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# An intersectional investigation of Asian American men's muscularity-oriented disordered eating: Associations with gendered racism and masculine norms

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## ABSTRACT

Grounded in an intersectional framework, the present study investigated the extent to which racism, gendered racism, and conformity to masculine norms are associated with Asian American men's muscularity-oriented disordered eating. The study also examined if ethnic identity moderated the association between both forms of racism and muscularity-oriented disordered eating. 220 Asian American men completed an online cross-sectional survey that contained the study questionnaires. Hierarchical regression analyses were conducted to examine the associations between our predictor variables and muscularity-oriented disordered eating. Gendered racism, conformity to the masculine norms of playboy, heterosexual presentation and self-reliance were positively associated with muscularity-oriented disordered eating, whereas conformity to power over women was negatively associated. Racism and the remaining masculine norms were not associated with muscularity-oriented disordered eating. Ethnic identity did not moderate the association between either form of racism and muscularity-oriented disordered eating. Given that gendered racism was positively associated with muscularity-oriented disordered eating whereas racism was not, researchers and practitioners may consider prioritizing intersectionality in their understanding of Asian American men's eating pathology. Results emphasize the importance of examining both race and gender in conceptualizing Asian American men's muscularity-oriented disordered eating.

Data Availability Statement: Data for this study are available upon request from the first author.

## Clinical Implications

- Gendered racism is associated with Asian American men's greater disordered eating.
- Three distinct masculine norms are associated with increased disordered eating.
- The power over women norm is associated with decreased disordered eating.

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- Ethnic identity was not a moderator between racism and increased disordered eating.
- Intersectionality should be considered when working with this population.

## Introduction

Eating disorders within men have often been understudied and misunderstood, in large part because of disordered eating's association with femininity (Murray et al., 2017). However, a burgeoning set of research has begun to examine disordered eating's unique manifestations within men. Recent research suggests that disordered eating often presents in the form of muscle dysmorphia (MD) for men, which centers on a preoccupation with gaining muscle mass and reducing body fat (Murray et al., 2017; Pope et al., 2005). This intense preoccupation with muscularity may manifest in men engaging in specific muscularity-oriented disordered eating (MODE) behaviors, such as partaking in rigid exercise regimens, strict dieting behaviors involving enhanced protein consumption, and elaborate body checking behaviors surrounding musculature (Mangweth et al., 2001; Mosley, 2009). While MODE has garnered more attention in recent years, the majority of research has focused on the experiences of white men, ignoring the unique, racialized experiences of men of color.

Asian American men have been especially understudied with regard to MODE, perhaps because of the model minority myth, or the false stereotype that Asian Americans are economically and educationally successful and therefore do not experience serious health problems (Wong & Halgin, 2006). This problematic concept leads to the erroneous belief that Asian Americans are exempt from the consequences of racism (Chou & Feagin, 2015). In contrast to the model minority myth, Asian American men experience more unfavorable self-talk about their bodies compared to white men (Fiery et al., 2016) and increased body image concerns, compulsive exercise, and binge eating compared to both white and Black men (Kelly et al., 2015). Additionally, Asian American men report increased pressure to achieve a muscular build in large part because of the prominence of Western, hegemonic ideals surrounding what constitutes an attractive man, such as muscularity, height, and aggressiveness (Cheng et al., 2016; Liao et al., 2020). Asian American men may feel pressured to engage in MODE behaviors to close the perceived gap between their appearance and their ideals of attractive manhood, ideals that they may strive for as a consequence of experiencing emasculation and disempowerment in the United States (T. Liu & Wong, 2018). However, no studies have yet examined the racial and gender-specific factors that may predispose Asian American men to MODE.

### ***Racism, gendered racism, and disordered eating***

Racism acts as one risk factor that may predispose Asian American men to MODE. General racism has been associated with increased loss of control eating for Asian American men (Kelly et al., 2018). Furthermore, perpetual foreigner racism, or racism related to being perceived as a foreigner in the United States, is associated with increased drive for muscularity in Asian American men (Cheng et al., 2016). Minority stress theory provides a useful theoretical framework to contextualize these findings. This theory posits that those who are marginalized in society often experience stressors unique to their social identities (e.g., race) that elicit a greater stress response than everyday stressors given the distinctly personal nature of one's social identities (Meyer, 2003). Thus, Asian American men may engage in MODE to cope with the negative affect engendered by racism, given the extent to which increasing or decreasing one's food intake can serve as a way to numb or downregulate the presence of strong emotions (Foye et al., 2019; Haynos et al., 2018). Furthermore, Asian American men may seek to increase their muscularity as a way to regain a sense of strength and power after experiencing the dehumanizing effects of racism (T. Liu & Wong, 2018). However, no studies have yet examined racism's association with MODE in Asian American men.

In addition to examining the deleterious health effects of general racism, more recent critical race scholars have called for an intersectional approach to studying racism. Intersectionality theory, first conceptualized by Black feminist Kimberlé Crenshaw (1991), describes how multiple systems of oppression and marginalization operate together to disenfranchise Black women, as well as other individuals with overlapping social identities. In regard to Asian American men, intersectional oppression may be considered in the form of gendered racism (Essed, 1990) which refers to experiences of racism that occur within a gendered lens. More specifically, in the first measure to specifically capture gendered racism as experienced by Asian American men, Liu et al. (2018) found that gendered racism manifested through psychological emasculation, being perceived as an undesirable romantic partner, and being thought of as someone who lacks the qualities of a leader. On a societal level, though Asian American men possess privilege from their maleness, they still experience gendered racism that serves to reinforce white men's dominant status as the most powerful and attractive racial/ethnic group of men (Pratto et al., 2006). On a more individual level, experiencing gendered racism may put pressure on Asian American men to adhere to hegemonic masculine ideals, in an attempt to regain some of the authority and agency denied to them by gendered racism (T. Liu & Wong, 2018).

Gendered racism may more fully capture Asian American men's experiences of racism in the United States due to its foundation rooted in intersectionality. Experiences of gendered racism are associated with increased

psychological distress as well as increased somatic symptoms for Asian American men, above and beyond the effects of general racism and masculine gender role stress (Liu et al., 2018). Research has also found that general racism is not associated with drive for muscularity in Asian American men (Cheng et al., 2016), and in Asian American women, general racism was not associated with disordered eating whereas gendered racial microaggressions were positively associated with disordered eating (Le et al., 2020). Qualitative research further emphasizes how Asian American men may engage in MODE behaviors as a way to reclaim a sense of self-esteem in the face of gendered racism, which often results in feelings of inadequacy or insecurity (Liao et al., 2020). For example, Asian American men are often not at all represented in media within the United States, or they are portrayed in unflattering and unattractive ways (Liao et al., 2020). This lack of positive portrayals of masculinity specific to Asian American men may predispose Asian American men to engage in MODE in the face of gendered racism, given the pervasiveness of Western hegemonic ideals of male appearance that emphasize features such as muscularity. It is therefore critical to investigate gendered racism as a potential, intersectional risk factor for Asian American men's MODE.

### ***Masculine norms and disordered eating***

Conformity to masculine norms may act as another socioculturally-relevant risk factor for Asian American men's MODE. Masculine norms are socially constructed attitudes and expectations about what it means to be a man (Mahalik et al., 2003). Prevalent masculine norms in the contemporary United States include ideas that men should have dominance over women (power over women), avoid appearing perceived as gay (heterosexual presentation), possess multiple sexual partners (playboy), try to win at all costs (winning), participate in risk-taking behaviors (risk-taking), control one's emotions (emotional control), act in an independent manner (self-reliance), and resort to physical aggression (violence) (Hsu & Iwamoto, 2014; Mahalik et al., 2003).

A couple of studies have examined the extent to which conformity to masculine norms is associated with MODE. One study found that within a sample of 246 heterosexual men, increased conformity to masculine norms overall was associated with greater MODE and muscle dissatisfaction, but not thinness-oriented disordered eating or body fat dissatisfaction (Griffiths et al., 2015). Another study found that within a sample of men that included men with muscle dysmorphia, anorexia nervosa, and a control group, all of the conformity to masculine norm subscales aside from playboy were associated with muscle dysmorphia symptomatology, and men with clinically significant muscle dysmorphia reported greater overall conformity to masculine norms than those with anorexia nervosa and the control group (Murray et al., 2013).

However, these studies included samples that were either predominantly white (Griffiths et al., 2015) or did not report race and ethnicity (Murray et al., 2013), limiting the extent to which these findings can generalize to men of color, including Asian American men.

Investigating the influence of conformity to distinct masculine norms and Asian American men's MODE is important given the unique pressures Asian American men face to inhabit masculinity in the United States, as well as the uniquely gendered nature of MODE. Given that Asian American men face stereotypes related to being perceived as being asexual, having smaller penises, and having unflattering physical attributes (Ghavami & Peplau, 2013; Lu & Wong, 2013), perhaps they resort to MODE to regain a sense of confidence or manliness. Given past research that suggests that Asian American men are susceptible to conforming to prevalent masculine norms within the United States (Iwamoto et al., 2010; W. M. Liu & Iwamoto, 2007), it is possible that they may engage in MODE as a way to physically demonstrate adherence to masculine norms, especially the norms that emphasize power and appearance.

### ***Ethnic identity as moderator***

One socioculturally pertinent construct that may buffer the association between racism and MODE is ethnic identity. Ethnic identity is commonly conceptualized as a sense of belonging to or acceptance of the norms and practices of one's cultural group (Phinney, 1990). Overall, ethnic identity has been associated with increased psychological well-being for Asian Americans (Rivas et al., 2014; Yip, 2018). This research suggests that Asian Americans who hold a strong sense of pride and knowledge of their own cultural group may draw from their culture to enhance their self-esteem and sense of belonging with others.

In regard to Asian American men's disordered eating and focus on muscularity, the findings related to ethnic identity have been mixed. Asian American men with moderate and high levels of ethnic identity reported less disordered eating in response to general racist discrimination than Asian American men with low ethnic identity (Kelly et al., 2018), suggesting that ethnic identity may serve as a protective factor that allows men to avoid internalizing racism and therefore circumvent disordered eating behaviors. However, increased ethnic identity has also been associated with increased muscularity-focused negative body talk for Asian American men (Sladek et al., 2018). These findings suggest that Asian American men with greater ethnic identity may experience a greater preoccupation with muscularity, perhaps due to how an increased exploration of one's ethnic heritage may coincide with greater attention to how one's body contrasts with western ideals of male attractiveness. The present study aims to add to the growing literature surrounding the role of

ethnic identity by examining whether it may potentially buffer the association between gendered racism and racism and MODE for Asian American men.

### **Current study**

To our knowledge, the current study is the first to examine Asian American men's MODE from an intersectional perspective, incorporating both gendered racism and conformity to masculine norms. The study investigates three main research questions: (a) the associations between racism and gendered racism and MODE, (b) the associations between conformity to distinct masculine norms and MODE, and (c) if ethnic identity moderates the association between racism and gendered racism and MODE.

For our first research question, we hypothesized that while general racism may not be positively associated with MODE, gendered racism would be positively associated, based on intersectionality theory (Crenshaw, 1991). For our second research question, we hypothesized that conformity to the masculine norms of heterosexual presentation, playboy, and power over women would be positively associated with MODE, given the first two norms may emphasize maintaining a traditionally masculine appearance either to avoid appearing gay or to obtain more sexual partners, whereas the third norm stresses the importance of men's strength and domination (Mahalik et al., 2003). We did not have firm hypotheses about the remaining norms given that they are less focused on physical strength and power. Though the remaining norms were correlated with greater muscle dysmorphia symptomatology in a sample of white men (Murray et al., 2013), this may not generalize to our sample given that study's lack of racial diversity. Finally, we hypothesized that ethnic identity would moderate the association between racism and gendered racism and MODE, such that men with higher ethnic identity would report reduced MODE, based on similar trends in past research (Kelly et al., 2018).

## **Methods**

### **Procedures**

All procedures for the current study were conducted remotely. Asian American men aged 18 and over were recruited through a variety of online distribution channels. These channels included posting recruitment messages to various email lists, social media sites, and public online forums that serve the Asian American community. Examples include Asian cultural organizations at various universities across the United States as well as the popular social site Reddit. Upon accessing the online survey, a brief screener assessed three participation eligibility criteria: age 18 or over, identification as an Asian



American man, and current residence in the United States. After providing informed consent, participants were provided with a variety of questionnaires assessing variables relating to gender, race, and disordered eating in addition to two attention check items (e.g., “For this item, please select *Agree*”). Survey duration generally ranged from 30 to 45 minutes. Upon completion of the final questionnaire, participants were offered a raffle entry into a drawing for one of eight 25 USD Amazon gift cards. Participants who were undergraduate students at the authors’ home institution were offered a choice between this raffle entry and alternative compensation of course credit.

## **Participants**

378 people accessed the study survey. Of those, 48 did not meet the eligibility criteria, 93 failed to complete more than half of the questionnaires, 14 were missing between 40–50% of items, and three people failed both validity check items. The exclusion of these 158 responses resulted in a final sample size of 220. Three participants were missing more detailed demographic items, though they were still included in the study given that they completed the eligibility criteria and all other measures. These 220 total respondents all identified as Asian American men.

Participants’ ages ranged from 18–61 ( $M = 23.19$ ,  $SD = 5.56$ ). Demographic information including ethnicity, gender, generational status, sexual orientation, educational attainment, household income, and employment status are presented in [Table 1](#). The sample had considerable ethnic diversity. Although there is variability in the experiences of different ethnic groups, the inclusion of each group in the present study was necessary to ensure representation of the broad range of experiences within this population, especially given how certain subgroups such as South Asians are often ignored when examining the experiences of Asian Americans as a whole (Mukherjea et al., 2018). The average BMI for the sample was 23.87 ( $SD = 4.13$ ), which falls within the international 18.5–24.9 normal range defined by the World Health Organization and found to be applicable to Asian populations by a WHO expert consultation (2004).

## **Study variables**

### **Demographics**

Participants completed an array of demographic items, including age, ethnicity, sex assigned at birth, gender, and sexual orientation. Items also captured information relating to generational status (i.e., whether the participant and/or parents were born in the United States) and years of residency in the United States (on a 4-option scale with options including 0–5, 6–10, 11–20, and 21 + years in the United States). Socioeconomic indicators, including education



**Table 1.** Sample demographics.

Variable	Frequency	Percent
Ethnicity		
Chinese	71	32.7
Indian/South Asian	33	15.2
Korean	25	11.5
Vietnamese	22	10.1
Multiracial	22	10.1
Taiwanese	13	6.0
Filipino	8	3.7
Japanese	4	1.8
Hawaiian/Pacific Islander	2	0.9
Bangladeshi	2	0.9
Hmong	1	0.5
Option not listed above	14	6.5
Gender		
Cisgender man	213	98.1
Transgender man	3	1.4
Nonbinary	1	0.5
Generational status		
1st Generation	37	17.1
1.5 Generation	18	8.3
2nd Generation	139	63.8
3rd Generation or beyond	19	8.8
Adoptee	3	1.4
Mixed generational status	1	0.5
Sexual orientation		
Heterosexual	169	77.9
Gay	27	12.4
Bisexual	9	4.1
Option not listed above	12	5.5
Educational attainment		
Some college	77	30.9
Bachelor's degree	67	25.5
Graduate/Professional degree	29	13.4
Household income		
Under \$25,000	13	6.0
\$25,000-\$49,999	31	14.3
\$50,000-\$99,999	53	24.4
\$100,000 and above	96	44.2
Employment status		
Student	149	67.7
Full-time employment	63	28.6
Unemployed	17	7.7

\*Note. In terms of generational status, 1st Generation refers to being born outside the United States and immigrating after adolescence, 1.5 Generation refers to being born outside the United States and immigrating between 6 to 12 years of age, 2nd Generation refers to being born in the United States with at least one parent who is an immigrant, 3rd Generation or beyond refers to being born in the United States with both parents also being born in the United States, and mixed generational status refers to one participant being both 4th Generation Chinese and 2nd Generation Vietnamese.

status, employment status, and familial income were also measured. Height and weight were self-reported (in imperial units) then converted to Body-Mass Index (BMI) using the formula  $BMI = 703 * (weight(lbs) / [height(in)]^2)$ .

**Racism**

Anti-Asian racism was measured with the Subtle and Blatant Racism Scale for Asian Americans (SABR-A<sup>2</sup>; Yoo et al., 2010). Items measured both

subtle (e.g., “In America, I am treated differently because I’m Asian”) and blatant (e.g., “In America, I am made fun of because I’m Asian”) forms of racism. Items were rated on a five-point Likert scale from “Almost Never” (1) to “Almost Always,” (5) with higher scores indicating more frequent experiences of Anti-Asian racism. This instrument has established convergent validity through its observed positive relationships with depression, anxiety, stress, experiences of exclusion and rejection, and stigmatization (Yoo et al., 2010). The same study found evidence of discriminant validity, incremental validity, and test-retest reliability. Although initially validated in a university sample, this measure has been used in non-college samples of Asian Americans (Le et al., 2020; Szymanski & Sung, 2010). The SABR-A<sup>2</sup> has exhibited strong internal reliability both in university (Cronbach’s alpha = .84; Yoo et al., 2010) and community (Cronbach’s alpha = .85; Le et al., 2020; Cronbach’s alpha = .82; Szymanski & Sung, 2010) samples. The current study combined both subtle and blatant racism subscales, as done in previous studies (Le et al., 2020; Szymanski & Sung, 2010) to capture a fuller breadth of racism experienced by Asian Americans, using the total measure to form a composite racism score (Cronbach’s alpha = .88).

### ***Gendered racism***

To investigate the unique experiences of gendered racism in this sample, participants completed the 18-item Gendered Racism Scales for Asian American Men (GRSAM; Liu et al., 2018). Developed with an intersectional lens, this measure operationalizes the unique experiences of Asian American men as a product of overlapping race- and gender-based identities and oppressions. Participants reported the frequency of gendered racist experiences (e.g., “I have heard offensive jokes about Asian American men’s lack of manliness”) on a four-point Likert scale from “Never” (1) to “Very Often” (4). The measure has established convergent, discriminant, incremental, and criterion-related validity based on its observed relationships with Asian American racism, masculine gender role stress, somatic symptoms, and psychological distress symptoms (Liu et al., 2018). Test-retest reliability and internal consistency for the GRSAM have also been observed, with Cronbach’s alphas ranging from .94 to .96 (Liu et al., 2018). Cronbach’s alpha in the current study was .96.

### ***Conformity to masculine norms***

Conformity to masculine norms was measured using the Conformity to Masculine Norms Inventory-29 (CMNI-29; Hsu & Iwamoto, 2014). Derived from the shortened 46-item version of the original Conformity to Masculine Norms Inventory (CMNI-46; Parent & Moradi, 2009), this instrument was developed out of a need for a more theoretically-consistent masculine norms

questionnaire for use with Asian American men. This 29-item measure captures eight separate dimensions of masculine norms: winning, playboy, self-reliance, violence, heterosexual self-presentation, risk taking, emotional control, and power over women. Items include “I would be furious if someone thought I was gay” (heterosexual presentation norm) and “Women should be subservient to men” (power over women norm) measured on a four-point Likert scale from “Strongly Disagree” (0) to “Strongly Agree” (3), with higher scores indicating greater adherence to masculine norms. The CMNI-29 has been validated for use with both Asian American and white men, with construct validity established through analyses of the conceptual similarity of the CMNI-29 to the CMNI-46 and reliability coefficients ranging from .71 to .87 (Hsu & Iwamoto, 2014). Subscale Cronbach’s alphas in the current study ranged from .79 to .92.

### ***Ethnic identity***

Ethnic identity was measured with the Multigroup Ethnic Identity Measure (MEIM; Phinney, 1992). This 12-item instrument addresses one’s personal sense of ethnic identity across two factors: exploration (behaviors related to identity discovery and understanding; e.g., “I have spent time trying to find out more about my ethnic group, such as its history, traditions, and customs”) and commitment (attitudes and feelings of belonging; e.g., “I have a strong sense of belonging to my own ethnic group”). Participants responded on a four-point Likert scale from “Strongly Disagree” (1) to “Strongly Agree” (4) and all 12-items were summed to create a composite general ethnic identity score. The measure has displayed strong construct validity across racial/ethnic groups, being strongly correlated to indicators of psychological well-being and identity salience (Roberts et al., 1999), Internal consistency within the original college sample was .90 (Phinney, 1992). In the present research, the Cronbach’s alpha value for the full measure was .89.

### ***Muscularity-oriented disordered eating***

Muscularity-oriented disordered eating (MODE) was operationalized using an adapted version of the 28-item Eating Disorder Examination-Questionnaire (EDE-Q; Fairbun & Beglin, 1994), which measures a wide variety of disordered eating behaviors and attitudes. Items measured the frequency of disordered eating symptoms over the preceding four week period. Responses were scored on a Likert scale from 0 (“Never”) to 6 (“Every Day”) over the past 28 days.

While the EDE-Q has since seen widespread use and validation, the original measure focused on the disordered eating symptomatology of women and, thus, has been questioned for its validity in the context of disordered eating experiences of men (Murray et al., 2012). Therefore, Murray et al. (2012) adapted seven items from the original EDE-Q by reversing the language of certain gendered questions to better align with

MODE symptoms (e.g., “Have you definitely wanted your stomach to be flat?” is changed to “Have you definitely wanted a 6-pack stomach?”). These changes were fully included in the current study, so that the scale leaned toward capturing specific mesomorphic-related eating behaviors instead of thinness-related disordered eating behaviors, or only general disordered eating behaviors. We used the global score given that this score provides an assessment of a broader range of muscularity-oriented eating symptomatology, as the items revised in the modified EDE-Q spanned various subscales of the original measure (Murray et al., 2012). This modified version of the EDE-Q has displayed strong internal reliability in past studies, with Cronbach’s alpha ranging from .80 (Murray et al., 2012) to .87 (Griffiths et al., 2015). Cronbach’s alpha in the present sample was .84.

### ***Data analytic plan***

The analytic plan was specified prior to analyses. Analyses were conducted using SPSS (v.24) and alpha values  $p < .05$  were considered statistically significant. Data were evaluated for normality through examining skewness and kurtosis, as well as for multivariate outliers and multicollinearity. Bivariate correlations were examined to assess the degree of association between study variables. We tested our main research questions using two hierarchical regression analyses. The first regression analysis tested whether racism and gendered racism were associated with MODE, as well as if ethnic identity moderated the association between racism and gendered racism and MODE. Our second regression analysis tested the associations between conformity to the eight masculine norms and MODE. In the first regression analysis, conformity to masculine norms overall was entered as a covariate, and in both regression analyses, BMI was entered as a covariate.

### ***Data screening and preparation***

All of our variables aside from MODE were within the acceptable range for skewness and kurtosis. Given that MODE was slightly positively skewed (skewness = 1.23), the variable was log transformed in line with best practices to reduce the non-normality of the distribution (Tabachnick & Fidell, 2007).

Aside from demographic variables, missing data for our main study variables ranged from .5% (in which two items within all the items in the study were missing one response each) to .9% (EDEQ, Item 26). The majority of participants (216 participants out of 220; 98.2%) were missing no data. Little’s missing completely at random analysis was conducted and an insignificant chi-square statistic  $\chi^2(427) = 471.26, p = .68$  was found, indicating that data were missing at

random. Given the miniscule amount of missing data and that these data were missing at random, we utilized case analysis procedures, in which mean scale scores were calculated without imputation or substitution of values, which provides values similar to those derived from multiple imputation (Parent, 2013). Demographic variables were not included in these case analysis procedures given that several of the demographic variables were categorical variables (e.g., ethnicity), in which case analysis procedures would have provided non-meaningful values that would have obscured the demographic data.

Of note, 96.4% of participants reported having experienced racism and 97.3% of participants reported having experienced gendered racism.

## Results

### *Correlation analyses*

Table 2 displays descriptive statistics and correlations between the present study's main variables of interest, as well as the demographic variable BMI. Gendered racism was positively correlated with MODE, whereas racism was not correlated. In regard to conformity to distinct masculine norms, both the play-boy norm and the self-reliance norm were positively and significantly correlated with MODE, and no other masculine norms were correlated. BMI was significantly and positively correlated with MODE. Other demographic variables including years living in the United States, sexual orientation (dichotomized as heterosexual = 0, non-heterosexual = 1), and age were not correlated with MODE (all  $p$  values  $> .10$ ). Thus, as modeled in past research related to Asian Americans' disordered eating experiences, BMI was included as a covariate in regression analyses whereas other demographic variables were not (Le et al., 2020). Furthermore, given the possibility that masculine norms may be associated with gendered racism and that three of the masculine norms were significantly correlated with gendered racism, in our first regression analysis we controlled for overall conformity to masculine norms as well as BMI.

### *Regression analyses*

#### *Power analysis*

A power analysis using G\*Power 3.1 (Erdfelder et al., 1996) was calculated to examine statistical power based on our sample size ( $N = 220$ ). Results from the analysis suggested that our sample had a high probability of detecting large (.35),  $F(2,213) = 3.04$ ,  $\lambda = 77.00$ ,  $1-\beta > 0.999$ , and medium (.15),  $F(2,213) = 3.04$ ,  $\lambda = 33.00$ ,  $1-\beta > 0.999$ , but not small (.02),  $F(2,213) = 3.04$ ,  $\lambda = 4.40$ ,  $1-\beta = 0.45$ , effects.

Table 2. Correlations matrix of variables of interest.

Variable	Mean (SD)	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Racism	19.42 (6.12)	—												
2. Gendered Racism	38.74 (13.39)	.67**	—											
3. Playboy	3.17 (2.16)	.20**	.24**	—										
4. Power over women	1.98 (1.82)	.08	.01	.34**	—									
5. Risk-taking	4.54 (1.82)	.10	-.10	.001	.14*	—								
6. Emotional control	4.25 (2.33)	.03	-.01	.04	.04	-.06	—							
7. Heterosexual Presentation	7.17 (4.47)	-.12	-.23**	.16*	.48**	.07	.18**	—						
8. Self-reliance	4.5 (1.93)	.25**	.31**	.22**	.06	-.06	.37**	-.02	—					
9. Violence	6.05 (2.68)	.02	-.02	.15*	.07	.05	.13	-.001	.06	—				
10. Winning	6.28 (2.33)	-.05	-.08	.07	.15*	.10	.14*	.31**	.06	.13	—			
11. Ethnic Identity	23.42 (5.97)	-.17*	.001	-.01	-.03	.003	.10	-.03	.17**	.12	-.04	—		
12. BMI	23.87 (4.13)	.08	.07	.03	.14*	-.05	-.06	-.01	-.03	.05	-.10	-.10	—	
13. MODE	.93 (.22)	.09	.21**	.15*	.02	-.03	-.06	.11	.15*	-.04	-.03	.12	.31**	—

Note. MODE = Muscularity-oriented disordered eating

\* $p < .05$ , \*\* $p < .01$

### *Hierarchical multiple regression analysis*

To examine our research questions, we conducted two hierarchical multiple regression analyses. The first analysis explored associations between racism and gendered racism and MODE, as well as if ethnic identity moderated these associations. The second analysis explored associations between distinct masculine norms and MODE. Before conducting these regression analyses, we calculated Cook's distance ( $D$ ) to ensure that data were not unduly influenced by multivariate outliers. All cases had a Cook's distance less than 1, and we thus concluded that our analyses were not unduly influenced by multivariate outliers given that the  $D > 1$  is broadly conceptualized as the indication of outliers. In regard to checking for multicollinearity, all tolerance coefficients were greater than .20 and all variance inflation factors were less than 10, suggesting that there was no significant multicollinearity among our variables of interest. Predictor and moderator variables were mean-centered to increase interpretability of results (Aiken & West, 1991).

For our first regression analysis, we entered BMI and conformity to masculine norms as a control variables in Step 1, and in Step 2 we entered our mean-centered predictor variables (i.e., racism, gendered racism) as well as our moderating variable (i.e., ethnic identity). In Step 3 we entered the interaction terms between racism and ethnic identity and between gendered racism and ethnic identity. MODE was inputted as the dependent variable. Step 1 of the regression analysis accounted for 10% of the variance, a significant amount ( $F(2, 214) = 12.38, p < .01$ ). Within this step BMI was significantly and positively associated with MODE ( $b = .31, p < .01$ ). Adding the variables at Step 2 increased the amount of variance explained by 4%, a significant increment ( $F(3, 211) = 8.12, p < .01$ ). It was found that gendered racism ( $b = .25, p < .01$ ) was positively associated with MODE, whereas racism ( $b = -.08, p = .35$ ) and ethnic identity ( $b = .13, p = .06$ ) were not associated. Adding the variables at Step 3 did not increase the amount of variance by a significant increment ( $F(2, 209) = 5.81, p = .91$ ), and therefore we chose to interpret the interactions between racism and MODE and between gendered racism and MODE as nonsignificant. All of the results of this model are depicted in Table 3.

For our second regression analysis, we also entered BMI as a control variable in Step 1, in Step 2 we entered each of the eight mean-centered masculine norms, and MODE was inputted as the dependent variable. Step 1 of the regression analysis accounted for 9% of the variance, a significant amount ( $F(1, 215) = 23.2, p < .01$ ). Within this step BMI was significantly and positively associated with MODE ( $b = .31, p < .01$ ). Adding the variables at Step 2 increased the amount of variance explained by 5%, a significant increment ( $F(8, 207) = 2.55, p < .05$ ). It was found that conformity to the masculine norms of playboy ( $b = .14, p < .05$ ), heterosexual presentation ( $b = .20, p < .05$ ), and self-reliance ( $b = .19, p < .01$ ) were each positively associated with MODE, whereas conformity to the masculine norm of power over women was



**Table 3.** Multiple regression with muscularity-oriented disordered eating as the outcome variable and racism and gendered racism as predictors.

Variable	<i>B</i>	<i>t</i>	<i>p</i>	<i>R</i>	<i>R</i> <sup>2</sup>	$\Delta R^2$
Step 1				.32	.10	.10**
Body Mass Index (kg/m <sup>2</sup> )	.31	4.83	.001**			
Conformity to Masculine Norms	.08	1.23	.22			
Step 2				.40	.14	.04**
Body Mass Index (kg/m <sup>2</sup> )	.31	4.94	.001**			
Conformity to Masculine Norms	.08	1.32	.19			
Racism	-.08	-.93	.35			
Gendered Racism	.25	2.83	.005**			
Ethnic Identity	.13	1.93	.06			
Step 3				.40	.14	.00
Body Mass Index (kg/m <sup>2</sup> )	.31	4.91	.001**			
Conformity to Masculine Norms	.09	1.34	.18			
Racism	-.08	-.91	.36			
Gendered Racism	.25	2.82	.005**			
Ethnic Identity	.13	1.94	.05			
RacismXEthnicIdentity	.04	.41	.68			
GenderedRacismXEthnicIdentity	-.02	-.19	.85			

\*\**p* < .01; \**p* < .05**Table 4.** Multiple regression with muscularity-oriented disordered eating as the outcome variable and conformity to masculine norms as predictors.

Variable	<i>B</i>	<i>t</i>	<i>p</i>	<i>R</i>	<i>R</i> <sup>2</sup>	$\Delta R^2$
Step 1				.31	.09	.09**
Body Mass Index (kg/m <sup>2</sup> )	.31	4.82	.001**			
Step 2				.42	.14	.05**
Body Mass Index (kg/m <sup>2</sup> )	.33	5.13	.001**			
Playboy	.14	2.05	.04*			
Power Over Women	-.17	-2.16	.03*			
Risk-Taking	.003	.04	.97			
Emotional Control	-.13	-1.81	.07			
Heterosexual Presentation	.20	2.60	.01*			
Self-Reliance	.19	2.67	.008**			
Violence	-.05	-.79	.44			
Winning	-.03	-.46	.65			

\*\**p* < .01; \**p* < .05

negatively associated with MODE ( $b = -.17$ ,  $p < .05$ ). All other masculine norms were not associated with MODE (all  $p$  values > .07). All results from this model are shown in Table 4.

## Discussion

The present study was the first to examine MODE in Asian American men from an intersectional perspective, evaluating MODE's associations with gendered racism and with conformity to masculine norms. In line with our first hypothesis, experiences of gendered racism were positively associated with MODE, while general racism was not associated. Our second hypothesis was partially supported. In line with our hypothesis, conformity to the masculine norms of heterosexual presentation and playboy was positively associated with

MODE. However, in contrast to our hypotheses, conformity to the norm of power over women was negatively associated with MODE, though the correlation between power over women and MODE was non-significant. Furthermore, self-reliance was also positively associated with MODE. The remaining norms had no associations with MODE. Contrary to our third hypothesis, ethnic identity did not moderate associations between racism, gendered racism and MODE.

Our main finding related to MODE's association with gendered racism rather than general racism contributes to research examining health risks for Asian American men from an intersectional perspective. The lack of association between general racism and MODE extends and supports previous findings that general racism is not associated with the drive for muscularity in Asian American men (Cheng et al., 2016). While general racism has been associated with negative health outcomes in past research for Asian American men (Kelly et al., 2018), studies have also found that gendered racism creates distress beyond that of racism and masculine role stress when considered individually (Liu et al., 2018). The presence of psychological emasculation in gendered racism against Asian American men may uniquely predispose Asian American men to MODE, more so than experiences of general racism. Our findings suggest that the "gendered" component of gendered racism may make Asian American men particularly susceptible to MODE, perhaps because gendered racism specifically evokes concerns regarding muscularity.

The positive association between conformity to heterosexual presentation and MODE builds upon previous research examining the health implications of conformity to masculine norms. Previous studies have suggested that adherence to heterosexual presentation in Asian American men may also be linked to heightened consciousness of how they are perceived by others (Iwamoto et al., 2014; W. M. Liu & Iwamoto, 2007). Additional studies have found that men conforming to hegemonic masculinity show greater disdain for gay men, perceiving them to be more feminine (Baugher & Gazmararian, 2015; Davies et al., 2012). Accordingly, men adhering to the norm of heterosexual presentation may view the possibility of being perceived as gay as a threat to their masculinity, and may seek to reduce that risk by increasing their muscularity. This could extend to our findings, such that Asian American men who identify with the norm of heterosexual presentation may desire muscularity to avoid being perceived as gay, predisposing them to MODE. Previous studies examining the effects of heterosexual presentation on MODE have been conducted with samples that were majority white or did not collect information on race, so our study extends these findings to Asian American men.

Additionally, both the playboy and self-reliance norm were positively associated with MODE. In regard to the playboy norm, this converges with past literature that suggests that Asian American men may feel inclined to gain

a more muscular figure to be more attractive to potential sexual partners (Liao et al., 2020). In the popular culture of the United States, muscularity is often seen as an attractive core component of the ideal male body (Leit et al., 2001). Further, previous studies of American college students have found that men overestimate the degree to which women associate muscularity with attractiveness (Grieve et al., 2005). Thus, Asian American men who want multiple sexual partners may engage in MODE to achieve that body ideal. In regard to the self-reliance norm, it is possible that Asian American men who feel uncomfortable reaching out to others for help may instead cope with their problems through increasing their muscularity. This is in line with previous studies of Asian Americans which found that perceived ability to self-manage emotions predicted exercise as a coping mechanism for distress (Lei & Pellitteri, 2017). Relative to European Americans, Asian Americans are more likely to practice self-concealment of a mental health concern (Masuda & Boone, 2011). Multiple culturally-relevant barriers to help-seeking for Asian Americans have been identified, including cultural stigma and loss of face concern (Gee et al., 2020). Increasing one's muscularity may feel like an immediate and less risky mechanism of coping relative to seeking help from others, which may entail vulnerability and risking face.

The more unexpected finding was the negative association between power over women and MODE. One potential explanation is that men who identify strongly with the norm of power over women may be less likely to internalize their body image concerns. Iwamoto et al. (2014) found adherence to power over women to be protective against alcohol use, suggesting that men who adhere to this norm might have higher self-esteem and may not rely on alcohol to help socialize or become more courageous. Similarly, participants in our study who adhere to this norm may have had higher self-esteem and may not believe that they need to prove their status through muscularity. Another potential explanation is that men who adhere to this norm are more likely to deal with muscularity-related discomfort by externalizing it towards women. Dahl et al. (2015) found that men who were outperformed by women in masculine domains (e.g., an action-oriented competitive laboratory task) responded by sexualizing women and increasing their endorsement of social dominance orientation. In the case of our study then, men who adhere to power over women may preemptively prevent muscularity-related dissatisfaction by shifting any body related concerns into a desire to maintain dominance over women, rather than internalizing that discomfort and engaging in MODE. These potential explanations are somewhat speculative, however, and future research is needed to examine the relationships between power over women, antifeminine attitudes, and MODE. Furthermore, the bivariate correlation between power over women and MODE was nonsignificant, suggesting that the association between power

over women and MODE may be most evident when controlling for the influence of other variables such as additional masculine norms and BMI.

Ethnic identity's lack of moderation between gendered racism and MODE builds upon previous mixed findings related to ethnic identity in Asian Americans. Guidinger et al. (2020) found that ethnic identity moderated the link between emotional awareness when distressed and loss of control eating, such that the association was nonsignificant among those with low ethnic identity and negative among those with high ethnic identity. However, multiple studies have found that ethnic identity does not moderate the association between perceived discrimination and psychological well-being (Hong et al., 2018; Yoo & Lee, 2005). It is possible that while ethnic identity may allow Asian American men to feel more connected to their heritage culture, the connection may not inherently be accompanied by a rejection of the psychological repercussions of gendered racism. The perceived incompatibility between Asian bodies and western mesomorphic ideals contributes to body image concerns for Asian American men (Lu & Wong, 2013), and it may be that ethnic identity alone cannot remove these concerns. Future studies should examine the impact of ethnic identity on perceptions of the ideal body, keeping into account factors such as acculturation, enculturation, and body image ideals across subgroups of Asian Americans.

We acknowledge multiple limitations with the present study. Since the present study used a cross-sectional design, we are unable to establish temporal sequencing. Future studies should use longitudinal designs to examine how gendered racism and masculine norms affect MODE over time. In addition, the majority of our sample was heterosexual. Given the unique experiences of discrimination and health outcomes for queer Asian American men (Cochran et al., 2007), future studies should examine this population more specifically. Future studies could also examine the experiences of Asian American men with differing ethnicities. For example, future studies could recruit large enough sample sizes of South, Southeast, and East Asian men to investigate potential differences in experiences of gendered racism and MODE, similar to studies that have examined different men of color's experiences with loss of control eating and sexual risk behaviors (Han et al., 2015; Kelly et al., 2018). Furthermore, future studies may seek to examine the potential interactions between conformity to masculine norms and gendered racism. It is possible that Asian American men who conform more to masculine norms may then gain more muscle mass, and others may feel intimidated by that and then perpetuate gendered racism to make Asian American men feel insecure about themselves. Conversely, Asian American men who conform more to masculine norms who do acquire more muscularity perhaps may subsequently experience less gendered racism due to defying certain stereotypes about Asian American men (e.g., being scrawny/skinny).

Furthermore, participation bias and non-response bias limit the generalizability of our results. Only Asian American men who had access to some form of working internet could have completed our study's survey, and there may be additional factors that predisposed certain men to choose to participate in our study as well as factors that may have disincentivized participation. For example, we advertised through universities' Asian cultural organizations and various social media sites, which means that our study's results may not generalize to Asian American men who have not participated in cultural organizations or who do not use social media. Additionally, based on the power analysis, the current study lacked a sample size sufficient to detect small effects, leaving the possibility that null results are Type II errors (i.e., failing to detect a small, but true, effect). Continued research in this area with larger samples is necessary to elucidate all factors relating to Asian American men's MODE. Lastly, it is also important to note that the modified EDE-Q we used in this study has not been validated as a measure of MODE. Although this modified measure has shown high internal reliability in previous studies (Griffiths et al., 2015; Murray et al., 2012) and in the current study, caution should be used when interpreting the results based on this measure given its lack of validation.

Despite these limitations, our research extends the literature surrounding the negative health outcomes associated with gendered racism, and offers multiple points of intervention for practitioners, researchers and others to help alleviate Asian American men's MODE. Practitioners working with Asian American men in mental health settings may benefit from considering the extent to which clients feel pressured to appear heterosexual, as this may contribute to MODE behaviors. Clinicians should also inquire about their clients' prior experiences with gendered racism, and the impacts of those experiences on their self-image. Additionally, researchers examining muscularity-oriented disordered eating in men should be mindful of the unique experiences of men of color, and how gendered racism may impact study findings. On a systemic level, workplaces and institutions may work to prevent gendered racism from occurring in the first place by educating individuals about anti-racism in relation to the Asian American community. Individuals and institutions may also benefit from being aware of how masculine norms are socialized, and should be mindful to avoid pressuring Asian American men to adhere to them.

The present study offers an expanded view on the sociocultural risk factors that are associated with Asian American's MODE, grounded in an innovative and intersectional framework. Our data support the notion that Asian American men's experiences related to both race and gender—as well as oppression that targets both of those identities—are important to consider when examining their health and eating-related behaviors. These findings, by considering multiple social identities (e.g., race, gender) inform Asian American men's risks and vulnerabilities pertaining to disordered eating and highlight various avenues for intervention.

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