

# Racial Discrimination During the COVID-19 Pandemic and Mental Health of Young Adults: A Cross-Sectional Study of University Students From East Asian Backgrounds

Cloudia Rodriguez<sup>1,2</sup>, Ruo Ying Feng<sup>1</sup>, Irene Vitoroulis<sup>1</sup>

<sup>1</sup>School of Psychology, University of Ottawa, Ottawa, ON, Canada

<sup>2</sup>Interdisciplinary School of Health Sciences, University of Ottawa, Ottawa, ON, Canada

Date Submitted: June 15, 2022

Date Accepted: July 18, 2022

Date Published: April 5, 2023

DOI: <https://doi.org/10.18192/UOJM.V12.112.6413>

**Keywords:** COVID-19, East Asians, xenophobia, racial discrimination, coping, mental health

## ABSTRACT

With the COVID-19 pandemic, there has been an increase in mental health problems in the population worldwide. During the pandemic, individuals from East Asian backgrounds have been blamed for COVID-19 and faced xenophobic attacks, leading to increased incidents of racial discrimination. We administered an online survey to examine (a) associations between in-person and online racial discrimination and mental health (i.e., anxiety and depression) among East Asian university students ( $n=169$ ) in Canada and (b) the extent to which coping strategies and ethnic/cultural identity stage (e.g., exploration, resolution, affirmation) moderate the associations between discrimination and mental health. Results from hierarchical regressions indicated that experiencing online racial discrimination predicted more anxiety ( $b = .263$ ,  $SE = .070$ ,  $p < .001$ ) and depression ( $b = .296$ ,  $SE = .073$ ,  $p < .001$ ) symptoms. Using emotion-focused disengagement coping strategies predicted more anxiety ( $b = .705$ ,  $SE = .129$ ,  $p < .001$ ) and depression ( $b = .763$ ,  $SE = .127$ ,  $p < .001$ ). However, identity affirmation (i.e., positive feelings towards ethnic groups) predicted less depression ( $b = -.533$ ,  $SE = .245$ ,  $p = .031$ ). Results suggest that exposure to online racial discrimination during the pandemic has a negative effect on East Asian students' well-being. However, positive feelings towards one's ethnic identity may protect against mental health problems related to experiences of racial discrimination.

## RÉSUMÉ

Avec la pandémie de COVID-19, il y a eu une augmentation des problèmes de santé mentale dans la population mondiale. Au cours de la pandémie, les personnes d'origine est-asiatique ont été accusées d'être responsables du COVID-19 et ont fait l'objet d'attaques xénophobes, ce qui a entraîné une augmentation des incidents de discrimination raciale. Nous avons administré une enquête en ligne pour examiner (a) les associations entre la discrimination raciale en personne et en ligne et la santé mentale (c'est-à-dire l'anxiété et la dépression) chez les étudiants universitaires d'Asie de l'Est ( $n=169$ ) au Canada et (b) la mesure dans laquelle les stratégies d'adaptation et le stade de l'identité ethnique/culturelle (par exemple, l'exploration, la résolution, l'affirmation) modèrent les associations entre la discrimination et la santé mentale. Les résultats des régressions hiérarchiques indiquent que l'expérience de la discrimination raciale en ligne prédit davantage de symptômes d'anxiété ( $b = .263$ ,  $SE = .070$ ,  $p < .001$ ) et de dépression ( $b = .296$ ,  $SE = .073$ ,  $p < .001$ ). L'utilisation de stratégies de désengagement axées sur les émotions permettait de prédire une plus grande anxiété ( $b = .705$ ,  $SE = .129$ ,  $p < .001$ ) et une plus grande dépression ( $b = .763$ ,  $SE = .127$ ,  $p < .001$ ). Cependant, l'affirmation d'identité (c'est-à-dire les sentiments positifs envers les groupes ethniques) prédisait moins de dépression ( $b = -.533$ ,  $SE = .245$ ,  $p = .031$ ). Les résultats suggèrent que l'exposition à la discrimination raciale en ligne pendant la pandémie a un effet négatif sur le bien-être des étudiants est-asiatiques. Cependant, des sentiments positifs envers l'identité ethnique d'une personne peuvent la protéger contre les problèmes de santé mentale liés aux expériences de discrimination raciale.

The coronavirus 2019 (COVID-19) pandemic has resulted in significant declines in physical and mental health among people worldwide.<sup>1–10</sup> The World Health Organization reported a 25% global increase in the prevalence of anxiety and depression in the first year of COVID-19.<sup>10</sup> Students and people from disadvantaged backgrounds have been negatively affected since the beginning of COVID-19 in several ways, including job loss, remote learning, and experiencing discrimination.<sup>11</sup> Racialized groups, particularly those from Asian backgrounds, reported experiencing higher rates of racial discrimination.<sup>12–18</sup> In Canada, individuals from East and Southeast Asian backgrounds reported experiencing a 19–30% increase in racial discrimination during COVID-19.<sup>19</sup> Given the well-established impact of racial discrimination on mental health, racial discrimination related to COVID-19 poses a risk to the mental health of individuals from Asian backgrounds.<sup>14,20–23</sup> In the present study, we investigated associations between racial discrimination and mental health among East Asian university students in Canada in the context of COVID-19. We also examined the extent to which students' coping strategies and their ethnic identity (EI) played a role in moderating the relationship between racial discrimination and mental health outcomes.

University students from Asian backgrounds, who are often immigrants or international students, manage a multitude of stressors, including acculturative stress and discrimination, as well as multiple cultural identities exploration.<sup>24–28</sup> While acculturating to Canadian society, many young adults are in the process of exploring mainstream and heritage cultural identities, which can go through the stages of exploration, resolution, and affirmation.<sup>29,30</sup> Exploration encompasses the aspect of seeking out information about one's ethnic/racial group; the resolution is the extent to which one has decided what their group membership means to them, and affirmation is the development of positive feelings about one's group.<sup>30</sup> Exploration and resolution provide an important foundation for developing affirmation and a sense of belonging to one's cultural group or identity.<sup>31</sup> As identity processes continue to develop into young adulthood, these stages may play a role in Asian students' well-being, which can either buffer against, or exacerbate, adjustment and well-being difficulties.<sup>32</sup> For example, affirmation may protect individuals due to the focus on positive aspects of their group membership.<sup>27,33</sup> Conversely, individuals who are still in the stage of identity

exploration may be vulnerable to the effects of xenophobia towards their ethnic group and impacts progress to the following two stages.<sup>34</sup> In the context of COVID-19-related racial discrimination, the ethnic identity stage may play a key role in Asian students' well-being.

During the pandemic, people coped with COVID-19-related stressors (e.g., school closures, working from home, and being fearful of or experiencing COVID-19-related discrimination) using multiple strategies.<sup>1,6,35–37</sup> Coping strategies are cognitive or behavioural efforts used to combat stressors experienced in daily life which can be categorized as problem-focused (i.e., managing the cause of the stressor) or emotion-focused (i.e., managing the emotional response to the stressor).<sup>38,39</sup> These strategies can be further categorized as engagement strategies, which are actions taken to confront a stressor, or disengagement strategies, which are actions taken to avoid a stressor or the emotions related to it. Disengagement strategies have long been considered less effective for dealing with stressors.<sup>40,41</sup> However, more recent literature has provided evidence that some disengagement strategies, such as positive distraction, can be adaptive in managing stressors.<sup>42</sup> Additionally, cultural values can play an important role in how people approach and interpret stressors, thereby affecting what coping strategies will be useful.<sup>39,43</sup> On one hand, engagement strategies (e.g., social support) have been suggested to be effective because they can help manage the stressor directly and its related emotions, which can protect individuals from experiencing distress later on.<sup>37,44,45</sup> On the other hand, certain disengagement strategies (e.g., positive avoidance) may also be effective for other individuals depending on their accordance with collectivistic cultural values, such as behaviours to maintain group harmony.<sup>37,44,46</sup>

The purpose of this study was to examine the extent to which (1) in-person and online racial discrimination are associated with mental health symptoms (i.e., depression, anxiety) among East Asian university students in Canada; and (2) coping strategies (e.g., problem-focused or emotion-focused and engagement or disengagement) and ethnic identity moderate the association between racial discrimination and mental health. We hypothesized racial discrimination would negatively affect the mental health of university students from East Asian backgrounds (i.e., Chinese, Japanese, and Korean backgrounds). Further, we

hypothesized that students who used either engagement problem-focused or engagement emotion-focused coping strategies would report lower levels of depression and anxiety.

## METHODS

This was a cross-sectional survey created on Qualtrics and accessible to participants via a link and QR code. We recruited participants from Canadian urban-centred universities within densely populated metropolitan areas and pursued a large sample size to reduce sample bias. Participants were recruited from September 2021 until March 2022 from social media, student associations, classes, and student participant pools. The study was advertised to current university students across social media platforms (i.e., Instagram, Facebook, Twitter), including student associations of specific ethnic/cultural groups.

Data for this study were analysed from participants who self-identified as East Asian (i.e., Chinese, Korean, Japanese, Taiwanese descent). This study was approved by the University of Ottawa Research Ethics Board (#: H-06-21-7101). Participants were presented with a consent form prior to the first page of the survey. After survey completion, they were provided with class credit or the chance to win one of 20 \$50 Visa gift cards.

## Measures

### *Demographic Questionnaire*

Participants completed a standard demographics questionnaire,<sup>47-48</sup> which included questions about age, gender, ethnic background, and country of birth.

### *Predictors*

In-person discrimination was assessed with the *Everyday Discrimination Scale*,<sup>49</sup> which includes 9 items rated on a 4-point Likert-type scale (0 = never to 3 = often). Online racism was measured with the *Perceived Online Racism Scale – Very Brief* (PORS-VB).<sup>50</sup> Participants rated how often they had experienced online racism in the past six months for 6 items rated on a 5-point Likert-type scale (1 = never to 5 = always).

### *Outcomes*

Anxiety was assessed using the *Generalized Anxiety Disorder* scale (GAD-7).<sup>51</sup> The 7 items are scored on a 4-point Likert-type scale (0 = not at all to 3 = nearly every day). Depression was assessed using the *Centre for Epidemiological Studies Depression Scale* (CES-D).<sup>52</sup> This measure asked how participants felt in the past week with 10 items rated on a 4-point Likert-type scale (0 = rarely or none of the time/less than 1 day to 3 = most or all of the time/5-7 days).

### *Moderators*

Three stages of EI (exploration, resolution, affirmation) were assessed using the *Ethnic Identity Scale-Brief* (EIS-B).<sup>30</sup> This scale is composed of 9 items rated on a 4-point Likert-type scale (1 = does not describe me at all to 4 = describes me very well), with 3 items assessing each stage. The *Coping Strategies Inventory Short Form* (CSI-SF) (16 items) was used to examine 4 types of coping strategies: problem-focused engagement, problem-focused disengagement, emotion-focused engagement, and emotion-focused disengagement.<sup>39</sup> Each subscale is composed of 4 items, with each item rated on a 5-point Likert-type scale corresponding to the time spent using that strategy (1 = never to 5 = almost always).

### *Sample*

A G\*Power a priori power analysis was conducted for multiple regression analysis, revealing that for a small effect size of .02, 80% power, and an alpha level of .05, the minimum sample size would be 111 participants.<sup>53</sup>

### *Analytical Plan*

Data were analyzed using IBM SPSS v.28 statistical software. Invalid responses (e.g., failing to correctly answer the attention check question and an incompletion of the survey) were excluded. Univariate analyses were conducted to provide descriptive statistics. Proportions and chi-squared tests were used to describe the demographic characteristics of the sample (e.g., gender, immigrant status). Pearson's correlations were calculated for continuous variables to examine associations between coping, racial discrimination, and mental health scales.

Means and standard deviations (e.g., one-sample t-tests) were used for continuous variables (e.g., discrimination and mental health scales). Hierarchical multiple regressions were conducted to examine study objective 2, the extent to which ethnic identity and coping strategies moderated the association between racial discrimination and the two mental health outcomes. Categorical predictors were dummy coded (e.g., gender, born in Canada), and continuous predictors were mean-centered before conducting the multiple regressions. Step 1 included demographic characteristics, Step 2 included in-person and online racial discrimination, and Step 3 included coping strategies and EI.

## RESULTS

### Descriptive and Correlational Analyses

Descriptive characteristics for the study variables are presented in Table 1. T-tests were conducted to examine differences across gender (Table 2) and immigration status (Table 3) on the racial discrimination, moderator, and outcome measures. Foreign-born students reported lower levels of online racial discrimination ( $t(167) = -3.89, p < .001$ ), and female students reported using problem-focused engagement coping strategies more than males ( $t(167) = -3.70, p < .001$ ). No other significant differences were observed across variables by gender or immigrant status characteristics. Pearson correlations among the measures are presented in Table 4. Anxiety and depression were each found to be positively related to experiences of online discrimination (Anxiety  $r = 0.27, p < .001$ ; Depression  $r = 0.29, p < .001$ ) and emotion-focused disengagement (EFD) coping (Anxiety  $r = 0.44, p < .001$ ; Depression  $r = 0.47, p < .001$ ). The CES-D scale reliability was  $\alpha = 0.79$ , the GAD scale reliability was  $\alpha = 0.70$ , and the CSI-SF scale reliability was  $\alpha = 0.70$ .

### Hierarchical Regression

Three-step hierarchical regression models were conducted to examine if online or in-person discrimination predicted mental health symptoms and whether coping strategies and EI stages moderated the associations between discrimination and mental health (Table 4, 5).

Step 1 included demographic characteristics, step 2 included online and in-person racial discrimination, and

step 3 included the four coping strategies and three EI stages. Results are presented separately for anxiety and depression.

#### *Anxiety Model*

Results indicated no significant effects for gender and immigrant status. Experiencing higher levels of online discrimination predicted more anxiety symptoms in step 2 ( $B = .263, SE = .070, p < .001$ ). Using EFD coping strategies predicted more anxiety symptoms over and above demographic and discrimination measures ( $B = .705, SE = .129, p < .001$ ). In the third step, online discrimination was still a significant predictor of anxiety ( $B = .170, SE = .068, p < .05$ ). No other statistically significant effects were observed.

#### *Depression Model*

Similar to the anxiety model, the first step of the depression model was non-significant. In the second step, experiencing online discrimination predicted more depression symptoms ( $B = .296, SE = .073, p < .001$ ). Emotion-focused coping strategies predicted more depression symptoms after controlling for demographic and discrimination measures ( $B = .705, SE = .129, p < .001$ ). In step 3, results indicated that participants who were in the affirmation stage of their ethnic identity development experienced lower levels of depression over and above demographic and discrimination measures ( $B = -.533, SE = .245, p < .05$ ). Online discrimination remained significant in the third step ( $B = .165, SE = .067, p < .05$ ).

## DISCUSSION

Although a large number of post-secondary students from East Asian backgrounds study in Canada, the literature examining the experiences and mental health of this population has been lacking.<sup>54</sup> This study aimed to examine if racial discrimination experienced by students from East Asian backgrounds impacted their mental health outcomes during COVID-19 while considering the possible moderating variables of coping strategies and ethnic identity. Our findings are consistent with previous literature on the association between racial discrimination and mental health, including publications concerning the COVID-19 pandemic.<sup>12–17,55,56</sup> The results of our study indicated that Canadian-born East Asian university students were more



likely to experience online racial discrimination than foreign-born students during the COVID-19 pandemic and that these experiences predicted higher levels of depression and anxiety symptoms for all students. Our results add to the literature by considering variables that may moderate this association for university students from East Asian backgrounds in Canada.

However, more recent literature has provided evidence that some disengagement strategies, such as positive distraction, can be adaptive in managing stressors. Due to COVID-19 lockdowns, university students were less likely to have direct, in-person contact with others in the community, which can explain the lower levels of in-person racial discrimination found in our study.<sup>57</sup> In contrast, online interactions and time spent on social media increased during the pandemic, and instances of racial discrimination could easily be targeted directly at them or observed happening to people from the same cultural background.<sup>58</sup> The online discrimination questionnaire used in our study (PORS-VB) measures experiences directed at the individual in addition to incidents experienced by, or reported about, other people observed online, whereas the *Everyday Discrimination Scale* assesses discrimination targeted at the individual themselves.<sup>49,50</sup> Therefore, the broader criteria of PORS-VB may underlie the greater number of reported online experiences by participants.

In our study, Canadian-born participants experienced more online racial discrimination than foreign-born participants. Past literature examining racial discrimination has provided mixed results, with some studies finding American-born participants from Asian backgrounds experiencing more racial discrimination than foreign-born participants as well as studies finding the opposite.<sup>59-64</sup> It is important to note these previous studies examined general racial discrimination and did not specify across contexts (e.g., in person, in academic settings, on social media platforms). Our study contributes to the literature as we examined general discrimination using the *Everyday Discrimination Scale* as well as examining racial discrimination in online contexts with the PORS-VB measure.<sup>49,50</sup> One explanation for our significant finding of online racial discrimination impacting mental health outcomes could be the quarantining protocols and social distancing policies in place at the time of our survey. This may have resulted in Canadians spending an increased amount of time at home and online, leading to increased exposure

to and significance in online discrimination.<sup>58</sup> Further, the difference based on immigration status may be due to Canadian-born immigrants having increased opportunities for social contact with members of mainstream society across different contexts.<sup>58,61,65</sup> They may be more likely to come in contact with individuals who express negative attitudes towards their ethnic group, such as on North American social media platforms, which are more likely to be used by Canadian-born immigrants than foreign-born immigrants.<sup>61,65,66</sup> The COVID-19 pandemic presented a situation where many individuals spent increased amounts of time online, including school, work, and social media.<sup>58</sup> In-person interactions were often avoided during the pandemic, whereas news and messages online were not as easily avoidable, which can have a detrimental impact on one's mental health.

The exploration and resolution stages of EI were not significantly associated with anxiety or depression, nor did they moderate the association between racial discrimination and mental health outcomes. The affirmation stage of EI predicted less depression in this study. This finding is consistent with past literature suggesting affirmation has a protective effect against depression.<sup>27,30,67-69</sup> Affirmation, sometimes referred to as private regard, is the development of positive affect toward the group.<sup>29</sup> Social environments play an important role in EI development.<sup>70</sup> An individual's identity develops, in part, due to the dynamic interactions between the individual and social context. Experiences of discrimination can lead to questioning one's identity. However, if an individual's identity is well-developed with high affirmation, their mental health may not be as negatively impacted if they experience discrimination.<sup>70</sup> When an individual has clear positive feelings towards their ethnic group and group members, others' negative beliefs and actions towards the group are less likely to impact an individual's affective response. This was observed in our study, where positive feelings about East Asian individuals had a buffering response to the depression predicted by experiencing online discrimination.

Finally, we found that participants used each coping strategy to a similar degree. Consistent with past literature, both forms of disengagement coping were positively correlated with anxiety and depression.<sup>71,72</sup> Emotion-focused disengagement coping can include strategies such as not seeking social support and ignoring a stressor. While avoiding thoughts and environments surrounding

discrimination can be helpful, this avoidance may become more maladaptive if the stressors are difficult to avoid. For example, avoidance of online media platforms and news may be beneficial in the short term to avoid potential experiences of racial discrimination; however, disengagement is not sustainable in the long term and could potentially lead to maladaptive outcomes.

### Limitations

This study included several limitations. First, we recruited a convenience sample limiting the generalizability of our results beyond university students. Future research would benefit from a larger population-based sample size with diverse immigration characteristics across Canada. While this study might have possible non-response biases, we attempted to minimize this limitation using a variety of techniques. First, an incentive, entering to win a Visa gift card, was provided after survey completion.<sup>73</sup> Additionally, questions were randomized, and the scales used were well-validated and included reverse-scored items.<sup>74</sup> Further, attention check items were included throughout the survey to encourage motivated responses. Due to the sensitive content of the survey, participants were also provided with the option to skip questions.<sup>75</sup> Next, given that the *Everyday Discrimination Scale* measures general day-to-day discrimination and not racial discrimination specifically (e.g., “You are called names or insulted”), participants may also have considered other forms of discrimination (e.g., gender discrimination) in their responses.<sup>49</sup> Additionally, unlike the PORS-VB, this measure does not specify the context of the participants’ experiences, which may mean participants considered experiences of discrimination across all contexts, including online platforms.

### Conclusion

Our study adds to the Canadian literature on the experiences of East Asian Canadians’ experiences of racial discrimination and their impact on mental health during the COVID-19 pandemic. Our findings also supported the importance of personal and cultural processes in moderating the association between discrimination and mental health (i.e., coping strategies, mental health). Given the increased experiences of racial discrimination and ethnic-based harassment during the COVID-19 pandemic, it is important to comprehend how the association between experiencing racial discrimination and mental health outcomes is

influenced by immigration status, ethnic identity, and other personal characteristics. Future studies would benefit from reporting experiences of racial discrimination across specific contexts (e.g., social media platforms, academic settings) to further investigate how these experiences may impact mental health outcomes.

### Conflicts of Interest

There are no conflicts of interest for this project.

### Funding

Funding for this study is provided by the Seed Funding Opportunity (SFO) awarded to Irene Vitoroulis, Ph.D., by the faculty of Social Sciences at the University of Ottawa.

### REFERENCES

- Jenkins EK, McAuliffe C, Hirani S, Richardson C, Thomson KC, McGuinness L, et al. A portrait of the early and differential mental health impacts of the COVID-19 pandemic in Canada: Findings from the first wave of a nationally representative cross-sectional survey. *Preventive Medicine*. 2021 Apr;145:106333.
- Miconi D, Li ZY, Frounfelker RL, Santavicca T, Cénat JM, Venkatesh V, et al. Ethno-cultural disparities in mental health during the COVID-19 pandemic: a cross-sectional study on the impact of exposure to the virus and COVID-19-related discrimination and stigma on mental health across ethno-cultural groups in Quebec (Canada). *BJPsych open*. 2021 Jan;7(1):e14.
- Cost KT, Crosbie J, Anagnostou E, Birken CS, Charach A, Monga S, et al. Mostly worse, occasionally better: impact of COVID-19 pandemic on the mental health of Canadian children and adolescents. *Eur Child Adolesc Psychiatry [Internet]*. 2021 Feb 26 [cited 2021 May 19]; Available from: <http://link.springer.com/10.1007/s00787-021-01744-3>
- Ellis WE, Dumas TM, Forbes LM. Physically isolated but socially connected: Psychological adjustment and stress among adolescents during the initial COVID-19 crisis. *Canadian Journal of Behavioural Science / Revue canadienne des sciences du comportement*. 2020 Jul;52(3):177–87.
- Findlay L, Arim R. Canadians Report Lower Self-Perceived Mental Health during the COVID-19 Pandemic [Internet]. Statistics Canada; 2020 [cited 2021 Jul 29]. Available from: <https://www150.statcan.gc.ca/n1/pub/45-28-0001/2020001/article/00003-eng.htm>
- Gadermann AC, Thomson KC, Richardson CG, Gagné M, McAuliffe C, Hirani S, et al. Examining the impacts of the COVID-19 pandemic on family mental health in Canada: findings from a national cross-sectional study. *BMJ Open*. 2021 Jan;11(1):e042871.
- Burkova VN, Butovskaya ML, Randall AK, Fedenok JN, Ahmadi K, Alghraibeh AM, et al. Predictors of Anxiety in the COVID-19 Pandemic from a Global Perspective: Data from 23 Countries. *Sustainability*. 2021 Apr 4;13(7):4017.
- Wilczewski M, Gorbaniuk O, Giuri P. The Psychological and Academic Effects of Studying From the Home and Host Country During the COVID-19 Pandemic. *Front Psychol*. 2021 Apr 9;12:644096.
- Nwachukwu I, Nkire N, Shalaby R, Hrabok M, Vuong W, Gusnowski A, et al. COVID-19 Pandemic: Age-Related

- Differences in Measures of Stress, Anxiety and Depression in Canada. *IJERPH*. 2020 Sep 1;17(17):6366.
10. World Health Organization. COVID-19 pandemic triggers 25% increase in prevalence of anxiety and depression worldwide [Internet]. 2022 [cited 2022 Jul 26]. Available from: <https://www.who.int/news/item/02-03-2022-covid-19-pandemic-triggers-25-increase-in-prevalence-of-anxiety-and-depression-worldwide>
  11. United Nations. Everyone Included: Social Impact of COVID-19 [Internet]. n.d. [cited 2022 Jul 26]. Available from: <https://www.un.org/development/desa/dspd/everyone-included-covid-19.html>
  12. Dhanani LY, Franz B. Why public health framing matters: An experimental study of the effects of COVID-19 framing on prejudice and xenophobia in the United States. *Social Science & Medicine*. 2021 Jan;269:113572.
  13. Gover AR, Harper SB, Langton L. Anti-Asian Hate Crime During the COVID-19 Pandemic: Exploring the Reproduction of Inequality. *Am J Crim Just*. 2020 Aug;45(4):647–67.
  14. Wu C, Qian Y, Wilkes R. Anti-Asian discrimination and the Asian-white mental health gap during COVID-19. *Ethnic and Racial Studies*. 2021 Apr 9;44(5):819–35.
  15. Haft SL, Zhou Q. An outbreak of xenophobia: Perceived discrimination and anxiety in Chinese American college students before and during the COVID-19 pandemic. *Int J Psychol*. 2021 Jan 10;ijop.12740.
  16. Tessler H, Choi M, Kao G. The Anxiety of Being Asian American: Hate Crimes and Negative Biases During the COVID-19 Pandemic. *Am J Crim Just*. 2020 Aug;45(4):636–46.
  17. Lee S, Waters SF. Asians and Asian Americans' experiences of racial discrimination during the COVID-19 pandemic: Impacts on health outcomes and the buffering role of social support. *Stigma and Health*. 2021 Feb;6(1):70–8.
  18. Statistics Canada. Experiences of discrimination during the COVID-19 pandemic [Internet]. 2020. Available from: <https://www150.statcan.gc.ca/n1/daily-quotidien/200917/dq200917a-eng.htm>
  19. Statistics Canada. Perceptions of personal safety among population groups designated as visible minorities in Canada during the COVID-19 pandemic [Internet]. 2020. Available from: <https://www150.statcan.gc.ca/n1/pub/45-28-0001/2020001/article/00046-eng.htm>
  20. Schmitt MT, Branscombe NR, Postmes T, Garcia A. The consequences of perceived discrimination for psychological well-being: A meta-analytic review. *Psychological Bulletin*. 2014;140(4):921–48.
  21. Priest N, Paradies Y, Trenerry B, Truong M, Karlsen S, Kelly Y. A systematic review of studies examining the relationship between reported racism and health and wellbeing for children and young people. *Social Science & Medicine*. 2013 Oct;95:115–27.
  22. Williams DR, Lawrence JA, Davis BA, Vu C. Understanding how discrimination can affect health. *Health Serv Res*. 2019 Dec;54(S2):1374–88.
  23. Pascoe EA, Richman LS. Perceived discrimination and health: A meta-analytic review. *Psychological Bulletin*. 2009;135(4):531–54.
  24. Huynh VW, Fuligni AJ. Discrimination Hurts: The Academic, Psychological, and Physical Well-Being of Adolescents: DISCRIMINATION HURTS. *Journal of Research on Adolescence*. 2010 Dec;20(4):916–41.
  25. Hwang WC, Ting JY. Disaggregating the effects of acculturation and acculturative stress on the mental health of Asian Americans. *Cultural Diversity and Ethnic Minority Psychology*. 2008;14(2):147–54.
  26. Sam DL, Berry JW, editors. *The Cambridge handbook of acculturation psychology*. Cambridge ; New York: Cambridge University Press; 2006. 551 p.
  27. Rivas-Drake D, Seaton EK, Markstrom C, Quintana S, Syed M, Lee RM, et al. Ethnic and Racial Identity in Adolescence: Implications for Psychosocial, Academic, and Health Outcomes. *Child Dev*. 2014 Jan;85(1):40–57.
  28. Kim E. An alternative theoretical model: examining psychosocial identity development of international students in the United States. *College Student Journal*. 2012;46(1):99–113.
  29. Umaña-Taylor AJ, Yazedjian A, Bámaca-Gómez M. Developing the Ethnic Identity Scale Using Eriksonian and Social Identity Perspectives. *Identity*. 2004 Jan;4(1):9–38.
  30. Douglass S, Umaña-Taylor AJ. A brief form of the Ethnic Identity Scale: Development and empirical validation. *Identity*. 2015;15(1):48–65.
  31. Ghavami N, Fingerhut A, Peplau LA, Grant SK, Wittig MA. Testing a model of minority identity achievement, identity affirmation, and psychological well-being among ethnic minority and sexual minority individuals. *Cultural Diversity and Ethnic Minority Psychology*. 2011 Jan;17(1):79–88.
  32. Woo B, Fan W, Tran TV, Takeuchi DT. The role of racial/ethnic identity in the association between racial discrimination and psychiatric disorders: A buffer or exacerbator? *SSM - Population Health*. 2019 Apr;7:100378.
  33. Tajfel H, Forgas JP. Social categorization: Cognitions, values and groups. *Psychological Press*. 2000;49–63.
  34. Phinney JS, Alipuria LL. Ethnic identity in college students from four ethnic groups. *Journal of Adolescence*. 1990 Jun;13(2):171–83.
  35. Miconi D, Li ZY, Frounfelker RL, Venkatesh V, Rousseau C. Socio-cultural correlates of self-reported experiences of discrimination related to COVID-19 in a culturally diverse sample of Canadian adults. *International Journal of Intercultural Relations*. 2021 Mar;81:176–92.
  36. Shigeto A, Laxman DJ, Landy JF, Scheier LM. Typologies of coping in young adults in the context of the COVID-19 pandemic. *The Journal of General Psychology*. 2021 Jul 3;148(3):272–304.
  37. Noh S, Beiser M, Kaspar V, Hou F, Rummens J. Perceived Racial Discrimination, Depression, and Coping: A Study of Southeast Asian Refugees in Canada. *Journal of Health and Social Behavior*. 1999 Sep;40(3):193.
  38. Kuo BCH. Coping, acculturation, and psychological adaptation among migrants: a theoretical and empirical review and synthesis of the literature. *Health Psychology and Behavioral Medicine*. 2014 Jan;2(1):16–33.
  39. Addison C, Campbell-Jenkins B, Sarpong D, Kibler J, Singh M, Dubbert P, et al. Psychometric Evaluation of a Coping Strategies Inventory Short-Form (CSI-SF) in the Jackson Heart Study Cohort. *IJERPH*. 2007 Dec 31;4(4):289–95.
  40. Ma TL, Chan HY. Patterns of Adolescents' Coping with Bullying and Peer Victimization: the Link to Psychosocial Maladjustment and the Role of School Bonding. *Int Journal of Bullying Prevention*. 2021 Jun;3(2):114–29.
  41. Auerbach RP, Abela JRZ, Zhu Xiongzhao, Yao Shuqiao. Understanding the role of coping in the development of depressive symptoms: Symptom specificity, gender differences, and cross-cultural applicability. *British Journal of Clinical Psychology*. 2010 Nov;49(4):547–61.
  42. Waugh CE, Shing EZ, Furr RM. Not all disengagement coping strategies are created equal: positive distraction, but not avoidance, can be an adaptive coping strategy for chronic life stressors. *Anxiety, Stress, & Coping*. 2020 Sep 2;33(5):511–29.
  43. Frías MT, Shaver PR, Díaz-Loving R. Individualism and collectivism as moderators of the association between attachment insecurities, coping, and social support. *Journal of Social and Personal Relationships*. 2014 Feb;31(1):3–31.
  44. Kawakami BK, Legaspi SG, Katz DA, Saturn SR. Exploring the Complexity of Coping Strategies Among People of Different Racial Identities. *PsiChiJournal*. 2020;25(4):327–38.
  45. Ra YA, Trusty J. Coping Strategies for Managing Acculturative Stress Among Asian International Students. *Int J Adv Counselling*. 2015 Dec;37(4):319–29.
  46. Wei M, Heppner PP, Ku TY, Liao KYH. Racial discrimination stress, coping, and depressive symptoms among Asian Americans: A moderation analysis. *Asian American Journal of Psychology*. 2010;1(2):136–50.
  47. Statistics Canada. National Longitudinal Survey of Children & Youth. 1999 [cited 2021 Aug 5]; Available from: <https://www150.statcan.gc.ca/n1/en/pub/89f0078x/4198664-eng.pdf?st=KASwTxxpg>
  48. Vaillancourt T, Brittain H, Krygsman A, Farrell AH, Landon S,



- Pepler D. School bullying before and during COVID-19: Results from a population-based randomized design. *Aggressive Behavior*. 2021 Sep;47(5):557–69.
49. Williams DR, Yan Yu, Jackson JS, Anderson NB. Racial Differences in Physical and Mental Health: Socio-economic Status, Stress and Discrimination. *J Health Psychol*. 1997 Jul;2(3):335–51.
  50. Keum BT. Development and validation of the Perceived Online Racism Scale short form (15 items) and very brief (six items). *Computers in Human Behavior Reports*. 2021 Jan;3:100082.
  51. Beard C, Björgvinsson T. Beyond generalized anxiety disorder: Psychometric properties of the GAD-7 in a heterogeneous psychiatric sample. *Journal of Anxiety Disorders*. 2014 Aug;28(6):547–52.
  52. Andresen EM, Malmgren JA, Carter WB, Patrick DL. Screening for Depression in Well Older Adults: Evaluation of a Short Form of the CES-D. *American Journal of Preventive Medicine*. 1994 Mar;10(2):77–84.
  53. Faul F, Erdfelder E, Lang AG, Buchner A. G\*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*. 2007 May;39(2):175–91.
  54. Statistics Canada. Immigrant population by selected places of birth, admission category and period of immigration, Canada, provinces and territories, census metropolitan areas and areas outside of census metropolitan areas, 2016 Census [Internet]. 2017 [cited 2021 Oct 14]. Available from: <https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/dv-vd/imm/index-eng.cfm>
  55. Lu Y, Wang C. Asian Americans' racial discrimination experiences during COVID-19: Social support and locus of control as moderators. *Asian American Journal of Psychology* [Internet]. 2021 Oct 14 [cited 2021 Oct 22]; Available from: <http://doi.apa.org/getdoi.cfm?doi=10.1037/aap0000247>
  56. Woo B, Jun J. COVID-19 Racial Discrimination and Depressive Symptoms among Asians Americans: Does Communication about the Incident Matter? *J Immigrant Minority Health*. 2022 Feb;24(1):78–85.
  57. Hamza CA, Ewing L, Heath NL, Goldstein AL. When social isolation is nothing new: A longitudinal study psychological distress during COVID-19 among university students with and without preexisting mental health concerns. *Canadian Psychology / Psychologie canadienne*. 2021 Feb;62(1):31–31.
  58. Bilodeau H, Kehler A, Minnema N. Internet use and COVID-19: How the pandemic increased the amount of time Canadians spend online. 2021 Jun 24;6.
  59. Kuo WH. Coping with racial discrimination: The case of Asian Americans. *Ethnic and Racial Studies*. 1995 Jan;18(1):109–27.
  60. Yip T, Gee GC, Takeuchi DT. Racial discrimination and psychological distress: The impact of ethnic identity and age among immigrant and United States-born Asian adults. *Developmental Psychology*. 2008 May;44(3):787–800.
  61. Abouguendia M, Noels KA. General and acculturation-related daily hassles and psychological adjustment in first- and second-generation South Asian immigrants to Canada. *International Journal of Psychology*. 2001 Jun;36(3):163–73.
  62. Cheng HL, Lin SP, Cha CH. Perceived discrimination, intergenerational family conflicts, and depressive symptoms in foreign-born and U.S.-born Asian American emerging adults. *Asian American Journal of Psychology*. 2015;6(2):107–16.
  63. Ying YW, Lee PA, Tsai JL. Cultural orientation and racial discrimination: Predictors of coherence in Chinese American young adults. *J Community Psychol*. 2000 Jul;28(4):427–41.
  64. Sadowsky GR, Lai EWM, Plake BS. Moderating Effects of Sociocultural Variables on Acculturation Attitudes of Hispanics and Asian Americans. *Journal of Counseling & Development*. 1991 Sep 10;70(1):194–204.
  65. Choi L. The Popular Asian Social Media Networks [Internet]. *Social Media Perth*. 2020 [cited 2022 Apr 29]. Available from: <https://www.smp Perth.com/resources/popular-asian-social-media-networks/>
  66. Lay C, Nguyen T. The role of acculturation-related and acculturation non-specific daily hassles: Vietnamese-Canadian students and psychological distress. *Canadian Journal of Behavioral Science*. 1998 Jul;30(3):172–81.
  67. Smith TB, Silva L. Ethnic identity and personal well-being of people of color: A meta-analysis. *Journal of Counseling Psychology*. 2011;58(1):42–60.
  68. Yip T. Ethnic/Racial Identity—A Double-Edged Sword? Associations With Discrimination and Psychological Outcomes. *Curr Dir Psychol Sci*. 2018 Jun;27(3):170–5.
  69. Romero AJ, Edwards LM, Fryberg SA, Orduña M. Resilience to discrimination stress across ethnic identity stages of development: Resilience. *J Appl Soc Psychol*. 2014 Jan;44(1):1–11.
  70. Umaña-Taylor AJ, Quintana SM, Lee RM, Cross WE, Rivas-Drake D, Schwartz SJ, et al. Ethnic and Racial Identity During Adolescence and Into Young Adulthood: An Integrated Conceptualization. *Child Dev*. 2014 Jan;85(1):21–39.
  71. Dewa LH, Crandell C, Choong E, Jaques J, Bottle A, Kilkenny C, et al. CCopeY: A Mixed-Methods Coproduced Study on the Mental Health Status and Coping Strategies of Young People During COVID-19 UK Lockdown. *Journal of Adolescent Health*. 2021 Apr;68(4):666–75.
  72. Yan X, Zhu Y, Hussain SA, Bresnahan M. Anti-Asian microaggressions in the time of COVID-19: Impact on coping, stress, and well-being. *Asian American Journal of Psychology* [Internet]. 2022 Apr 7 [cited 2022 Apr 22]; Available from: <http://doi.apa.org/getdoi.cfm?doi=10.1037/aap0000281>
  73. Groves RM, Peytcheva E. The Impact of Nonresponse Rates on Nonresponse Bias: A Meta-Analysis. *Public Opinion Quarterly*. 2008 May 2;72(2):167–89.
  74. Schouten B, Cobben F, Lundquist P, Wagner J. Does more balanced survey response imply less non-response bias? *Journal of the Royal Statistical Society Series A (Statistics in Society)*. 2016;179(3):727–48.
  75. Shamon H, Berning CC. Attention Check Items and Instructions in Online Surveys: Boon or Bane for Data Quality? *Survey Research Methods*. 2020 Apr 10;55–77.



# RESEARCH

**Table 1. Demographic Characteristics of Participants (n=169)**

Variable		n	%	M	SD	Range	$\alpha$
Gender	Female	119	70.4				
	Male	50	29.6				
Age				19.63	1.41	17-24	
Born in Canada	Yes	52	30.8				
	No	117	69.2				
In-person Discrimination		169	100.0	15.9	7.0	8-36	
Online Discrimination		156 <sup>a</sup>	92.3	15.8	6.2	6-30	
EI Exploration				7.5	2.7	2-12	0.80
EI Resolution				9.9	2.3	3-12	0.89
EI Affirmation				11.0	1.7	4-20	0.77
EFE				12.4	3.4	4-20	0.71
EFD				13.7	3.1	4-20	0.70
PFE				12.9	3.4	4-20	0.80
PFD				13.1	3.8	7-20	0.70

*Note.* <sup>a</sup>Participants who experienced online discrimination; n=3 skipped the POR-VS measure, n = 11 recorded a score of 6 indicating never experienced online discrimination. EFE = Emotion-focused Engagement, PFE = Problem-focused Engagement, PFD = Problem-focused Disengagement, EFD = Emotion-focused Disengagement

**Table 2. t-tests Examining Gender Differences across Dependent Variables**

Variable	Female		Male		t(169)	p	Cohen's d
	M	SD	M	SD			
In-person Discrimination	16.09	7.13	15.40	6.64	0.59	0.56	6.99
Online Discrimination	15.73	6.16	16.04	6.43	t(167) =-0.29	0.77	6.24
Anxiety	9.91	5.80	8.40	4.73	1.63	0.11	5.51
Depression	12.31	5.68	11.44	5.96	0.89	0.37	5.76
EI Exploration	7.56	2.74	7.44	2.63	-0.27	0.79	2.71
EI Resolution	9.90	2.28	9.74	2.21	-0.44	0.66	2.26
EI Affirmation	10.95	1.67	11.00	1.67	0.18	0.86	1.66
EFE Coping	12.42	3.73	12.32	2.63	-0.17	0.86	3.44
PFE Coping	13.52	3.31	11.42	3.50	-3.70	<.001	3.37
PFD Coping	13.36	2.82	12.74	2.60	-1.34	0.18	2.75
EFD Coping	13.67	2.96	13.62	3.46	-0.10	0.92	3.12

*Note.* EI = Ethnic Identity, EFE = Emotion-focused Engagement, PFE = Problem-focused Engagement, PFD = Problem-focused Disengagement, EFD = Emotion-focused Disengagement

**Table 3. t-tests Examining Immigration Status Differences across Dependent Variables**

Variable	Foreign-born		Canadian-born		t(169)	p	Cohen's d
	M	SD	M	SD			
In-person Discrimination	16.01	7.37	15.60	6.03	0.36	0.72	6.99
Online Discrimination	14.62	6.01	18.48	5.89	t(167) = -3.89	<.001	5.98
Anxiety	9.40	5.42	9.60	5.83	-0.21	0.83	5.54
EI Exploration	7.68	2.67	7.17	2.76	1.14	0.26	2.70
EI Resolution	9.91	2.32	9.73	2.11	0.49	0.63	2.26
EI Affirmation	11.05	1.62	10.77	1.72	1.03	0.31	1.65
EFE Coping	12.24	3.64	12.73	2.92	-0.86	0.39	3.44
PFE Coping	12.88	3.67	12.94	3.08	-0.11	0.92	3.50
PFD Coping	13.17	2.88	13.17	2.50	-1.34	0.99	2.77
EFD Coping	13.44	3.27	14.13	2.66	0.01	0.18	3.10

Note. EI = Ethnic Identity, EFE = Emotion-focused Engagement, PFE = Problem-focused Engagement, PFD = Problem-focused Disengagement, EFD = Emotion-focused Disengagement

**Table 4. Correlations Examining Associations Across Study Variables**

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11
1. Anxiety	9.46	5.53	--										
2. Depression	12.05	5.76	.66***	--									
3. In-person D	15.89	6.79	.00	.04	--								
4. Online D	15.83	6.22	.27***	.29***	.11	--							
5. EI Exploration	7.53	2.70	-.13	-.19	.08	-.02	--						
6. EI Resolution	9.86	2.26	-.12	-.11	-.04	.06	.42***	--					
7. EI Affirmation	10.96	1.65	-.12	-.22	-.14	-.22	.08	.27***	--				
8. EFE Coping	12.39	3.43	.17*	.18	-.03	.17	.01	-.03	-.14	--			
9. PFE Coping	13.66	3.11	-.05	-.13	-.06	-.02	.14	.14	.05	.33***	--		
10. PFD Coping	12.90	3.49	-.20**	-.26***	-.16-	-.18	.19*	.34***	.24**	-.07	.29***	--	
11. EFD Coping	13.18	2.76	.44***	.47***	-.10	.18	-.11	-.05	.05	.19*	-.10	-.03	--

Note. \*\*\* p < .001, \*\* p < .01, \* p < .05 EI = Ethnic Identity, EFE = Emotion-focused Engagement, PFE = Problem-focused Engagement, PFD = Problem-focused Disengagement, EFD = Emotion-focused Disengagement

# RESEARCH

**Table 5. Hierarchical Regression Analysis for Anxiety**

N	B	SE	95% CI		p
			LL	UL	
Step 1					
Age	-.279	.337	-.944	.386	.409
Gender	1.348	.949	-.525	3.221	.157
Immigration Status	-.042	1.000	-2.016	1.933	.967
R <sup>2</sup> change	.020				
Step 2					
In-person Discrimination	-.028	.060	-.146	.090	.683
Online Discrimination	.263***	.070	.125	.400	<.001
R <sup>2</sup> change	.099				
Step 3					
EI Exploration	-.075	.155	-.382	.232	.628
EI Resolution	-.145	.200	-.539	.249	.469
EI Affirmation	-.181	.248	-.671	.309	.467
EFE Coping	.060	.123	-.184	.303	.630
PFE Coping	-.002	.127	-.253	.250	.990
PFD Coping	-.234	.157	-.545	.076	.138
EFD Coping	.705***	.129	.451	.959	<.001
R <sup>2</sup> change	.296				

*Note.* \*\*\*  $p < .001$ . EI = Ethnic Identity, EFE = Emotion-focused Engagement, PFE = Problem-focused Engagement, PFD = Problem-focused Disengagement, EFD = Emotion-focused Disengagement

Table 6. Hierarchical Regression Analysis for Depression

N	B	SE	95% CI		p
			LL	UL	
Step 1					
Age	-.218	.353	-.916	.479	.537
Gender	.760	.994	-1.203	2.723	.446
Immigration Status	-.389	1.048	-2.458	1.680	.711
R <sup>2</sup> change	.007				
Step 2					
In-person Discrimination	-.002	.062	-.125	.121	.973
Online Discrimination	.296***	.073	.153	.440	<.001
R <sup>2</sup> change	.102				
Step 3					
EI Exploration	-.256	.154	-.560	.048	.098
EI Resolution	.074	.197	-.316	.463	.710
EI Affirmation	-.533*	.245	-1.018	-.049	.031
EFE Coping	.125	.122	-.115	.366	.306
PFE Coping	-.136	.126	-.384	.113	.283
PFD Coping	-.268	.155	-.575	.039	.087
EFD Coping	.763***	.127	.512	1.014	<.001
R <sup>2</sup> change	.365				

Note. \*  $p < .05$ , \*\*\*  $p < .001$ . EI = Ethnic Identity, EFE = Emotion-focused Engagement, PFE = Problem-focused Engagement, PFD = Problem-focused Disengagement, EFD = Emotion-focused Disengagement