is an effort	0.800
	Feeling of worthlessness	0.827
SVR (RIS)		$(\omega = 0.94)$

Support my grou the orga	ing an organization that fights for 0.734 p's political and legal rights even if nization sometimes breaks the law.
Support my grou the orga violence	ing an organization that fights for 0.825 p's political and legal rights even if nization sometimes resorts to
Particip oppressi might tu	ating in a public protest against 0.869 on of my group even if the protest rn violent.
Attackir were be	0.728 ag police or security forces if they ating members of my group.
Correlation	

Depressive symptoms \leftrightarrow SVR

0.183

Note: Standardized results reported. All factor loadings are significant p < 0.001. $\omega =$ McDonalds Omega.

Moderated mediation model

The relative fit indices of the moderated mediation model indicated acceptable fit (CFI = 0.911, TLI = 0.900), whereas absolute fit indices exhibited good (SRMR = 0.039) to moderate (RMSEA = 0.063) model fit despite a significant chi-square test (χ^2 (254) = 5288.692, p < 0.001) (Table 3). Table 5 and Figure 4 display the results for each path of the moderated mediation model. The standardized direct effects showed that perceived financial difficulties were significantly and positively associated with SVR with a small effect size (c' in Figure 4; β = 0.057, Table 5; SE = 0.018, p < 0.001, 95% CI = 0.022, 0.093). Figure 4 shows that perceived financial difficulties were positively and significantly associated with depressive symptoms with a moderate effect size (a in Figure 4; β = 0.275, Table 5; SE = 0.019, p < 0.001, 95% CI = 0.237, 0.313). Depressive symptoms were positively and significantly associated with SVR with an overall small effect size (b in Figure 4; β = 0.131, Table 5; SE = 0.019, p < 0.001, 95% CI = 0.095, 0.168). The moderated mediation

model explained 21.3% ($R^2 = 0.213$) of the variance in depressive symptoms and 8.9% ($R^2 = 0.089$) of the variance in SVR (Figure 4).

Discrimination significantly moderated the association between perceived financial difficulties and depressive symptoms ($\beta = 0.111$, SE = 0.036, p < 0.01, 95% CI = 0.041, 0.181) (Figure 4 and Table 5). The index of moderated mediation was significant because the bootstrapped confidence intervals did not contain 0 ($\beta = 0.015$, Boot SE = 0.005, Boot 95% CI = 0.005, 0.026), meaning that discrimination moderated the association between perceived financial difficulties and SVR through depressive symptoms (Table 6). The magnitude of the conditional indirect effects of perceived financial difficulties on SVR was larger for those that experienced one or more instances of discrimination ($\beta = 0.051$, Boot SE = 0.008, Boot 95% CI = 0.036, 0.068) in comparison to those that did not experience any form of discrimination ($\beta = 0.036$, Boot SE = 0.006, Boot 95% CI = 0.025, 0.048) (Table 6). Depressive symptoms mediated 33.8% of the association between perceived financial difficulties and SVR for those that experienced one or more instances of discrimination, whereas depressive symptoms mediated 27.9% of the association for those that did not experience discrimination (Table 6).

Estimates for the potential confounders income, gender, and age are shown in Table 5. Income was negatively and significantly associated with depressive symptoms with a small effect $(\beta = -0.049, SE = 0.015, p < 0.01, 95\% CI = -0.079, -0.019)$, while income was negatively associated with SVR, but not statistically significant ($\beta = -0.023$, SE = 0.017, p > 0.05, 95% CI = -0.056, 0.011). Gender ("Women" = 0, "Men" = 1) was negatively and significantly associated with depressive symptoms ($\beta = -0.096$, SE = 0.013, p < 0.001, 95% CI = -0.122, -0.070), indicating that men showed a decreased association with depressive symptoms in comparison to women. However, the magnitude of the effect was small. Gender was positively and significantly associated with SVR ($\beta = 0.163$, SE = 0.015, p < 0.001, 95% CI = 0.133, 0.192), indicating that men were more likely to support violent radicalization in comparison to women. Nonetheless, the magnitude of the effect was small. Age was significantly and negatively associated with both depressive symptoms ($\beta = -0.095$, SE = 0.013, p < 0.001, 95% CI = -0.121, -0.068) and SVR ($\beta =$ -0.177, SE = 0.015, p < 0.001, 95% CI = -0.146, -0.087) with an overall small effect size.

Table 5

	0		
	β	SE	CI
<u>Depressive symptoms</u>			
Financial difficulty ridit (a)	0.275***	0.019	(0.237, 0.313)
Discrimination	0.105***	0.028	(0.050, 0.160)
Financial difficulties ridit X Discrimination	0.111**	0.036	(0.041, 0.181)
Income	-0.049**	0.015	(-0.079, -0.019)
Gender	-0.096***	0.013	(-0.122, -0.070)
Age	-0.095***	0.013	(-0.121, -0.068)
R^2	0.213		
<u>SVR</u>			
Depressive symptoms (b)	0.131***	0.019	(0.095, 0.168)
Financial difficulties ridit (c')	0.057***	0.018	(0.022, 0.093)
Discrimination	0.116***	0.016	(0.085, 0.146)
Income	-0.023	0.017	(-0.056, 0.011)
Gender	0.163***	0.015	(0.133, 0.192)
Age	-0.177***	0.015	(-0.146, -0.087)
<i>R</i> ²	0.089		

Moderated mediation SEM including all variables

Note: Standardized coefficients. Covariates: income, gender, and age; c' = direct effect of perceived financial difficulties on SVR through depressive symptoms; c = total effect. ***p < 0.001, **p < 0.01

Figure 4

Moderated mediation SEM diagram



Note: Standardized coefficients. Covariates: income, gender, and age; c' = direct effect of perceived financial difficulties on SVR through depressive symptoms; c = total effect. ***p < 0.001, **p < 0.01

Table 6

Conditional indirect effects of perceived discrimination on SVR through depressive symptoms with 95% Bootstrapped Confidence Intervals

Levels	Indirect effect	Boot SE	Boot CI	%Mediated
Conditional indirect effect for ≥ 1 experience of discrimination	0.051***	0.008	(0.036, 0.068)	33.8
Conditional indirect effect for no experience of discrimination:	0.036***	0.006	(0.025, 0.048)	27.9
Index of moderated mediation				
Perceived discrimination	0.015**	0.005	(0.005, 0.026)	

Note: Number of bootstrap samples = 5000; Control variables: Income, gender, and age; Boot SE = Bootstrapped Standard Errors; Boot CI = Boot CI = Bootstrapped Confidence Intervals. %Mediated = (conditional indirect effect/conditional total effect) X 100. ***p < 0.001, **p < 0.01

Chapter 4: Discussion

The purpose of the current study was to investigate the association of perceived financial difficulties and SVR among Canadians in Québec, Ontario, and Alberta aged 18 to 40 during the COVID-19 pandemic. The study examined the mediating role of depressive symptoms between perceived financial difficulties and SVR as well as the moderating role of perceived discrimination on the association between perceived financial difficulties and SVR through depressive symptoms. In line with the study's first hypothesis, I found that perceived financial difficulties were associated with higher levels of SVR, although the magnitude of the effect was small. I also observed that depressive symptoms were shown to mediate the association between perceived financial difficulties and SVR, while perceived discrimination strengthened the association between perceived financial difficulties and depressive symptoms, resulting in higher levels of SVR, supporting both the second and third hypotheses of the study.

The following section will begin with the discussion of the direct effect of perceived financial difficulties on SVR. This section will also explain the "a" and "b" path of the moderated mediation model, which includes the independent effect of perceived financial difficulties on depressive symptoms (e.g., the "a" path) and the independent effect of depressive symptoms on SVR (e.g., the "b" path). In the subsequent sections, I will discuss the mediating role of depressive symptoms in the relationship between perceived financial difficulties and SVR, and how this indirect effect was moderated by perceived discrimination, which was associated with higher levels of SVR. Finally, the discussion chapter will end with the possible theoretical and practical implications of these results along with the limitations and future directions of this study.

Direct effect of perceived financial difficulties on SVR

In the current study, those who had higher levels of perceived financial difficulties exhibited greater support for violent radicalization. This result is consistent with a previous study conducted with a similar methodological approach on a different sample of young adults in Canada during the COVID-19 pandemic (Levinsson et al., 2021). Nonetheless, these findings were not replicated by Miconi and colleagues (2022), who found that perceived financial difficulties were not associated with SVR in Québec CÉGEP/College students. This might suggest that young adults have more significant SES-related burdens, which are associated with higher levels of SVR, than college students who may still benefit from financial parental support in the North American context (Miconi et al., 2022). Importantly, the current study allows us to disentangle the independent effects of subjective (e.g., perceived financial difficulties) and objective (e.g., income) financial indicators on SVR. The effect of perceived financial difficulties on SVR was maintained even after controlling for an objective SES indicator (e.g., income). Notably, in the model with perceived financial difficulties, income was not significantly associated with SVR, suggesting that subjective financial measures may be associated with SVR independently of objective SES measures. These findings differ from those of researchers in the UK (Bhui et al., 2014) that showed higher objective SES (e.g., income and education) was associated with more SVR in a sample of young adults, suggesting that local and national dynamics may significantly alter these associations. Cross-national studies on comparable samples of young adults are needed to better understand the specific associations of objective and subjective financial indicators across local, national, and international contexts. The current study is the first of its kind to suggest that subjective financial indicators such as perceived financial difficulties may capture unique aspects

of an individual's economic situation and serve as an important predictor of SVR in certain contexts.

Considering the current study's large sample size, the magnitude of the effect between perceived financial difficulties and SVR remains small, suggesting that although the results demonstrate statistical significance, practical significance may be limited (Faber & Fonseca, 2014). This is not surprising, as risk factors for SVR commonly exhibit small effects in the violent radicalization literature, further suggesting that perceived financial difficulties may work on SVR cumulatively and synergistically with other risk factors (Wolfowicz et al., 2021). For example, in a study by Emmelkamp et al., (2020) a poverty measure consisting of both objective and subjective financial measures also displayed small effects in relationship to SVR. This demonstrates that SVR is a multifaceted phenomenon, signifying that no single factor is sufficient to explain why individuals support violent radicalization (Eisenman & Flavahan, 2017).

Perceived financial difficulties were positively and independently associated with depressive symptoms beyond the expected association between an objective SES measure (e.g., income) and depressive symptoms. This indicates that greater perceptions of financial difficulties were associated with more depressive symptoms, independently of one's reported income. Although the association between perceived financial difficulties and depressive symptoms was moderate, this finding is in line with previous literature that has shown that subjective indicators such as perceived financial problems are more strongly associated with depressive symptoms in comparison to objective indicators during the COVID-19 pandemic (Ruengorn et al., 2021; Trógolo et al., 2022). This suggests that the subjective evaluation of one's financial circumstances may be particularly important to one's mental health even when controlling for objective financial indicators such as income.

In the current study, depressive symptoms showed a small and positive association with SVR. This suggests that, regardless of perceived financial difficulties, those experiencing increased depressive symptoms exhibited greater SVR. The findings of this study are consistent with previous studies conducted in Canada (Miconi et al., 2021; Miconi et al., 2020; Rousseau et al., 2019) and the UK (Bhui et al., 2014), further providing support across different settings for the hypothesis that depressive symptoms are associated with higher levels of SVR. As suggested by Bhui et al. (2014) and Rousseau et al. (2019), individuals with higher levels of depressive symptoms often experience multiples grievances, leading them to endorse violent radicalization as a maladaptive coping mechanism to confront an adverse environment. The fact that data collection for the current study took place during the COVID-19 pandemic, widely considered a health and mental health crisis, did not seem to significantly alter this association.

Moderated mediation

Depressive symptoms mediated the relationship between perceived financial difficulties and SVR, confirming the second hypothesis of this study. This mediation was moderated by perceived discrimination, confirming the final hypothesis of the study. These findings are in line with previous studies, which show that depressive symptoms have consistently played a mediating role in the pathways to SVR in the Canadian context (Levinsson et al., 2022; Miconi et al., 2022; Rousseau et al., 2019). These cross-sectional results cannot speak to the directionality of the observed associations. Though they may reflect perceived financial difficulties inducing despair and loss of hope in some individuals, thereby resulting in depressive symptoms, and resorting to supporting violent radicalization in order to cope with such negative emotions, the cross-sectional nature of the data means we cannot know if these relationships are causal. Nevertheless, these findings were anticipated, as depressive symptoms have not only played a mediating role in the relationship between social adversity and SVR among college students (Rousseau et al., 2019), but have also played a mediating role between psychosocial stressors and SVR among young adults during the COVID-19 pandemic (Miconi et al., 2022). Nevertheless, we cannot exclude the possibilities that depressive symptoms may have had an impact on participants' financial situation (e.g., difficulties keeping a job) and/or may have affected their subjective appraisal of their financial status through an overall pessimistic outlook (Jefferis et al., 2011). Longitudinal studies are needed to further explore the direction of these relationships.

The results showed that the association between perceived financial difficulties and SVR via depressive symptoms was greater among those that have experienced discrimination in comparison to those that have not. Previous findings show that various forms of discrimination exhibit direct (Ellis et al., 2021; Frounfelker et al., 2019) and indirect effects (Miconi et al., 2022; Rousseau et al., 2019) on SVR. The current study adds to these findings by showing that perceived discrimination functions as a moderator in the relationship between perceived financial difficulties and depressive symptoms, exhibiting higher levels of SVR. This suggests that perceived financial difficulties interact with perceived discrimination, and that this interaction is associated with more depressive symptoms, which are in turn associated with greater SVR.

The moderated mediation can be explained theoretically by the GST, which states that subjective strains related to blockage of economic or status-related goals can elicit adverse emotional outcomes, leading some individuals to participate in alternative maladaptive coping strategies, such as supporting violent radicalization (Agnew, 2015; Nivette et al., 2017). Importantly, as a collective strain functioning at all levels of the social-ecological framework and producing feelings of injustice and exclusion, perceived discrimination can interact with financial difficulties to explain depressive symptoms (Miconi et al., 2024; Nivette et al., 2017). Indeed, depressive symptoms explained 33.8% of the association between financial difficulties and SVR among participants who reported experiencing discrimination, versus 27.9% for participants who did not report experiencing discrimination. Thus, the findings of this study suggest that during a polarizing period such as the COVID-19 pandemic, some individuals that experience financial difficulties as well as collective strains such as perceived discrimination may be at increased risk of developing depressive symptoms, creating an opportune environment for grievances-based support for violent radicalization. In an interesting longitudinal study, Bridson et al. (2024) showed how financial-related discrimination and socioeconomic inequalities can impact well-being. Their method specifically targeted structural discrimination (Bridson et al., 2024), and suggests that future research should refine the operationalization of discrimination as it relates to financial difficulties and consider its direct and indirect impact on both positive and negative mental health outcomes, such as SVR.

Implications

Theoretical implications

The results from the current study have several implications for violent radicalization research. This is the first study to demonstrate that perceived financial difficulties are associated with both depressive symptoms and SVR beyond income, suggesting that subjective financial indicators are promising factors to address in prevention and intervention programs and policies in the field of violent radicalization. It has been well established that subjective financial indicators such as perceived financial difficulties, worries, and problems better explain a range of mental health issues such as depressive symptoms relative to objective SES measures (Howe et al., 2010; Operario et al., 2004). Despite the important role that subjective indicators play in the path to depressive symptoms, their use in the violent radicalization literature remains scarce. Previously,

research on violent radicalization in the Global North focused primarily on objective SES indicators, yielding inconsistent results (Wolfowicz et al., 2020). The current study reveals that subjective indicators constitute an important component to better understand the multifaceted role of socioeconomic factors in SVR. Agnew (2015) explains that strains such as perceived economic problems are often rooted in psychosocial factors such as relative deprivation or the inability to achieve economic goals, as people want to increase their wealth and be on par with their peers. Although perceived financial difficulties do not capture relative deprivation or goal blockage, they remain useful in violent radicalization research to capture the subjective self-rated experience of an individual's financial status rather than objective material conditions.

The current study is the first to utilize a subjective economic strain measure to analyze SVR through the lens of the GST. The GST posits a mediation pathway consisting of a strain leading to negative emotions resulting in poor coping techniques (Agnew, 2017). In the context of this study, two strains – perceived financial difficulties and discrimination – are thought to work synergistically to produce negative emotions such as depressive symptoms, which are in turn associated with greater SVR. This framework suggests that strains which capture psychological components of financial problems and collective strains pertaining to group membership can have an interactive effect on mental health, leading to attitudes that legitimize violence. As stated above, SVR is a complex, multifactorial phenomenon that has many contributing factors (Eisenman & Flavahan, 2017; Ghosh et al., 2023). In this respect, the GST is useful as a broad theory that explains how many types of strains interact to produce a phenomenon as complex as SVR.

Practical implications

The findings of this study add to the literature of possible SVR determinants and identify potential targets of primary prevention programs implemented in North America. As suggested by

the UN special report on violent radicalization, addressing these determinants requires a human rights approach to the inequities which fuel community grievances (United Nations Educational et al., 2017). This is not an easy nor short-term goal. This study and previous literature reviewed here find it is evident that social inequities like perceived financial difficulties play an important role in mental health. In response, Lamont (2018) suggests that giving a voice to those who suffer from these perceived inequities may play a role in mitigating our societies' divisions and the associated justification for violence. Prevention programs might target sources of financial difficulties, including unemployment and debt, that individuals considered at risk of violent radicalization may be experiencing. Ryu and Fan (2023) propose that support can be provided by financial advisors in the form of increasing financial literacy, confidence, and planning. Currently, violent radicalization prevention in the North American context focuses on the use of multidisciplinary teams that tackle complex social issues. These teams consist of experts from various academic disciplines including medicine, psychology, and social work who collaborate with each other to provide person-centered care (Ellis et al., 2022). In the future, multidisciplinary teams might consider expanding to include financial advisors to provide support to individuals at risk of violent radicalization at all levels of the SES spectrum experiencing difficulties related to money.

The high prevalence of depressive symptoms (47.8%) in our sample suggests that it may be important for prevention programs to strengthen the wellbeing and mental health of young people through community initiatives, especially those that provide avenues to belong, relate and express themselves in the real world (Miconi et al., 2024). Improving access to mental health services might be another avenue to consider. Additionally, though subjective indicators function differently from objective measures, objective measures such as income, education, and employment can still influence the levels of perceived financial difficulties or stress (Choi et al., 2020; Guan et al., 2022; Howe et al., 2010; Operario et al., 2004). As suggested by Ryu and Fan (2023), mental health practitioners must take into consideration the psychological burden inflicted by financial worries on their patients' wellbeing.

Addressing the experiences of discrimination that may amplify the effects of perceived financial difficulties on depressive symptoms and therefore greater support for violent radicalization presents an enormous challenge. Historically marginalized groups (e.g., racial/ethnic minorities, women, and LGBTQ individuals) can experience discrimination in education, employment, housing, the penal system, and the workplace (Barreto et al., 2009; Herek et al., 1999; Schmitt et al., 2014). Applying a public health approach that targets discrimination experienced in various domains may prove beneficial to reduce the potentially amplifying effect of discrimination on mental health and in turn SVR. Discrimination awareness campaigns in the form of advertisements have sparked conversations about discrimination on social media in the US (Kaur et al., 2024; Kwate, 2014). In a socially polarized context, public outreach campaigns addressing discrimination and its negative effects may be deployed as prevention strategies (Godley, 2018; Nakhaie & Wijesingha, 2015). When such interventions are employed, it is essential to closely monitor their impact and adapt them to ensure that these campaigns do not fuel inter-group tensions and aggression. Ultimately, addressing discrimination at the individual level by providing individual psychological support will not suffice. It is essential to address the current structural inequalities from a social justice approach at a collective level to promote more inclusive and fair societies where young Canadians feel safe and can thrive. Carefully considering multiple forms of adverse experiences among young adults, including discrimination, financial difficulties, as well as their complex interactions, is an essential step to inform effective and appropriate prevention programs.

Limitations and future directions

The current study provides novel insights into the field of violent radicalization that must be considered within the context of its limitations. First, due to the cross-sectional nature of this study, causality cannot be implied based on these results. Future studies examining the association between perceived financial difficulties, discrimination, depressive symptoms, and SVR should employ longitudinal study designs. This would include collecting data at multiple time points to establish the directionality of associations between these variables. Second, the data analyzed in the current study was collected through a web-survey with a low response rate of 9.8%, with no information on non-responders and individuals without access to the internet, resulting in selection bias (Andrade, 2020). The sociodemographic characteristics of the sample also revealed that women were overrepresented in the sample (59.1%). Although this overrepresentation of women in online surveys has been commonly reported in the literature (Sax et al., 2003; Smith, 2008; te Braak et al., 2020), this remains a limitation to be kept in mind when reflecting on the generalizability of our results.

Third, limitations related to the power and size of effects in our study are important to mention. A post hoc power analysis (e.g., post hoc sensitivity analysis) was conducted and showed that the current study was perfectly powered. Nonetheless, it must be noted that a post-hoc power analysis is a technique usually not recommended (Hoenig & Heisey, 2001). Due to the large sample size (n = 5007), the probability of detecting statistically significant findings was high, making it critical to focus on effect sizes (Faber & Fonseca, 2014). In order to address this limitation, regression estimates were standardized to a mean of 0 and a standard deviation of 1 such that comparable effect sizes were generated between variables (Kline, 2011). Given the large sample size of survey respondents, the observed magnitude of effects of key variables in the study (e.g.,

perceived financial difficulties, perceived discrimination, and depressive symptoms) were smallto-modest in relation to SVR, suggesting modest practical significance. Nevertheless, the classification into "small", "medium", and "large" effect sizes uses arbitrary thresholds and carries different meanings among various disciplines (Carey et al., 2023). For instance, in the violent radicalization literature, small effect sizes are commonly observed with various risks factors, further emphasizing that SVR is a multifactorial phenomenon (Wolfowicz et al., 2021). Although small or modest effect sizes were observed at the individual level in this study, these can translate into impactful shifts at the populational level depending on how prevalent the observed factors (e.g., perceived financial difficulties, discrimination, and depressive symptoms) are among different groups (Bellinger, 2007; Carey et al., 2023). In the same vein, the moderated mediation model in the current study explained only 8.9% of the variance in SVR. This is expected, as it is common for risk and protective factors to exhibit small or modest effects in the violent radicalization literature (Wolfowicz et al., 2021). Nevertheless, other risk factors such as relative deprivation have previously been shown to exhibit moderate effects on SVR and may capture more variation than perceived financial difficulties (Wolfowicz et al., 2021). Relative deprivation is an individual's perception that they or their group are doing worse in comparison to others in terms of resources and standards of living, which captures critical psychosocial components of inequality (Kunst & Obaidi, 2020). Therefore, future studies should investigate whether relative deprivation plays an independent, mediating, or moderating role in the complex pathway to SVR.

Fourth, some limitations related to the measures of perceived financial difficulties and discrimination used in the study should be acknowledged. Perceived financial difficulties were captured by a single item measure in the current study. Single-item measures are understood to have reduced reliability and may not be representative of the psychological constructs they aim to

convey (Allen et al., 2022). In this case, the measure for perceived financial difficulties may not be capturing the full extent of difficulties that an individual may be experiencing. Additionally, an assumption that is often unmet with ordinal variables such as perceived financial difficulties is that the distance between each category (e.g., "None," "A little," "A moderate amount," and "A lot") is numerically equal. Modeling this ordinal variable as a continuous variable forces the categories to be on an evenly spread spectrum, which is unlikely to do justice to the subjective distance by which each category is separated for each respondent (Donaldson, 1998). To address this limitation, a ridit transformation of perceived financial difficulties was performed, resulting in a normally distributed variable. Nevertheless, a limitation posed by the ridit transformation includes an index of perceived financial difficulties that is unitless making the results less comparable to other studies since the ridit transformation is dependent on the sample distribution (Elgar et al., 2017).

In addition, perceived financial difficulties were assessed by a single item measure examining difficulties related to lack of money, which does not capture other reasons for experiencing financial difficulties. Future studies must include items on the types of financial difficulties, providing a more nuanced understanding of the effect of perceived financial difficulties on both depressive symptoms and SVR. One such measure is the Financial Strain Questionnaire, which asks about difficulties regarding food, clothing, housing, furniture, leisure activities, and bills, capturing more specific aspects of perceived financial difficulties (Pearlin et al., 1981; Waters et al., 2019). Other potential measures include the Financial Strain and Economic Support Measure, a 3-item indicator assessing economic difficulties related to living expenses, money to spend, and one's financial situation relative to others in the same age group (Adams et al., 2016; Krause et al., 1988). Indeed, these measures would be more valuable since they capture additional information about economic difficulties related to daily expenses and social comparisons among individuals than a single item measure can.

Perceived discrimination was measured via a self-reported item on the experience of discrimination in eight domains of life with binary response options (yes or no). A pitfall of dichotomization includes the loss of variance (Altman & Royston, 2006), between groups of individuals that experienced discrimination versus those that did not. Dichotomization of perceived discrimination does not capture the type of context-based discrimination responsible for moderating the relationship between perceived financial difficulties and depressive symptoms. Considering that perceived discrimination was self-reported in the sample, negative experiences unrelated to discrimination may have been mistakenly attributed to discrimination, resulting in overrepresentation of individuals with discriminatory experiences (Frounfelker et al., 2019). In contrast, underreporting of discrimination in specific contexts is also a possibility, as individuals may not be aware of actual instances of discrimination in the eight domains of life, or may be hesitant to report suspected instances if they are unsure. Additionally, the perceived discrimination scale used in the current study did not assess the severity or frequency of discrimination and whether these experiences were the result of everyday (e.g., microaggressions) or major discrimination (Frounfelker et al., 2019). Based on these limitations, it is suggested that future studies utilize both the Everyday Discrimination Scale, assessing the frequency and reasons for discrimination (Williams et al., 1997), as well as the Major Discrimination Scale, providing information on severity, frequency, and reasoning for major discriminatory experiences (Williams et al., 2008). Moreover, discrimination disproportionately impacts marginalized communities (Matheson et al., 2019) and structural discrimination can in turn influence objective and subjective socioeconomic indicators (Bazley et al., 2024; Williams, 1999). Future research assessing the

potential bidirectional and interactive effects of perceived financial difficulties and discrimination on SVR through depressive symptoms must be conducted on samples that adequately represent minority populations. As always when dealing with marginalized communities, it is essential that such research be conducted in collaboration with community members within a social justice approach to avoid the potential stigmatization of minority populations at the local and collective level (Rousseau & Hassan, 2019).

Chapter 5: Conclusion

The aim of the current study was to implement a moderated mediation model to assess the effects of perceived financial difficulties on SVR through depressive symptom, while assessing the moderating role of perceived discrimination in this pathway. Three primary objectives of the current study included examining the direct association between perceived financial difficulties and SVR, testing the mediating role of depressive symptoms in this pathway, and determining the moderating role of perceived discrimination.

The results of this study revealed that perceived financial difficulties were associated with SVR above and beyond income; however, the magnitude of the effect was small. Nonetheless, these results suggest that subjective financial indicators may better capture an individual's economic situation, making it a more informative tool for explaining SVR than objective SES measures. Considering a single-item measure was used to capture perceived financial difficulties, more nuanced, multiple-item measures must be utilized in future studies in relation to depressive symptoms and SVR to explore a wider range of underlying reasons for experiencing financial difficulties.

Depressive symptoms were shown to mediate a moderate amount of the association between perceived financial difficulties and SVR, suggesting that depressive symptoms play a mediating role with psychosocial stressors and SVR. This finding was guided by the GST framework indicating that financial strains induce feelings of hopelessness and despair, resulting in maladaptive coping strategies and subsequently facilitating SVR in some individuals. Additionally, this result was expected due to the increased financial burdens experienced by young Canadians during the COVID-19 pandemic. Future research should further assess the mediating role of depressive symptoms among other psychosocial stressors, such as relative deprivation and SVR.

Perceived discrimination was found to strengthen the association between perceived financial difficulties and depressive symptoms resulting in greater support for SVR. Understood through the lens of the GST, multiple strains such as perceived financial difficulties and discrimination may have an interactive association with depressive symptoms, which are in turn associated with greater levels of SVR. Perceived discrimination can lead to feelings of marginalization that may amplify the effects of perceived financial difficulties, leading to greater depressive symptoms and therefore increased support for violent radicalization. The current study only focused on context-based discrimination, while the association between SVR and the reason, frequency, and severity of discrimination that capture reasoning, frequency, and severity of discrimination th

Overall, policy and decision-makers seeking to prevent and intervene in violent radicalization should reduce structural barriers and inequalities that contribute to the experiences of financial difficulties and discrimination of young adults in our society, paying special attention to the many factors that may strengthen or compound this problem.

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Appendix A: Supplementary Tables and Figures

Table S1

Variance inflation factors and tolerance from multiple linear regression

	VIF	Tolerance
Financial difficulties	1.352869	0.7391700
Discrimination	1.104707	0.9052177
Depressive symptoms	1.260096	0.7935905
Income	1.219525	0.8199913
Gender	1.038265	0.9631452
Age	1.056574	0.9464556

Note: Acceptable values: VIF < 10; tolerance > 0.10 (Kline, 2011).

Table S2

Descriptive statistics of latent variable indicators

	Overall (N=5007)
Depressive symptoms	
hscl_11.1	
Mean (SD)	2.18 (0.932)
Median [Min, Max]	2.00 [1.00, 4.00]
Missing	45 (0.9%)
hscl_12.1	
Mean (SD)	1.95 (0.973)
Median [Min, Max]	2.00 [1.00, 4.00]
Missing	52 (1.0%)
hscl_13.1	
Mean (SD)	1.72 (0.919)
Median [Min, Max]	1.00 [1.00, 4.00]
Missing	50 (1.0%)
hscl_14.1	
Mean (SD)	1.72 (0.931)
Median [Min, Max]	1.00 [1.00, 4.00]
Missing	177 (3.5%)
hscl_15.1	
Mean (SD)	1.51 (0.782)
Median [Min, Max]	1.00 [1.00, 4.00]
Missing	56 (1.1%)
hscl_16.1	
Mean (SD)	2.06 (0.982)
Median [Min, Max]	2.00 [1.00, 4.00]
Missing	44 (0.9%)
hscl_17.1	
Mean (SD)	1.88 (0.968)
Median [Min, Max]	2.00 [1.00, 4.00]
Missing	56 (1.1%)
hscl_18.1	
Mean (SD)	1.96 (0.882)
Median [Min, Max]	2.00 [1.00, 4.00]

	Overall (N=5007)
Missing	45 (0.9%)
hscl_19.1	
Mean (SD)	1.97 (0.959)
Median [Min, Max]	2.00 [1.00, 4.00]
Missing	48 (1.0%)
hscl_20.1	
Mean (SD)	1.28 (0.654)
Median [Min, Max]	1.00 [1.00, 4.00]
Missing	83 (1.7%)
hscl_21.1	
Mean (SD)	1.61 (0.877)
Median [Min, Max]	1.00 [1.00, 4.00]
Missing	52 (1.0%)
hscl_22.1	
Mean (SD)	2.15 (1.01)
Median [Min, Max]	2.00 [1.00, 4.00]
Missing	49 (1.0%)
hscl_23.1	
Mean (SD)	1.78 (0.894)
Median [Min, Max]	2.00 [1.00, 4.00]
Missing	51 (1.0%)
hscl_24.1	
Mean (SD)	1.91 (0.959)
Median [Min, Max]	2.00 [1.00, 4.00]
Missing	55 (1.1%)
hscl_25.1	
Mean (SD)	1.68 (0.932)
Median [Min, Max]	1.00 [1.00, 4.00]
Missing	60 (1.2%)
SVR	
ris_1.1	
Mean (SD)	3.40 (1.85)
Median [Min, Max]	3.00 [1.00, 7.00]
Missing	294 (5.9%)
ris_2.1	

	Overall (N=5007)
Mean (SD)	2.46 (1.76)
Median [Min, Max]	2.00 [1.00, 7.00]
Missing	253 (5.1%)
ris_3.1	
Mean (SD)	2.76 (1.81)
Median [Min, Max]	2.00 [1.00, 7.00]
Missing	247 (4.9%)
ris_4.1	
Mean (SD)	2.79 (1.95)
Median [Min, Max]	2.00 [1.00, 7.00]
Missing	314 (6.3%)

Table S3

Pearson d	Pearson correlations of indicators in SEM to create depressive symptoms (DS) and SVR latent variables														
DS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
hscl_11.1															
hscl_12.1	0.541***														
hscl_13.1	0.423***	0.558* **													
hscl_14.1	0.422***	0.433*	0.372***												
hscl_15.1	0.388***	0.387*	0.373***	0.38 0***											
hscl_16.1	0.476***	0.454 [*]	0.365***	0.34 3***	0.409**										
hscl_17.1	0.487***	0.561* **	0.437***	0.34 9***	0.434**	0.451**									
hscl_18.1	0.549***	0.625*	0.577***	$0.42 \\ 0^{***}$	0.436**	0.469**	0.703**								

hscl_19.1	0.465***	0.537*	0.484***	0.35 7 ^{***}	0.414**	0.429** *	0.603**	0.709 ^{**} *					
hscl_20.1	0.303***	0.418* **	0.369***	0.29 3***	0.401**	0.317**	0.503**	0.492**	0.439 ^{**} *				
hscl_21.1	0.444***	0.508*	0.400***	0.35 4***	0.400**	0.398**	0.621**	0.606**	0.569** *	0.540**			
hscl_22.1	0.545***	0.643* **	0.506***	0.37 9***	0.362**	0.460**	0.586**	0.649**	0.543**	0.356**	0.528**		
hscl_23.1	0.541***	0.525*	0.439***	0.42 7 ^{***}	0.456 ^{**}	0.452** *	0.636 ^{**}	0.653**	0.595** *	0.484**	0.593**	0.553**	
hscl_24.1	0.607***	0.575*	0.458***	0.41 4 ^{***}	0.421**	0.444**	0.626**	0.645**	0.580**	0.440**	0.592**	0.617**	0.716**
hscl_25.1	0.481***	0.634*	0.481***	0.38 5 ^{***}	0.436**	0.431**	0.695**	0.684**	0.628**	0.584**	0.636**	0.578**	0.679**
SVR													
ris_1.1													
ris_2.1		0.659***											
ris_3.1		0.610***		0.715	•***)								

92

 0.674^{**}_{*}

<i>ris_4.1</i> 0.513*** 0.564*** 0.670***	
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Note: ****p* < 0.001, ***p* < 0.01

Figure S1





Regression Standardized Residuals

Figure S2



Normal P-P plot of regression standardized residual.

Normal Scores

Figure S3

Residual scatter plot of regression standardized residuals and predicted value with RIS (SVR) as the dependent variable.



Regression standardized predicted value

Appendix B: Informed consent form

Information and Consent Form

RESEARCH PROJECT: Social polarization during the COVID-19 pandemic: A multicity

study of vulnerability and resilience in Canadian youth

PRINCIPAL INVESTIGATOR:

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CO-RESEARCHERS:

- Habib El-Hage (Collège de Maisonneuve)
- Rochelle L. Frounfelker (McGill University)
- Ghayda Hassan (UQAM)
- Anna Levinsson (McGill University)
- John McCoy (Organization for the Prevention of Violence)
- Abdelwahed Mekki-Berrada (Université Laval)
- Diana Miconi (McGill University)
- David Morin (University of Sherbrooke)
- Barbara Perry (Ontario Tech University)
- Vivek Venkatesh (University of Concordia)

You are being asked to take part in a research survey.

In addition to the socio-demographics, this survey includes questions to better understand if and how the pandemic and the relations between groups affect the well-being of Canadian young people, and what makes them vulnerable or what protects them.

You are being asked to participate in this survey because you are presently living in Canada (i.e. Alberta, Ontario or Quebec) and aged between 18 and 40 years. Your participation is voluntary and you may refuse to answer any question or withdraw your participation at any time for any reason.

If you agree to participate in this study, you will be asked to take an online survey. The survey should take approximately 15 minutes to complete. All the information collected in the context of this research project will remain confidential. There is a minimal risk of loss of confidentiality since we do not ask questions that can be used to identify you. Results may be

April 7, 2021

published in specialized journals, be presented in conferences, or be discussed in knowledge exchange activities, but it will be impossible to identify you. This questionnaire addresses certain past experiences (discrimination in particular) that could potentially generate, for some people, emotional discomfort (e.g. sadness, anxiety) related to these memories. You can refuse to answer certain questions and still complete the questionnaire.

You will not be receiving any personal benefit from participating in this study, but we are hoping that research results contribute to a better understanding of young people's strategies for successful adaptation and positive inter-community relations.

This research study is funded by CIHR (Canadian Institute of Health Research).

If you have any questions regarding this research study, you can contact the researcher in charge, Cécile Rousseau, (514) 273-3800, ex. 6452.

For all questions concerning your rights during your participation in this study, or if you have any complaints or comments regarding your experience in taking part in this research study, you can contact the Commissioner of Complaints/Ombudsperson of the institution Ms. Ilde Lepore at (514) 398 8302 or ilde.lepore@mcgill.ca.

By completing this questionnaire, you consent to be part of this study. I agree to complete this questionnaire (click «next»).