

Somatic Symptoms, Perceived Discrimination, and Depressive Symptoms Across Social Class Among Asian American College Students: A Moderated Mediation Model

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Somatic symptoms—the expression of physical distress with accompanying life dysfunctions—are one of the common ways to communicate mental distress among Asian Americans (Grover & Ghosh, 2014). The present study aimed to explore how somatic symptoms are associated with the constructs relevant to the experiences of Asian Americans as a minoritized group in the United States, namely, perceived discrimination, depressive symptoms, and social class. The biopsychosocial model of racism (Clark et al., 1999) served as the framework to hypothesize that depressive symptoms would serve as a mediator on the relationship between perceived discrimination and somatic symptoms. Also, based on both the biopsychosocial model and the ideas on intersectionality, social class as a moderator on the relationship between perceived discrimination and depressive symptoms was posited. Thus, a moderated mediation model was tested with data from 214 Asian American college students using SPSS PROCESS Macro (Hayes, 2013). The results showed that when discrimination was perceived, the participants in the lower social class were more likely to experience depressive symptoms than those in the upper social class and that depressive symptoms served as a significant mediator on the relationship between perceived discrimination and somatic symptoms. These findings highlight Asian American college students' experiences with discrimination and the process by which they manifest the internal distress and how distress expression varies according to social class.

What is the public significance of this article?

Our results showed that when Asian Americans perceive discrimination, those who are in the lower social class were more likely to develop depressive symptoms and express these symptoms in somatic ways as compared to Asian Americans who are in the upper social class. These findings offer important information for theorists, researchers, and practitioners and have the potential to improve clinical service for Asian Americans who enter treatment with somatic symptoms.

Keywords: somatic symptoms, perceived discrimination, depressive symptoms, social class, Asian American college students

Somatic symptoms refer to the expression of physical distress such as fatigue, headaches, body pain, and digestive problems, accompanied by excessive thoughts, emotion, and/or behavior that are related to the underlying ailment and that can lead to significant dysfunction (Kurlansik & Maffei, 2016). Somatic symptoms are an important factor to consider when investigating Asian Americans' mental health issues because one of the common ways that Asian Americans communicate their mental distress is through somatic complaints (Grover & Ghosh,

2014). Ryder and Chentsova-Dutton (2012) and Hsu and Folstein (1997) showed that Asian Americans in clinical settings have a high tendency to express somatic distress compared to emotional distress. For Asian Americans, the expression of psychological problems to others through somatic symptoms is culturally acceptable because there is a strong stigma attached to directly speaking about one's mental health problems (Grover & Ghosh, 2014). B.-O. Lee (2013) noted that the cultural norm of keeping harmony within the family and beyond is of high priority among Asian Americans and thus these individuals refrain from directly expressing one's psychological struggles. As a result, this expectation encourages Asian Americans to express their mental health difficulties through other means such as via somatic complaints. Also, it is important to note that the tendency to somaticize will be greater for Asian Americans who are closer in alignment with traditional Asian cultural norms (e.g., first-generation Asian Americans) than those who are further removed from the traditional norms (e.g., fifth-generation Asian Americans; P. Y. Kim & Park, 2009; B.-O. Lee, 2013).

The tendency to express psychological distress via somatic symptoms among Asians and Asian Americans, as well as other

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non-European racial groups, is well documented in the “cultural concepts of distress” section within the *Diagnostic and Statistical Manual of Mental Disorders, fifth edition, text revision* (DSM-V-TR; American Psychiatric Association, 2022). The cultural concepts of distress refer to the descriptions of the unique ways in which cultural groups experience, understand, and communicate psychological suffering and their behavioral, cognitive, and emotional outcomes. Many of the cultural concepts of distress presented in the DSM-V-TR are unique to Asians, and they focus on somatic symptoms. For example, the somatic symptoms of “shenjing shuairuo,” a form of anxiety and mood disorder that is seen in China and may be experienced by Chinese American immigrants, include a general sense of physical weakness that is attributed to mental fatigue, headaches as an expression of nervous pain, and sleep disturbance such as insomnia (American Psychiatric Association, 2022).

There has been some research among the general population on the role of somatic symptoms on how mental health problems are manifested and progressed, although this line of research is limited for Asian Americans. Bohman et al. (2018) reported that Swedish adolescents’ experiences with somatic symptoms during adolescence are associated with increased risk of severe mental illness later in the adulthood. Similarly, Creed et al. (2011) documented how clients with somatic symptoms suffer from long-term impaired functioning and increased health care costs because there is a lack of clear and timely recognition of their mental health problems that are being expressed somatically. A recent systematic review of the literature found that immigrants with somatization disorders tend to experience a higher psychological distress, a greater need for health services, and an increased postmigration living difficulties as compared to immigrants without somatization disorders (Lanzara et al., 2019). In a rare study focusing solely on Asian Americans, individuals with a greater severity of somatic symptoms were less likely to fully recover from major depressive disorder compared to those with fewer somatic symptoms (Novick et al., 2013). Overall, although there is literature showing Asian Americans’ tendency to express psychological distress through somatic symptoms, more research is needed on the relationship between somatic symptoms and other mental health-related variables.

The goal of the present study was to investigate the relationships among somatic symptoms, perceived discrimination, depressive symptoms, and social class among Asian American college students. The main theoretical grounding of the present study is based on Clark et al.’s (1999) biopsychosocial model of racism. Originally developed for African Americans and generalized to other racial minority populations such as Asian Americans (e.g., Perera & Chang, 2018), the biopsychosocial model provides a contextual explanation on the possible relationships among environmental stimulus; constitutional factors, sociodemographic factors, and psychological and behavioral factors; perception of racism (or a different stressor); coping responses; psychological and physiological stress responses; and health outcomes. Within this model, perception of racism is framed as an independent variable and health outcome as the dependent variable with psychological stress response as a mediator. For the present study, we examined the relationship between perception of discrimination (an independent variable) and somatic symptoms (a health outcome-dependent variable) and whether depressive symptoms (a psychological stress response variable in the context of the present study) might serve as a mediator on this relationship.

In addition, we included social class (a sociodemographic factor) as a potential moderator on the relationship between perceived discrimination and depressive symptoms. The subsequent sections will delve into specific details about each component.

Perceived Discrimination and Somatic Symptoms

In addition to the cultural norms of channeling mental pain through somatic symptoms, somatic symptoms may be a natural response to a myriad of negative experiences that Asian Americans face as a minoritized and marginalized group in the United States. Asian Americans have a long history of being targeted with racist and discriminatory acts, and this has escalated during the COVID-19 pandemic. Fueled by the racist and discriminatory rhetoric from institutional leaders such as the president of the United States, who have scapegoated Asian Americans as the cause of the COVID-19 pandemic (e.g., former President Donald Trump referred to the novel coronavirus as the “Chinese virus” and the COVID-19 as “kung flu”; Hswen et al., 2021) in which Asian Americans have been the victims of psychological and physical violence. For example, the Federal Bureau of Investigation reported that there was a 77% increase in hate crimes against Asian Americans between 2019 and 2020 during the height of the pandemic (U.S. Department of Justice, 2023). Unfortunately, the violence against Asian Americans has continued as evidenced by more than 11,500 hate incidents that were reported between March 19, 2020, and March 31, 2022 (Stop AAPI Hate, 2022). Thus, a concerning level of Asian-targeted racism is harming the Asian American community, and a closer investigation is warranted to articulate the mechanism between racism and important health indicators that can lead to effective interventions.

Several studies have demonstrated that discrimination and racism are related to somatic symptoms. For instance, Brondolo et al. (2011) reviewed empirical literature to show a significant link between experiences with interpersonal and institutional racism and hypertension in which the association was found especially strong when it involves institutional racism such as racist acts and policies from the government, businesses, and schools. The finding was replicated with studies that included samples from various racial groups, including the Asian American group. Torres-Harding et al. (2020) found significant associations between somatic symptoms and the following types of microaggressions among college students of color: cast as a foreigner, being low-achieving, having hypersexualization, having high criminality, being invisibility, and being in an environment in which the respondent is the only person of its racial group. Also, Huynh (2012) showed that ethnic microaggressions are related to somatic symptoms such as headaches, fatigue, stomach aches, and pain among a sample of Latinx and Asian American adolescents. Similarly, Ong et al. (2013) found that daily microaggressions were associated with increased somatic symptoms. Furthermore, Pascoe and Smart Richman (2009) conducted a meta-analysis based on a total of 134 samples and found that perceived discrimination was associated with physical health risks such as hypertension, cardiovascular disease, pelvic inflammatory disease, diabetes, and respiratory conditions. In addition to these increased physiological stress responses, more negative psychological stress responses, increased involvement in unhealthy behaviors, and decreased engagement in healthy behaviors were also observed among people experiencing high level of perceived discrimination.

All of these findings suggest a strong relationship between experiences with racist incidents and the occurrence of somatic symptoms. But given the scant research specifically on Asian Americans and their high level of vulnerability to discrimination and racism as documented by the Stop Asian American and Pacific Islander Hate (Stop AAPI Hate, 2022) and the Federal Bureau of Investigation (U.S. Department of Justice, 2023), more research is needed to better understand the role of perceived discrimination on somatic symptoms. Additionally, given that Asian Americans have a tendency to express their psychological distress in terms of somatic symptoms (Grover & Ghosh, 2014; Lin & Cheung, 1999), an investigation on the potential role of mental distress on the relationship between perceived discrimination and somatic symptoms is warranted.

Depressive Symptoms as a Mediator of Perceived Discrimination and Somatic Symptoms

To gain a greater understanding of the relationship between perceived discrimination and somatic symptoms, it is critical to explore the possible mediating variables that can explain the mechanism of the relationship between perceived discrimination and somatic symptoms. The identification of this mechanism can offer important clinical implications in terms of ways to more effectively intervene with individuals who are experiencing somatic symptoms that are related to perceived discrimination. One possible candidate for this mediator is depressive symptoms.

As briefly described above, the biopsychosocial model of racism (Clark et al., 1999) suggests that discrimination can substantially damage mental and physical health. According to this model, individuals who are attacked for something outside of their control, such as phenotypic markers of race and ethnicity, experience a prolonged sense of helplessness that can elicit depressive symptoms (Clark et al., 1999). Also, racial discrimination is distinct from other general life stressors because it directly targets one's self-identity (Asamen & Berry, 1987). Depressive symptoms comprise the feeling of sadness and hopelessness caused by the perception that being respected as a person, a significant life goal for all human beings, is difficult, if not impossible, because of one's race and ethnicity (Lovibond & Lovibond, 1995). Thus, perceived discrimination can engender chronic sense of helplessness, which ultimately induces dejected emotions such as depressive symptoms. The prolonged emotional disturbance spurred by the perception of discrimination then can develop into mental and physical illness.

Given the relatively weak relationship between perceived discrimination and physical health, in comparison to the relationship between perceived discrimination and mental health (Pascoe & Smart Richman, 2009), Torres-Harding et al. (2020) tested the possible mediating role of depressive symptoms on the relationship between microaggression experiences and somatic symptoms with data from 467 college students of color, including 106 "Asian American, South Asian, Pacific Islander, or Middle Eastern" participants. The results showed that depressive symptoms served as a significant mediator on the relationship between somatic symptoms and microaggressions that involve the stereotypes of being a foreigner, low-achieving, a criminal, and invisible. However, an important limitation of this study was that it did not focus specifically on Asian Americans, and the results were based on the aggregated data that also included other non-European racial

groups such as African Americans and Latinés. Hence, research specifically with Asian Americans on the possible mediating role of depressive symptoms on the relationship between perceived discrimination and somatic symptoms is needed.

It should be acknowledged that in their original conceptualization of the biopsychosocial model of racism, Clark et al. (1999) offered depression as one of the examples of health outcome variables (the other examples being low birth rate, infant mortality, healing process, breast cancer survival, heart disease, blood pressure, and pulmonary disease). In our study, we framed somatic symptoms as the health outcome variable and depressive symptoms as the psychological stress response variable (the mediator). Our intent was to expand the theoretical thinking about depressive symptoms as also being able to be characterized as a psychological stress response variable and that this characterization is dictated by the nature of the chosen health outcome variable, in our case somatic symptoms. There are prior studies that shared a similar conceptualization of depressive symptoms being an indicator of psychological distress and thus a potential mediator between a stressor and a health outcome. For example, Brondolo, Hausmann, et al. (2011) conceptualized depression as a psychological response variable that served as the mediator between perceived racism and physical health among a sample of mixed racial minority populations. Similarly, as described above, Torres-Harding et al. (2020) investigated whether depression mediated the relationship between racial microaggressions and somatic symptoms.

Subjective Social Class as Moderator on the Mediation Relationship

Income disparity, one of the key indicators of the distribution of social class in a given group, is the highest among Asian Americans when compared to other racial groups (Kochhar & Cilluffo, 2017) and reveals the financial difficulties that many Asian Americans face, contrary to the biased perception that all Asian Americans are economically privileged. The COVID-19 pandemic exacerbated this income disparity, in which Asian Americans who already had an economic strain suffered more severely than those who began the pandemic with a lower economic strain (McGarity-Palmer et al., 2024). Previous research on mental and physical health has not adequately accounted for the role of social class (Liu & Ali, 2008), and this lack of attention is an important limitation because social class can have significant influence on how Asian Americans experience racial discrimination. The biopsychosocial model of racism (Clark et al., 1999) and the ideas around intersectionality have offered a useful lens with which to explicate the accumulated suffering that individuals with intersecting marginalized identities, such as being a racial minority in a low social class, can experience in various arenas of life including career and interpersonal relationships (Crenshaw, 1989). Furthermore, social class, in particular, is highly interdependent with various forms of systemic oppression (e.g., racism; Clark et al., 1999; Liu, Ali, et al., 2004), and thus the intersecting role of social class should be considered when investigating the impact of discrimination on a range of mental and physical health issues.

Although not focused on Asian Americans, some researches have documented the salience of individuals' social class in moderating the impact of stress on a range of health outcomes. For example, a study that employed a longitudinal design showed that socioeconomically

disadvantaged individuals are more likely to get exposed to stressors in life, and when they are exposed to these stressors, they face a greater deterioration on the overall quality of life in comparison to those who are less financially deprived (Businelle et al., 2014). Similarly, the type of marginalization, such as those based on race, can lead to other types of marginalization including decreased social class (Skosireva et al., 2014). Thus, it can be expected that Asian Americans who experience a lower income status will have poorer mental health and physical outcomes (Veenstra, 2011).

Overall, studies that contextualized the relationship between stressor variables and their outcomes variables, through the examination of a moderator such as social class, may provide important clinical and advocacy implications. Notably, people's behavior and motives underlying one's actions (e.g., behavioral, psychological) are heavily influenced by the interpretation of one's social class rather than objective factors such as income (Liu, Soleck, et al., 2004). In fact, studies have documented a strong association between subjective social class and negative affect and other stress indices (e.g., Adler et al., 2000). Therefore, we examined the possible moderating role of subjective social class on the mediating role of depression on the relationship between perceived discrimination and somatic symptoms.

Based on this background, the purpose of the present study was to examine the associations among perceived discrimination, depressive symptoms, somatic symptoms, and subjective social class. We hypothesized a moderated mediation model in which subjective social class would moderate the relationship between perceived discrimination and depressive symptoms and in which depressive symptoms would mediate the relationship between perceived discrimination and somatic symptoms.

Method

Participants

A total of 214 Asian American college students were recruited at a university located in an urban area in the Southern region of the United States: 89 women (41.6%) and 123 men (57.5%); two did not report their gender identity. Participants' ages ranged from 18 to 54 years ($M = 22.1$, $SD = 4.2$). Most were in their senior year of college ($n = 91$, 42.5%), followed by juniors ($n = 85$, 39.7%), sophomores ($n = 33$, 15.4%), first years ($n = 4$, 1.9%), and a graduate student ($n = 1$, 0.5%). Participants' Asian ethnicity was as the following: Multiethnic ($n = 49$, 22.9%), Asian Indian ($n = 36$, 16.8%), Vietnamese ($n = 32$, 14.9%), Chinese ($n = 30$, 14.0%), Korean ($n = 29$, 13.6%), Pakistani ($n = 8$, 3.7%), Bengali ($n = 7$, 3.3%), Filipino ($n = 4$, 1.9%), Japanese ($n = 4$, 1.9%), Taiwanese ($n = 4$, 1.9%), Burmese ($n = 2$, 0.9%), Cambodian, ($n = 1$, 0.5%), and Laotian ($n = 1$, 0.5%). Seven participants did not report their ethnicity (3.3%). The mean score of the participants' self-reported grade point average was 3.34 on a 4.00 scale ($SD = 0.47$, range = 1.80–4.20).

Instruments

Perceived Discrimination

The nine-item Everyday Discrimination Scale (Williams et al., 1997) assesses chronic to routine race-based discrimination in which racial and ethnic minorities face in their "day-to-day life".

Participants are asked to indicate their experiences of discrimination based on their race and ethnicity such as "You are treated with less respect than other people" and "You are called names or insulted." A 4-point scale (1 = *never*, 2 = *rarely*, 3 = *sometimes*, 4 = *often*) is used to respond to items. Summed score across item responses was used for analysis with high scores suggesting greater experiences of discrimination. Gee et al. (2012) reported a high internal consistency for total Everyday Discrimination Scale (Cronbach's $\alpha = .91$) with a nationwide sample of Asian Americans. The Cronbach's α of the Everyday Discrimination Scale in the present study was .92. Evidence for construct validity was provided from the goodness of fit indices with confirmatory factor analysis with four ethnic groups (G. Kim et al., 2014).

Depressive Symptoms

The Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977) is a 20-item measure used to assess depressive symptoms across four dimensions: depressed affect, absence of positive affect or anhedonia, somatic (in)activity, and interpersonal challenges (Radloff, 1977). Participants respond to each item on a 4-point Likert scale indicating how often they experienced each item in the past 1 week (0 = *rarely or none of the time*; 1 = *some or a little of the time*; 2 = *occasionally or a moderate amount of time*; and 3 = *most or all of the time*). Sample items from the CES-D include "I felt depressed" and "I felt sad." Studies on CES-D showed that the four positively stated items may not be appropriate to assess depressive symptoms among Asian populations (Jang et al., 2010; Zhang et al., 2016). Score generated from summing the item responses was used for analysis. Higher score indicates stronger depressive symptoms. Individuals from Asian cultures are less likely to endorse positively stated items based on cultural values (e.g., emotional restraint is valued in Asian culture). The CES-D without the reversely stated items had better diagnostic performance for Asian populations (Jang et al., 2010; Zhang et al., 2016). Also, the CES-D includes seven items that assess several somatic elements of depression such as poor appetite ("I did not feel like eating; my appetite was poor") and sleep difficulty ("My sleep was restless"; Radloff, 1977). Given that the inclusion of these items would artificially increase the likelihood of finding a significant relationship between depressive symptoms and somatic symptoms, we omitted these seven items. Thus, in this study, we measured depressive symptoms with a nine-item revised CES-D, and the resulting Cronbach's α was .92. In support of the nine-item scale, a total score measurement model revealed acceptable fit to the data: $\chi^2(27) = 60.98$, $p < .001$, comparative fit index = .953, Tucker-Lewis index = .937, root-mean-square error of approximation = .077, and standardized root-mean-square residual = .040.

Somatic Symptoms

To assess participants' somatic symptoms, a modified version of the Patient Health Questionnaire-15 (PHQ-15; Kroenke et al., 2002) was administered. The original PHQ-15 is comprised of 15 different somatic symptoms (e.g., stomach pain, headache, etc.). Participants are asked to respond to a 3-point scale ranging from 0 (*not bothered at all*) to 2 (*bothered a lot*) about the severity of the symptoms that they have experienced during the last 4 weeks. Summed scores across item responses were used for analysis with higher scores indicating more severe somatic symptoms. Among the original 15

items, there are two items assessing fainting spells and menstrual problem. Several studies found that these items had extreme floor effects and their authors suggested deleting these two items (e.g., Gierk et al., 2015). Hence for the present study, we omitted these two items, and the revised 13-item scale yielded a Cronbach's α of .89. In psychometric support of the 13-item measure, the total score measurement model revealed a good fit to the data: $\chi^2(48) = 79.37$, $p = .003$, comparative fit index = .96, Tucker–Lewis index = .94, root-mean-square error of approximation = .055, standardized root-mean-square residual = .040.

Subjective Social Class

Subjective social class was assessed using the following single-item measure used in the past by National Opinion Research Center at the University of Chicago (n.d.): “If you were asked to use one of four names for your social class, which would you say you belong in”: The responses included four anchor points: “lower class,” “working class,” “middle class,” and “upper class.” The use of this single-item measure is justified by past studies that have successfully used single-item measures to assess constructs (Cundiff et al., 2013; Leung & Xu, 2013). For example, Leung and Xu (2013) examined the psychometric adequacy of the use of single-item measures for socioeconomic status, self-esteem, and subjective academic performance among five samples ranging from 724 and 7,147 participants. The results showed that the measures had good content and construct validity.

Procedure

The data were collected from self-identified Asian American students via Sona systems, a platform in which students enrolled in psychology courses can take surveys to receive course credits. Participants received one course credit after completing the survey. The questionnaire was administered via Qualtrics and took about 20 min to complete on average. An informed consent form, including the study information and participant requirements (e.g., self-identified as Asian American) was provided at the beginning of the survey. Approval was secured with the host university's Institutional Review Board, and the study was conducted in compliance with the approved protocol.

Results

Prior to testing the hypotheses, data screening and preliminary analyses were performed. A missing value analysis was conducted with the 214 participant cases, and the result showed that the missing pattern was completely at random: $\chi^2(2,720) = 2,836.518$, $p = .059$. Thus, the missing values were replaced using the expectation–maximization method. A total of five cases were deleted after conducting the multivariate normality test. The power analysis using “pwr2ppl” package (Aberson, 2022) suggested the sample size of 155 as sufficient to detect the moderated mediation effect (desired power = .80, $\alpha = .05$). In terms of descriptive data, the mean, standard deviations, and intercorrelations of the study variables are presented as in Table 1. Except for the relationship between subjective social class and somatic symptoms, all of the study variables were significantly related to each other. Subjective social class was reversely related to perceived discrimination and

Table 1

Mean, Standard Deviation, and Correlation Coefficients of Study Variables (N = 214)

Study variable	1	2	3	4	M	SD
1. Social class	—	-.29**	-.20**	-.07	2.60	0.58
2. PD		—	.60**	.43**	21.48	8.69
3. CES-D			—	.62**	7.02	6.28
4. PHQ-15				—	6.42	5.36

Note. PD = Perceived Discrimination; CES-D = nine-item Center for Epidemiologic Studies Depression Scale; PHQ-15 = revised 13-item Patient Health Questionnaire–15.

** $p < .001$.

depressive symptoms. The data on subjective social class showed that more than half of the participants identified as middle class ($n = 134$, 61.8%), followed by working class ($n = 73$, 33.6%), lower class ($n = 8$, 3.7%), and upper class ($n = 2$, 0.9%).

To examine the main research question, SPSS PROCESS Macro (Hayes, 2013) was employed, which integrates multiple regression and bias-corrected bootstrapping to test both moderation and mediation effects. A moderated mediation model is deemed significant and acceptable when the 95% bias-corrected bootstrap confidence interval (CI) of the index of moderated mediation does not contain 0 (Hayes, 2015). To test our hypothesis, we examined the conditional effect of perceived discrimination on somatic symptoms as a function of depressive symptoms and subjective social class. Collectively, social class, perceived discrimination, and the interaction of the two variables accounted for 37.3% of the variance of depressive symptoms. Then, perceived discrimination and depressive symptoms explained 38.5% of the variance of the somatic symptoms. The direct effect from perceived discrimination to somatic symptoms was not significant ($b = .06$, $SE = .04$, $t = 1.44$, $p = .150$). However, as presented in Table 2, the indirect effect of perceived discrimination on somatic symptoms through depressive symptoms was significant, and the effect size was significantly different across social class from the index of moderated mediation. The findings supported our hypothesized moderated mediation model.

Following Hayes's (2013) procedure in testing significance of moderated mediation effects, the difference between the conditional mediation effects of social class at a high level (i.e., 1 SD above the mean; $b = .24$, $SE = .04$, 95% CI [.17, .32]) and a low level (i.e., 1 SD below the mean; $b = .16$, $SE = .03$, 95% CI [.10,

Table 2

Conditional Effect of Perceived Discrimination on Somatic Symptoms Through the Mediation of Depressive Symptoms at Different Values of Social Class (N = 212)

Social class	Effect	SE	95% CI	
			LL	UL
Low	.24	.04	.17	.32
Mean	.20	.03	.14	.27
High	.16	.03	.10	.23
Index of moderated mediation	-.07	.03	-.13	-.02

Note. SE = standard error; CI = confidence interval; LL = lower limit; UL = upper limit.

.23]) was estimated with the bias-corrected bootstrapping. The pairwise contrast result indicated that the difference between the two conditional mediation effects was significant: $b = -.08$, $SE = .03$, 95% CI $[-.15, -.02]$, indicating a significant moderated mediation. Specifically, Asian American college students in low subjective social class were likely to develop depressive symptoms when exposed to perceived discrimination, but this effect was significantly weaker among Asian American college students in high subjective social class (Figure 1). Furthermore, as perceived discrimination was associated with somatic symptoms only through the mediation of depressive symptoms, these results also indicate that Asian Americans from lower subjective social class were more susceptible to developing somatic symptoms as a response to perceived discrimination than their upper social class counterparts (Figure 2).

Discussion

The purpose of the present study was to investigate the possible relationships among perceived discrimination, depressive symptoms, somatic symptoms, and subjective social class among Asian American college students. In support of the hypothesis, the results showed that depressive symptoms fully mediated the relationship between perceived discrimination and somatic symptoms. In further support of the hypothesis, the results also showed that subjective social class was a significant moderator on the relationship between perceived discrimination and depressive symptoms. These two findings suggest that Asian American college students who perceive themselves to be in the lower social class have a stronger likelihood of experiencing depressive symptoms when exposed to discrimination than those in the upper social class and ultimately experiencing

worse somatic distress than their counterparts in the upper social class. These findings offer a revealing and useful picture of how Asian American college students' experiences with somatic symptoms are related to their experiences with perceived discrimination, depressive symptoms, and subjective social class.

These findings are consistent with previous research with broad and mixed samples of racial minority groups (e.g., Brondolo et al., 2011; Torres-Harding et al., 2020). For example, Torres-Harding et al. (2020) found that the relationship between microaggressions, in the forms of perpetual foreigner, low-achieving, criminality, and invisibility, and somatic symptoms was mediated by depressive symptoms for a sample of students of color. The present findings also support the general nature of the biopsychosocial model of racism (Clark et al., 1999), which suggests that perceptions of discrimination would lead to depressive symptoms which in turn could lead to somatic distress. Prior research findings suggested that when individuals face extremely unpleasant discriminatory events that are out of their control, they form negative and pessimistic perceptions of the people and world around them and they then develop negative feelings that can lead to depressive symptoms, which can be eventually expressed in somatic symptoms (Brondolo et al., 2011). Hence, the present findings suggest that Asian American college students are not immune from the impact of discrimination in which they experience mental and physical distress. Together, a closer attention to Asian American college students' experiences with discrimination as well as mental distress is warranted.

The present findings can be further understood based on the literature on help-seeking behavior within the Asian culture. In particular, the ways in which to express the psychological distress is relatively limited within the Asian American community given the

Figure 1
Interaction of Perceived Discrimination and Subjective Social Class on Depressive Symptoms

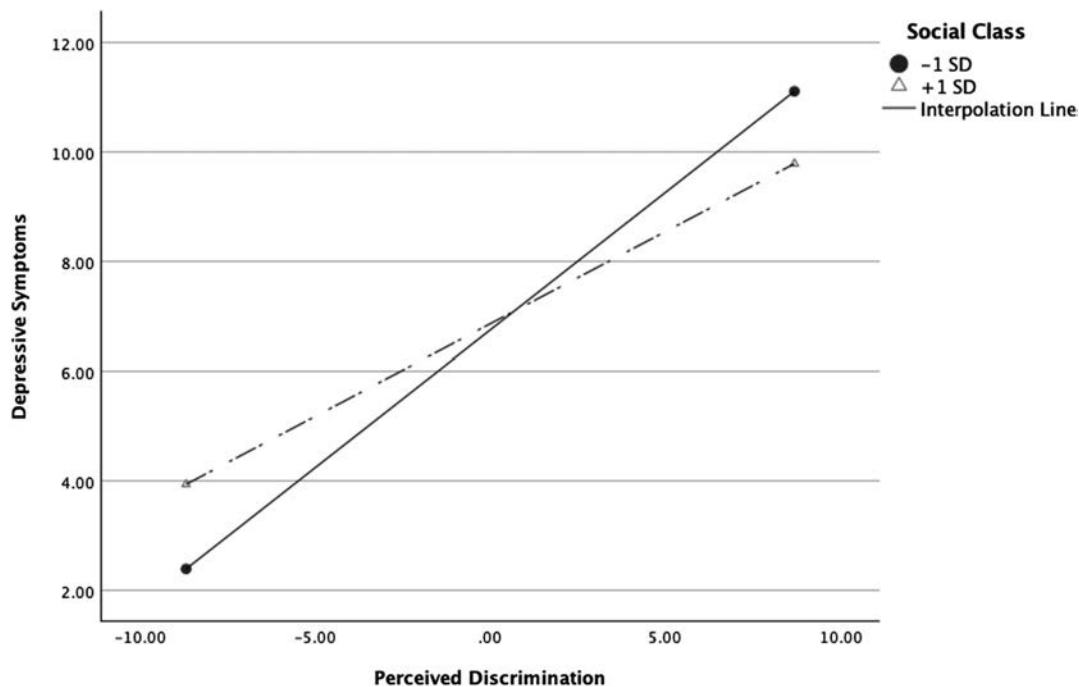
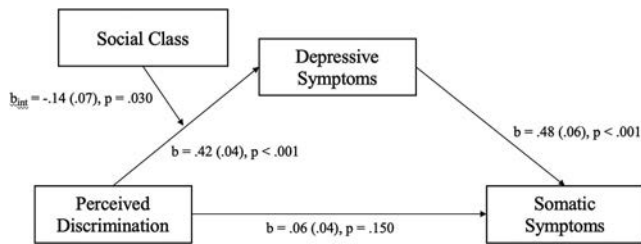


Figure 2*Moderated Mediation Model With Results (N = 214)*

Note. b_{int} = the interaction effect between perceived discrimination and social class.

cultural norms that socialize individuals to maintain harmony with others by not expressing their psychological struggles—especially those involving strong emotions—and the belief that emotional distress should be resolved solely by the individual (P. Y. Kim & Park, 2009). This socialization encourages Asian American individuals to express their psychological distress through somatic symptoms, which are perceived as being more acceptable than directly expressing the psychological distress because the former are physical in nature and whose remedy is outside of the person's ability to resolve them (Dere et al., 2013). Research has documented that clients of an Asian American background have a higher tendency to emphasize somatic distress over emotional distress in clinical settings compared to other racial groups (e.g., Ryder & Chentsova-Dutton, 2012). Additionally, the conceptualization of depressive symptoms among Asian Americans tends to be in the form of a physical illness, which causes them to seek help from physicians rather than mental health professionals (Novick et al., 2013).

Also, it is important to highlight that when Asian Americans face discrimination and racism, they may not feel encouraged to seek help but rather feel pressured to try to cope with the stressors by themselves. Unfortunately, however, the suppression of the negative emotional responses related to discrimination can worsen over time and lead to somatic symptoms. Ultimately, when Asian Americans finally enter treatment with somatic symptoms that are related to discrimination, their level of depression may be at a more severe state. Overall, the tendency for Asian Americans to report psychological distress through somatic symptoms and its observed relationships with perceived discrimination, depressive symptoms, and social class affirm the need for health professionals serving Asian American college students to attend to the possible underlying psychological factors when these students come in for services for somatic symptoms.

In addition to supporting the general nature of the biopsychosocial model of racism (Clark et al., 1999), the present study's finding also aligns with the notions of intersectionality, which posit that individuals with multiple marginalized identities face distress from multiple sources that have a multiplicative effect (e.g., combined effects of racism and classism). In particular, given that participants' subjective social class moderated the relationship between perceived discrimination and depressive symptoms, more attention to the role of perceived social class and underlying classism among Asian American college students' functioning is critical. In essence, the perception that one is at a lower social class

exposes the individual to a wide range of disadvantages, such as striving to meet the demands of a capitalistic culture (Liu, Soleck, et al., 2004) at the cost of expending energy that could be used otherwise (e.g., energy to cope discrimination). As shown in the present study, Asian American college students are not exempt from such intersecting and amplified marginalization that leads to negative health outcomes. Therefore, it is critical for health professionals to have a contextualized understanding of Asian American college students' mental and physical health from the intersection of subjective social class and race in order to effectively serve this important segment of our population.

Finally, it is noteworthy that in the present study we omitted the seven items in the CES-D that describe the somatic elements of depression because not removing these seven somatic-related items would have led to an artificially high statistical advantage in finding a significant relationship between CES-D scores and the scores on the revised 13-item measure of somatic symptoms (PHQ-13). While these findings show a relationship that is free of somatic-related items, it should be noted that depression has been conceptualized to also include somatic elements such as lethargy and trouble sleeping. For example, the diagnostic criteria for a major depressive episode in the DSM-V-TR includes items such as tiredness, fatigue, weight gain or loss, and sleep disturbance. Hence, in addition to the present findings offering a clearer picture on the close relationship between depressive symptoms (without somatic elements) and general somatic symptoms, their strong association also supports the current clinical conceptualization of depression as encompassing somatic expressions.

Limitation

The present study has several important limitations. The present findings may have limited generalizability to other Asian Americans as the data were collected among Asian American college students attending a large urban university located in the South. Relatedly, the results may not apply among Asian Americans whose demographic characteristics are different from those of the present sample. For instance, the present sample included predominantly, multi-Asian ethnic, Asian Indian, Vietnamese, Chinese, and Korean Americans. For Asian Americans with different ethnic backgrounds, the findings may not be representative to their experiences given that there are important within-Asian American group cultural variations. Social class was found to be a significant moderator on the relationship between perceived discrimination and depressive symptoms; however, college students—predominantly middle class—may not well represent the wide range of social classes within the Asian American community (Liu, Soleck, et al., 2004). Additionally, social class is a complex construct, and there could be other factors related to subjective social class, such as parents' education level, that could influence the moderation relationship. Furthermore, we used a subjective measure of social class, and the results may differ if an objective measure of social class was used. The present study is cross-sectional and relational in nature, and hence causality based on the mediation model cannot be inferred. Future research might consider utilizing a longitudinal design in which possible temporal associations might be inferred. The measures of perceived discrimination, depressive symptoms, and somatic symptoms had varying timeframes for respondents to consider when responding to the instruments' items. Future research

might benefit from using measures that ask respondents to consider a same timeframe in responding to the items.

Implication

The present findings have several practice implications for health professionals serving Asian American college students. First, given that depressive symptoms were found to mediate the relationship between perceived racism and somatic symptoms, physical and mental health professionals working with Asian American college students who are reporting somatic distress should investigate the students' possible experiences with discrimination and depressive symptoms. Addressing the depressive symptoms by better understanding their relationship with perceived discrimination could help to more effectively address the somatic symptoms that are being expressed by the students. McAndrew et al. (2019) suggest several practical ideas on ways to help clients who report somatic symptoms. An important idea is to help clients to obtain skills to manage their somatic symptoms while simultaneously helping clients to better cope with their mental health concerns that are deemed to be related to the somatic symptoms. The present findings indicate that Asian American college students who are in a lower social class are more likely to experience depressive symptoms while discrimination is perceived than those in the upper social class and thus have a higher potential to develop mental and physical health problems. As experts in social class issues have urged (Liu & Ali, 2008; Liu, Ali, et al., 2004; Liu, Soleck, et al., 2004), there is a strong need for service providers to better attend to issues related to subjective social class by first becoming more aware of their own possible lack of awareness about classism. This awareness can lead the service providers to better meet the unique needs of Asian American college students and thereby improve the overall treatment outcomes for these students.

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