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SOCIAL STATUS INSECURITY AND BODY IMAGE RELATED HEALTH OUTCOMES: TESTING A MODERATED MEDIATION MODEL

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SOCIAL STATUS INSECURITY AND BODY IMAGE RELATED HEALTH OUTCOMES:

TESTING A MODERATED MEDIATION MODEL

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A Thesis

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by

Mingqi Li

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Abstract

Body dissatisfaction has been found to be associated with a wide range of maladjustment outcomes and negative behavioral consequences. To identify the sources leading to body dissatisfaction, the present study proposed that an aspect of social cognition specifically regarding peer status, known as *social status insecurity*, may function as a precursor of body dissatisfaction. This study further examined the associations between social status insecurity and body-image-related health outcomes by focusing on the mediation effects of body dissatisfaction in a sample of 308 Chinese adolescents (117 girls, 191 boys). Furthermore, this study examined whether these mediation processes were moderated by social status (i.e., popularity status, social preference) and gender, with each type of social status (e.g., popularity) moderating the corresponding type of social status insecurity (e.g., popularity status insecurity). Results from path analyses generally demonstrated that feeling insecured about one's status among peers is directly or indirectly associated with maladaptive eating behaviors, worse health conditions, social anxiety, and depressive symptoms, depending on the attained status and/or gender. Findings from this study can inform researchers, educators, and clinicians of peer status related vulnerabilities that likely induce adolescents' disordered eating behaviors and physical, mental health problems, as well as inform them of some new directions for interventions aiming at reducing these negative outcomes.

Keywords: social status insecurity, body dissatisfaction, body image, eating disorders, depression, anxiety

Social Status Insecurity and Body Image Related Health Outcomes: Testing a Moderated

Mediation Model

Long regarded as one of the robust risk factors for eating pathology and maladaptive weight-control behaviors, body dissatisfaction, defined as a negative evaluation of body appearance or of specific body features (Stice & Shaw, 2002), remains as a strong focus in research on the concerns of new generations about their body. Adolescence is a period at particularly high risk for developing body dissatisfaction. Earlier studies revealed that 12%-46% of adolescents reported experiencing body dissatisfaction (Paxton, Eisenberg, et al., 2006), but these numbers have increased to 49%-84% as estimated in a recent study (Dion et al., 2015). The relationship between body dissatisfaction and poor physical, psychological health consequences for both boys and girls, such as excessive weight gain, bulimic symptoms, unhealthy weight control behaviors, depressive mood, and low self-esteem, is well-documented in the literature (Baker et al., 2019; Neumark-Sztainer et al., 2006; Neumark-Sztainer et al., 2007; Paxton, Neumark-Sztainer, et al., 2006). Given the distress and negative outcomes associated with body dissatisfaction, it is crucial to understand the risk factors that predict its development, findings of which may help clinicians, educators, and researchers identify foci in developing interventions.

Extant research largely points to the sociocultural pressure for thinness, more specifically, the internalization of society's idealization of thinness, as the largest contributor to body dissatisfaction and disordered eating outcomes in females (Stice, 2002; Striegel-Moore et al., 1986). In fact, prior to the internalization processes, simple awareness of the existence of thin ideal conveyed through sociocultural messages has been found to predict both levels of internalization and body dissatisfaction (Sands & Wardle 2003), suggesting the profound influence of interpersonal factors on the origin of body dissatisfaction. Yet importantly, the

impacts of contextual factors on body dissatisfaction are considered to depend on psychological processes that direct and shape how individuals process environmental input (Corning et al., 2006). Accordingly, in the present study, I propose that adolescents' insecure feelings about their own current social standing among peers, termed as *social status insecurity* (Li & Wright, 2014), serves as one driving force behind body dissatisfaction. The primary goal of this study is to investigate the longitudinal association between social status insecurity and body-image-related health outcomes by focusing on the mediation effects of body dissatisfaction in a sample of Chinese adolescents.

Peer Status and Physical Appearance

Over the past few decades, the literature has clearly delineated distinct ways to conceptualize and measure peer status. One of the peer status dimensions that has long been focused on is *peer acceptance* ("social preference" hereinafter), an index of preference, liking, and acceptance among the peer groups, which is typically measured by "like most/least" peer nominations (Cillessen & Mayeux, 2004; Coie et al., 1982). The relatively more recent dimension, *perceived popularity*, is an indication of social reputation, social impact, and social visibility in adolescents' social network and is assessed by the "who is popular/unpopular" peer nominations (Cillessen & Marks, 2011; Parkhurst & Hopmeyer, 1998). In both Western and non-Western cultures, children with higher social preference are described as more prosocial, sociable, academically competent, and less aggressive (e.g., LaFontana & Cillessen, 2002; Zhang et al., 2017). However, popular youth were found to possess both positive characteristics (e.g., socially central, prosocial) and negative characteristics (e.g., aggressive, antisocial), especially during adolescence (e.g., Cillessen & Mayeux, 2004; Prinstein & Cillessen, 2003; Rose et al., 2004).

Physical appearance, or more specifically physical attractiveness, has been known to be remarkably associated with adolescents' peer status, popularity in particular. Adolescents' concerns about appearance increases with age. While attractive appearance was not reported by the Grade 1 participants as an important factor for popularity, it was one of the most prominent factors for popularity in Grade 4 and Grade 7 (Xie et al., 2006). Indeed, conforming to appearance norms of dress and grooming practices is actively pursued by adolescents (Brown et al., 1986; Silverman, 1945). Sixth-graders and eighth-graders who are rated as more popular were also more likely to receive positive ratings on appearance (Kennedy, 1990). In addition, attractive peers are significantly more popular than unattractive peers among ninth-graders, regardless of their academic grades (Boyatzis et al., 1998). Notably, appearance may be globally considered as a major determinant of popularity. Physical attractiveness has been ranked the first criterion for other-sex popularity among Greek adolescents (Nikitaras & Ntoumanis, 2003). Similarly to the finding in the Western world, Chinese children perceive that attractive appearance positively contributes to popularity (Li et al., 2012).

One important aspect of physical appearance is body image. Exposures to thin images displayed in mass media and increased emphasis placed on interpersonal influences are leading contributors to the development of thinness ideal and body dissatisfaction in adolescents (Jones et al., 2004; Shaw, 1995). Recent studies reported that peers have an overwhelming negative impact on adolescent body image. In particular, body size comparisons with peers may be the most salient component of peer influence processes on weight-related behaviors, such as caloric restriction and exercise (Kenny et al., 2017; Rancourt et al., 2014). The considerable effect of peer environment may pressure adolescents to set apart body image as a critical factor that impacts their peer status and perhaps also a vehicle by which they can gain status. Indeed, peer-

perceived popularity, but not likability, is significantly associated with both boys' and girls'

body size and dieting. For example, lower levels of popularity are associated with heavier body

shapes for girls and with both thin and heavier body shapes for boys (Wang et al., 2006). Girls

nominated as popular by peers are more likely to engage in disordered eating and have lower

body esteem (Lieberman et al., 2001). Moreover, dating, an important social activity that is

typically first experienced in teenage years, has also been shown to influence adolescents' body

image and eating behaviors. For example, tenth-grade girls' belief that boys see thinness as

important in rating girls' attractiveness fully mediated the relationship between importance to be

popular among boys and these girls' body dissatisfaction (Paxton et al., 2005). Notably, gender

also plays a role in how social standing implicates one's perception with their body and body

change strategies. For instance, McCabe and colleagues (2002) found that for boys in both Years

7 and 9, body change strategies were predicted by puberty and, to a lesser extent, perceived

popularity with peers, whereas for girls in Years 9, perceived popularity with opposite-sex peers

predicted body dissatisfaction and strategies to increase muscle tone. The above literature review

suggests that body image is a salient and proximal determinant of social status among

adolescents.

Social Status Insecurity and Developmental Outcomes

A novel line of research on peer status that has gained increasing attention in recent years

revolves the concept of *social status insecurity*. Adolescents are often susceptible to the

influence of peer interactions and become alerted to their social standing among peers. Their

developing awareness of peer status prompts them to become increasingly sensitive to tensions

or issues about their own popularity or social preference (LaFontana & Cillessen, 2002).

Consequently, they may become worried that their current social standing is threatened, their

popularity status is low, or other peers do not like them. These instances of social cognition regarding peer status reflect a concept termed as *social status insecurity*, which refers to a mental state that adolescents feel insecure, anxious, concerned, or dissatisfied with their peer status (Li et al., 2010). Findings from existing studies generally point to a negative role of social status insecurity on both concurrent and later social behavioral outcomes, such that when adolescents feel insecure about their social standing, they may resort to aggression as coping strategies, especially relational aggression. For example, social status insecurity was found to be positively linked to both teacher- and self-reported and peer-nominated relational aggression among Chinese adolescents (Li et al., 2010; Long & Li, 2020). Similarly, early adolescents from Western societies who felt hypersensitive concerned for their social status and peer acceptance demonstrated more physical and relational aggression toward others based on both teacher- and self-reports (Downey et al., 1998). Moreover, adolescents' social status insecurity was found to function as a precursor of relational aggression through the mediation of popularity goal endorsement (Li & Wright, 2014).

Researchers who attempt to further understand social status insecurity should consider its impact on adolescents at various levels of attained peer status. For instance, whereas those who are very popular or highly liked by others may fear losing their current standing among peers (Downey et al., 1998), those with a relatively lower social status may be preoccupied by peer rejection and unpopularity. In a recent study, relationally victimized Chinese adolescents had higher insecure feelings about their popularity status, which in turn led to higher depression and anxiety. However, such a process was only found among those with low initial popularity status. (Long et al., 2019). Other studies, yet not particularly pertaining to social status insecurity, showed that adolescents' different social status led them to different adjustment outcomes (e.g.,

Zhang et al., 2017). For example, lower levels of peer status are particularly associated with

chronic victimization and higher levels of internalizing and externalizing symptoms among

adolescents (Sheppard et al., 2019). It thus appears that different social status levels differentially

impact adolescents' psychological and behavioral adjustment. In the present study, therefore, we

will examine the moderating effect of initial peer status on the association between social status

insecurity and outcomes of interest.

Despite the promising development of social status insecurity in the recent literature, this

concept was usually examined as an integrated construct, a mixture of general peer status,

popularity, and social preference (Li et al., 2010; Li & Wright, 2014; Long & Li, 2020).

However, as previously discussed, different types of peer status have been found to be associated

with different characteristics and behavioral outcomes in adolescents (e.g., Cillessen & Marks,

2011; Cillessen & Mayeux, 2004). It could be hypothesized that the insecurity regarding each

dimension of peer status bears different developmental meanings and behavioral implications for

adolescents. Thus, it becomes necessary to differentiate the insecure feelings for popularity (i.e.,

popularity status insecurity) from those for social preference (i.e., social preference insecurity) in

order to reveal each of their unique functions and implications on adolescents' developmental

outcomes.

So far, most emphasis in research on social status insecurity has been set on investigating

its relationships with behavioral outcomes and psychological adjustment among adolescents, yet

with little attention being given to its impact on health-related cognitions and outcomes, such as

adolescents' perceptions of their body shape and eating behaviors. On the other hand, although

many previous studies have explored peer status in relation to body image and disordered eating

outcomes, they tend to focus on attained status (e.g., high or low popularity status) yet paid

limited attention to the mental processes associated with peer status, such as insecurity of losing

status or goal of promoting status. As previously suggested, many adolescents experience

heightened dissatisfaction with physical appearance, partly because normative physical changes,

such as weight gain at puberty, are in conflict with socially-prescribed and internalized physical

attractiveness ideals (e.g., Striegel-Moore & Cachelin, 2001; Wade et al., 2007). Although

epidemiological research often reported concerns with weight and body image to be prevalent

among adolescents in Western countries (Isomaa et al., 2010; Zeiler et al., 2016), these issues

may also present in other adolescent populations (e.g., Chen & Jackson, 2008). In a large sample

of children and adolescents in China, Li et al. (2005) found that 14 and 15 year olds preferred

thinner body types more strongly than did younger age groups, possibly in the face of

undergoing physical changes at odds with thin ideals. Not surprisingly, in a sample of Chinese

female adolescents, 7.8% had a screening-detected eating disorder (Watson et al., 2015). Thus,

more studies need to be conducted to understand the antecedent processes of eating disturbances.

The major objective of the current study is to explore the potential relationship between social

status insecurity and body image concerns and disordered eating behaviors.

Body Dissatisfaction as a Mediator

Extensive literature has well documented the role of body dissatisfaction in the

development of drive for thinness and maladaptive eating behaviors and weight-loss strategies.

Generally, high percentages of adolescents, particularly adolescent girls, reported being

dissatisfied with their bodies (Neumark-Sztainer et al., 2002; Ricciardelli & McCabe, 2001). The

high prevalence of body dissatisfaction during adolescence is disturbing in that it may give rise

to various negative physical, psychological, and behavioral consequences (Rosewall et al., 2020;

Paxton et al., 2005). A prospective analysis in 1,177 adolescent girls showed that baseline body

dissatisfaction significantly predicted increases in disordered eating symptoms (e.g., bulimia) and psychological distress (e.g., stress, depression) about one year later (Johnson & Wardle, 2005). Furthermore, gender differences in the correlates of body dissatisfaction have also been reported in the literature. In one longitudinal study of a large sample of adolescents ($N = 2,516$), lower body satisfaction predicted higher levels of dieting, unhealthy weight control behaviors, and lower levels of physical activity in both boys and girls, lower fruit and vegetable intake only in girls, and healthy weight control behaviors and smoking only in boys (Neumark-Sztainer et al., 2006).

In recent decades, an increasing amount of research on body image concerns and disordered eating has been conducted in Chinese youth. Findings from these studies indicated similar patterns to what has been reported in Western cultures. For example, body dissatisfaction in Chinese adolescents is significantly related to depressive symptoms and eating disorder symptomatology (Feng & Abebe, 2017; Fung et al., 2010; Jackson & Chen, 2011). Moreover, while body dissatisfaction is significantly higher in Chinese adolescent girls than boys (Xu et al., 2010; Chen & Jackson, 2008), Chinese boys are not immune to body dissatisfaction, who also reported dissatisfaction with their body size (Li et al., 2005). Nonetheless, complicating this picture is the increasing rates of child overweight and obesity in China in recent years. From 1985 to 2010, among Chinese school-aged children, the prevalence of child overweight and obesity has reached 9.9% and 5.1%, respectively (Ji et al., 2013). The rising obesity levels among Chinese children were argued to be due to greater access to high-calorie foods and greater time investment in sedentary behaviors (e.g., viewing TV, sitting for academic study) along with the rapid urbanization, westernization, and growing food industry in China (Monteiro et al., 2004). The elevating rates of overweight and obesity as well as the lack of attention to health

care among youth become conflicting with the growing thinness norm in modern society, which

warrants more research on body image to be conducted in Chinese youth.

Social status insecurity contains a form of social anxiety in the midst of perceived

hierarchical social environment. When such anxiety arises, adolescents may ponder why their

popularity and/or likability are not as high as they desired. As part of the search for an answer,

they may evaluate themselves and start paying attention to their appearance, such as body shape.

Such thoughts may prompt them to become more sensitive to any discrepancies between their

current body shape and the ideal (e.g., thinner or more masculine body shape), especially under

the external pressures of being thin or slender imposed through peers and media. Having felt

dissatisfied with their appearance and wanted to gain status through changing their appearance,

adolescents may start thinking about and experimenting with various kinds of weight-loss

strategies, some of which may be maladaptive. This is the speculated process by which body

dissatisfaction might occur and come into play in linking social status insecurity to negative

behavioral and health outcomes associated with the management of body image.

The Present Study

Expanding previous peer relation research on the associations between social status

insecurity and social behaviors and mental health, this study examined the associations between

social status insecurity and body-image-related health outcomes (i.e., drive for thinness, bulimic

symptoms, restrained eating, behaviors to increase muscle, other physical and mental health

outcomes) by focusing on the mediation effects of body shape concern in a sample of Chinese

adolescents (see Figure 1 for the theoretical model). Moreover, this study examined whether

these mediation processes would be moderated by adolescents' gender and initial social status.

The two types of social status insecurity, namely, popularity status insecurity and social

preference insecurity, were examined separately. The types of social status entered as moderator depend on which status insecurity was entered as predictor. For example, if popularity status insecurity was the predictor, then popularity status was selected to be the moderator. The following set of hypotheses was tested:

Hypothesis 1: Each of the two types of social status insecurity, popularity status insecurity and social preference insecurity, would be positively associated with body dissatisfaction;

Hypothesis 2: Body dissatisfaction would be positively associated with maladaptive body-image-related outcomes (e.g., drive for thinness, bulimic symptoms, restrained eating, behaviors to increase muscle) and negatively associated with physical and mental health (e.g., body mass index, depression, anxiety);

Hypothesis 3: Body dissatisfaction was expected to mediate the associations between each type of social status insecurity and body-image-related health outcomes;

Hypothesis 4: Gender was expected to moderate the mediation processes such that the mediation effects would be stronger for girls than for boys;

Hypothesis 5a: Popularity status would moderate the mediation processes between popularity status insecurity and body-image-related health outcomes, such that the mediation effects would be stronger for adolescents with higher popularity status;

Hypothesis 5b: Social preference would moderate the mediation processes between social preference insecurity and body-image-related health outcomes, such that the mediation effects would be stronger for adolescents with higher social preference.

Methods

Participants

A total of 308 adolescents (117 girls, 191 boys) from an urban public high school in Beijing, China voluntarily participated in the present study, with 141 students in tenth grade, 92 in eleventh grade, and 75 in twelfth grade. Age ranged from 15 to 19 years ($M = 16.25$, $SD = 1.03$). Body Mass Index ranged from 14.38 to 45.91 ($M = 24.12$, $SD = 5.99$). The majority of participants' mother (89.0%) and father (84.4%) obtained college degree.

Procedure

After obtaining the IRB approval from the university, I sent out emails with an introduction of the present study to a list of school principals in Beijing, China. After the school agreed to participate, all students were given a classroom announcement about the study, and those under 18 years old were asked to bring a parental permission form home. Data collection began in December, 2020. Students with parental permission were provided the Qualtrics survey link from the head teacher of each class. Before the actual survey questions appear, students read the assent form (for those under 18 years old) or the adult consent form for details about the study and indicated their agreement to participate in the study. Prior to taking the survey, they were assured of confidentiality and informed that they can stop participation at any time. Those who provided assent or consent and parent permission (for those under 18 years old) participated in the study. They first answered demographic questions and completed all measures in a group-administered survey session during school time.

Measures

Measures with no Chinese version available were translated into simplified Chinese using the translation and backtranslation technique with assistance from another psychology doctoral student who is fluent in both English and Mandarin. Unless otherwise indicated that the measure

was available in Chinese, the measures were translated into Chinese by the author and another

Doctoral research assistant.

Social Status Insecurity

Social status insecurity was measured by the Social Status Insecurity Scale (Li & Wright,

2014), in which four items measure popularity status insecurity (e.g., "I feel I am unpopular

among my classmates"), three measure social preference insecurity (e.g., "I care about whether I

am liked by my classmates"), and four measure general social status insecurity (e.g., "I feel that

my social standing among peers is not high"). In the present study, only scores on the popularity

status insecurity and social preference insecurity scales were included in the analyses in order to

correspond the types of status insecurity (as predictor) with the types of social status (as

moderator). Participants rated each statement on a 5-point scale from 1 (*never*) to 5 (*all the time*).

Higher average scores indicate higher social status insecurity. This measure is available in

Chinese (Li et al., 2010). In the present sample, Cronbach's αs of popularity status insecurity

subscale and social preference insecurity subscale are both .81.

Body Dissatisfaction

The 8-item short version of the Body Satisfaction Questionnaire (BSQ; Evans & Dolan,

1993) was used to examine the extent to which adolescents' concerns about body shape that have

caused distress and interfere with normal activities. Participants were asked how they have been

feeling about their appearance over the past four weeks (e.g., "Have you felt excessively large

and rounded?") and rate each question on a scale from 1 (*never*) to 6 (*always*). Higher average

scores indicate higher body dissatisfaction. In the present sample, Cronbach's α of this measure

is .92.

Drive for Thinness and Bulimic Symptoms

To assess eating disturbances, the 7-item Drive for Thinness (EDI-DT; e.g., "I am terrified of gaining weight") and 7-item Bulimic Symptoms (EDI-BS; e.g., "I stuff myself with food" from the Eating Disorder Inventory (EDI) were used in the study (Garner et al., 1983). The EDI is a 64-item self-reported multidimensional measure of psychological and behavioral traits common in people who experience anorexia nervosa and bulimia. Participants indicated their response for each statement on a 5-point scale from 0 (*never*) to 5 (*always*). Higher average scores indicate greater drive for thinness and bulimic symptoms, respectively. This measure is available in Chinese and has been shown as a reliable and useful measure in nonclinical Chinese population (Lee et al., 1997). In the present sample, Cronbach's αs of Drive for Thinness subscale and Bulimic Symptoms subscale are .88 and .80, respectively.

Restrained Eating

The 10-item Restrained Eating subscale of the Dutch Eating Behavior Questionnaire (DEBQ; Van Strien et al., 1986) was used to assess attempts to refrain from eating. Participants indicated the frequency of engaging in each restrained eating behavior (e.g., "how often do you refuse food or drink offered because you are concerned about your weight?", "Do you deliberately eat less in order not to become heavier?") on a scale from 1 (*never*) to 5 (*very often*). This scale has been translated into Chinese and shown with adequate internal consistency, test-retest reliability, and criterion validity (Wu et al., 2017). In the present sample, Cronbach's α of this subscale is .93.

Behaviors to Increase Muscle

Participants' behaviors to increase muscle were examined using the Body Change Strategies to Increase Muscle Size subscales in the Body Image and Body Change Inventory (Ricciardelli & McCabe, 2002). Participants rated how often they engage in each behavior on a

scale from 1 (*never*) to 5 (*always*). Only items assessing for actual behaviors increase muscle

size (i.e., "use exercise," "take food supplements") are included.

Physical Exercise Level

Physical exercise level was assessed by one item adapted from the Youth Health Risk

Behavior Survey (Centers for Disease Control and Prevention [CDC], 2004; Rancourt &

Prinstein, 2010). Participants reported the frequency of engaging in exercise or work-out to lose

weight or to keep from gaining weight over the past 30 days on a five-point scale from 1 (*0*

times), 2 (*1-3 times*), 3 (*once a week*), 4 (*a few times a week*), to 5 (*every day or almost every*

day).

Health-Related Outcomes

Specific health complaints, perceived general health, and concern about health were

assessed. Participants first indicated how often they have experienced each of the six health

complaints, cold, headache, stomachache, backache, feeling dizzy, and having a medical leave of

absence, on a five-point scale ranging from 1 (*rarely or never*) to 5 (*about every day*). The next

question asked participants to rate their current general health status on a five-point scale from 1

(*very bad*) to 5 (*very good*). Lastly, one question was designed to assess concern about health

(i.e., "How much do you concern about your health generally?"). Participants responded on a

five-point scale from 1 (*not concern at all*), 2 (*concern a little*), 3 (*moderately concern*), 4

(*concern a lot*), to 5 (*always concern*). In the present sample, Cronbach's α of the scale assessing

health complaints is .79.

Social Anxiety

The 15-item Social Anxiety Scale for Children-Revised (SASC-R; la Greca & Stone,

1993) will be used to assess adolescents' anxiety levels. Among the 12 items, three items are

filler items. Participants will rate how true each item (e.g., "I worry about what others say about me") describes how they feel on a 5-point scale from 1 (*not at all*) to 5 (*all the time*). Higher average scores indicate higher levels of anxiety. The Chinese-translated version has been confirmed to contain three factors as in the original scale and found to be associated with measures of internalizing problems, peer difficulties, and poorer school adjustment in a Chinese children sample (Liu et al., 2015). In the present sample, Cronbach's α of this measure is .93.

Depressive Symptoms

The 10-item Children Depression Inventory Short Form (CDI-S; Kovács, 2003) was utilized to assess for adolescents' depression levels. Participants selected one of three options that most accurately describes each depressive symptom in the past two weeks (e.g., "I am sad once in a while," "I am sad many times," "I am sad all the time"). Higher average scores indicate higher levels of depression. In the present sample, Cronbach's α of this measure is .82.

Social Status

To determine participants' initial popularity status and social preference, a peer nomination procedure was used. Participants nominated classmates whom they like most (i.e., "the people in your class you like the most") and like least (i.e., "the people in your class you like the least"; Coie et al., 1982), and whom they think the most popular (i.e., "the people in your class who are the most popular") and the least popular (i.e., "the people in your class who are the least popular"; Mayeux & Cillessen 2008). Nominations received were tallied for each question and standardized within the class in the Chinese school system, in which students stay with classmates and take classes in the same classroom and do not change classmates. The continuous measure of social preference was computed by subtracting the standardized "like least" nominations from the standardized "like most" nominations. The resulting difference score was

again standardized to a mean of 0 and standard deviation of 1 within the reference group for ease

of interpretation (Coie et al., 1982). Similarly, the continuous measure of popularity was

computed by subtracting the standardized "least popular" nominations from the standardized

"most popular" nominations. The resulting difference score was again standardized within the

reference group to obtain the popularity scores (Cillessen & Mayeux 2004). General social status

was obtained by averaging the popularity status and social preference scores. To test the

moderation effects of the initial peer status, participants were classified into high vs. low

popularity/social preference/general social status groups according to whether their score is

above or below the mean of the respective status score. Questions for peer nomination are

available in Chinese (Li & Hu, 2018).

Demographic Information

Participants' age, gender, grade, and rural versus urban residence were solicited. Body

Mass Index (BMI) was computed using the formula [weight(kg)/height(m)^2] (CDC, 2010) based

on self-reported weight and height. To assess the socioeconomic background of the participants,

education level and occupation of participants' both parents were also collected.

Data Analysis

The main goal of the analyses was to test mediating effect of body dissatisfaction and

moderating effect of gender and peer-nominated social status on associations between social

status insecurity and outcomes. Path analyses were conducted using *Mplus* 8.3 to test two sets of

moderated mediation models, Popularity Status models and Social Preference models. In

Popularity Status models, popularity status insecurity is the predictor, body dissatisfaction is the

mediator, and peer-nominated popularity status and gender are the moderators; in Social

Preference models, social preference insecurity is the predictor, body dissatisfaction is the

mediator, and peer-nominated social preference and/or gender are the moderators.

Each moderated mediation model testing consists of two steps. The first step was to test

unconstrained model (i.e., the common model for both gender groups with no equality

constraints across groups) for differences in conditional total, direct, and indirect effects at low,

medium, and high peer-nominated social status between boys and girls. Maximum likelihood

estimator was employed and bootstrapped mediation analyses with 10,000 resamples were

executed to test for these effects of social status insecurity on each outcome. Gender difference

was tested by conducting multi-group path analysis with which paths were specified for each

gender, and total, direct, and indirect effects at low, medium, and high peer-nominated social

status were compared across gender. Of note, paths involving interaction between variables are

the followings: SSI interacting with social status predicting body image concern, SSI interacting

with social status predicting each outcome, and social status interacting with body image concern

predicting each outcome.

For each path that is significant in at least one gender, we followed up with the second

step to test whether there was difference in significant path coefficients between boys and girls.

Specifically, a model in which the regression weight that was significant in unconstrained model

was constrained (i.e., constrained model) to be equal across gender was run. The obtained chi-

square was compared with the unconstrained model chi-square, with a non-significant chi-square

difference suggesting a good model fit. As only one path was allowed to be constrained to be

equal across groups, this model comparison procedure was repeated for each path that is

significant in at least one gender. For each unconstrained and constrained model, the following

model fit indices were examined: Comparative Fit Index (CFI), Tucker Lewis Index (TLI), Root

Mean Square Error of Approximation (RMSEA), and Standardized Root Mean Square Residual (SRMR).

In testing mediating effect of body dissatisfaction and moderating effect of gender and peer-nominated popularity status on associations between popularity status insecurity and outcomes, the original moderated mediation model exhibited a poor fit. To overcome this, an alternative approach to dealing with peer nomination data was tried out to see if model fit would improve. Instead of using standardized scores proposed by Coie et al. (1982), proportion scores were calculated dividing observed scores by the number of nominators in the group (e.g., Velásquez et al., 2013). Unfortunately, due to the reduced and resulting insufficient sample size, the model fit when testing the original moderated mediation model using proportion scores of peer-nominated popularity status data remained too poor to support the establishment of the proposed model. Therefore, I had to forgo testing gender and status moderations simultaneously but resorted to testing them in separate models. Specifically, two simpler moderated mediation models within Popularity Status models were examined: for both models, popularity status insecurity is the predictor, and body dissatisfaction is the mediator, yet one tested peer-nominated popularity status as the moderator while controlling for gender, and the other tested gender as the moderator.

Results

Bivariate correlations among all study variables in girls and boys are presented in Table 1 and 2, respectively. In girls, popularity status insecurity and social preference insecurity were positively related to maladaptive body image related outcomes (rs = .23 to .38, ps < .05), health complaints (rs = .21 and .23, ps < .05), social anxiety (rs = .62 and .66, ps < .001), and depressive symptoms (rs = .45 and .44, ps < .001), but not significantly related to exercise

behaviors, concern about health, or BMI. Popularity status insecurity was negatively related to self-perceived general health ($r = -.18$, $p < .05$) whereas social preference insecurity was not. Body dissatisfaction was positively related to maladaptive body image related outcomes (rs = .41 to .72, ps < .001), behaviors to increase muscle ($r = .27$, $p < .01$), health complaints ($r = .28$, $p < .01$), BMI ($r = .35$, $p < .001$), social anxiety ($r = .43$, $p < .001$), and depressive symptoms ($r = .34$, $p < .001$). Like popularity status insecurity, body dissatisfaction was negatively related to self-perceived general health ($r = -.18$, $p < .05$). None of popularity status insecurity, social preference insecurity, or body dissatisfaction was significantly related to popularity status or social preference.

In boys, popularity status insecurity and social preference insecurity were positively related to maladaptive body image related outcomes (rs = .28 to .54, ps < .001), BMI (rs = .16 and .15, ps < .05), social anxiety (rs = .60 and .66, ps < .001), and depressive symptoms (rs = .37 and .38, ps < .001), and negatively related to popularity status (rs = -.18 and -.17, ps < .05). Moreover, popularity status insecurity was positively related to physical exercise level ($r = .16$, $p < .05$) and negatively related to self-perceived general health ($r = -.17$, $p < .05$), while social preference insecurity was not related to any of these outcomes yet positively related to health complaints ($r = .16$, $p < .05$). Body dissatisfaction was positively related to maladaptive body image related outcomes (rs = .30 to .84, ps < .001), exercise behaviors (rs = .20 and .23, ps < .01), health complaints ($r = .19$, $p < .01$), BMI ($r = .47$, $p < .001$), and social anxiety ($r = .55$, $p < .001$), and depressive symptoms ($r = .31$, $p < .001$). It was also negatively related to self-perceived general health ($r = -.27$, $p < .001$).

Table 3 demonstrates the mean differences on study variables between girls and boys. Independent t-tests showed that social preference insecurity, body dissatisfaction, drive for

thinness, bulimic symptoms, restrained eating, and social anxiety were significantly higher in

girls than in boys. Behaviors to increase muscle and BMI were significantly lower in girls than in

boys.

The following results on path analysis are presented by outcomes and then separated by

two basic models. As the Social Preference models is consistent with the proposed model, results

for this model are presented first, followed by results for the modified Popularity Status models.

1.0 Drive for Thinness

1.1 Social Preference Models

1.1.1 Social Preference Insecurity as Predictor and Peer-Nominated Social Preference and

Gender as Moderators

Multi-group path analysis yielded an adequate model fit for the unconstrained model:

$\chi^2(2) = 2.08$, $p = .354$, CFI = 1.00, TLI = .998, RMSEA = .02 [CI: .00, .17], SRMR = .01. In

girls, social preference insecurity was positively related to body dissatisfaction ($B = .41$, *SE*

$= .14$, $p = .004$); body dissatisfaction was positively related to drive for thinness ($B = .70$, *SE*

$= .09$, $p < .001$). Direct effect of social preference insecurity on drive for thinness at medium (B

$= .24$, *SE* $= .12$, $p = .037$) and high ($B = .39$, *SE* $= .19$, $p = .043$) social preference was

significant. Indirect effect of social preference insecurity on drive for thinness at medium (B

$= .29$, *SE* $= .10$, $p = .005$) and high ($B = .32$, *SE* $= .14$, $p = .025$) social preference was

significant. No interaction was found.

In boys, social preference insecurity was positively related to body dissatisfaction (B

$= .77$, *SE* $= .10$, $p < .001$); body dissatisfaction was positively related to drive for thinness (B

$= .79$, *SE* $= .06$, $p < .001$). None of the direct effect of social preference insecurity on drive for

thinness at low, medium, or high social preference was significant. Indirect effects of social

preference insecurity on drive for thinness at all levels of social preference were significant (low: $B = .61$, $SE = .14$, $p < .001$; medium: $B = .61$, $SE = .10$, $p < .001$; high: $B = .61$, $SE = .14$, $p < .001$). No interaction was found. Notably, indirect effect at medium social preference was greater in boys than in girls ($\Delta B = .32$, $SE = .14$, $p = .027$). No difference in conditional total or direct effect was found between boys and girls.

To test differences in significant path coefficients between boys and girls, I first constrained the path from social preference insecurity to body dissatisfaction to be equal across two groups. The $\Delta\chi^2$ difference test showed that the unconstrained and constrained [$\chi^2(3) = 8.38$, $p = .039$, CFI = .99, TLI = .91, RMSEA = .11 [CI: .02, .21], SRMR = .08] models were significantly different from each other, $\Delta\chi^2(\Delta 1) = 6.30$, $p = .012$. I then constrained the path from body dissatisfaction to drive for thinness to be equal across two groups. The $\Delta\chi^2$ difference test showed that the unconstrained and constrained [$\chi^2(3) = 3.06$, $p = .383$, CFI = 1.00, TLI = .999, RMSEA = .011 [CI: .00, .14], SRMR = .03] models were not significantly different from each other, $\Delta\chi^2(\Delta 1) = .98$, $p = .322$.

In summary, social preference insecurity was more strongly related to body dissatisfaction in boys than in girls. In testing the mediating effect of body dissatisfaction on association between social preference insecurity and drive for thinness, there was a partial mediation in girls with medium and high social preference. There was a full mediation in boys with all levels of social preference. Indirect effect at medium social preference was greater in boys than in girls.

1.2 Popularity Status Models

1.2.1 Popularity Status Insecurity as Predictor and Peer-Nominated Popularity Status as Moderator

Path analysis yielded an adequate model fit: $\chi^2(1) = 3.47$, $p = .063$, CFI = .99, TLI = .93, RMSEA = .09 [CI: .00, .21], SRMR = .01. Results indicated that popularity status insecurity was positively related to body dissatisfaction ($B = .74$, $SE = .09$, $p < .001$) and drive for thinness ($B = .14$, $SE = .07$, $p = .031$); body dissatisfaction was positively related to drive for thinness ($B = .75$, $SE = .05$, $p < .001$). Direct effect of popularity status insecurity on drive for thinness at medium ($B = .14$, $SE = .07$, $p = .032$) popularity status was significant. Indirect effects of popularity status insecurity on drive for thinness at all levels of popularity status were significant (low: $B = .56$, $SE = .10$, $p < .001$; medium: $B = .55$, $SE = .08$, $p < .001$; high: $B = .55$, $SE = .13$, $p < .001$). No interaction was found. In summary, there was a partial mediation of popularity status in the relationship between popularity status insecurity and drive for thinness among adolescents with medium popularity status and a full mediation in those with low and high popularity status.

1.2.2 Popularity Status Insecurity as Predictor and Gender as Moderator

Multi-group path analysis indicated that the unconstrained model is a saturated model. In girls, popularity status insecurity was positively related to body dissatisfaction ($B = .54$, $SE = .14$, $p < .001$); body dissatisfaction was positively related to drive for thinness ($B = .73$, $SE = .10$, $p < .001$). Direct effect of popularity status insecurity on drive for thinness was not significant. Indirect effect of popularity status insecurity on drive for thinness was significant ($B = .39$, $SE = .11$, $p = .001$).

In boys, popularity status insecurity was positively related to body dissatisfaction ($B = .80$, $SE = .10$, $p < .001$); body dissatisfaction was positively related to drive for thinness ($B = .76$, $SE = .05$, $p < .001$). Direct effect of popularity status insecurity on drive for thinness was not significant. Indirect effect of popularity status insecurity on drive for thinness was significant

(B = .61, SE = .09, p < .001). No difference in conditional total, direct, or indirect effect was found between boys and girls.

To test gender difference in significant path coefficients, I first constrained the path from popularity status insecurity to body dissatisfaction to be equal across two groups. The $\Delta\chi^2$ difference test showed that the unconstrained and constrained [$\chi^2(1)$ = 3.08, p = .079, CFI = .995, TLI = .97, RMSEA = .12 [CI: .00, .27], SRMR = .07] models were not significantly different from each other, $\Delta\chi^2(\Delta 1)$ = 3.08, p = .079. I then constrained the path from body dissatisfaction to drive for thinness to be equal across two groups. The $\Delta\chi^2$ difference test showed that the unconstrained and constrained [$\chi^2(1)$ = .14, p = .709, CFI = 1.00, TLI = 1.01, RMSEA = .00 [CI: .00, .16], SRMR = .01] models were not significantly different from each other, $\Delta\chi^2(\Delta 1)$ = .14, p = .709.

In summary, the paths from popularity status insecurity to body dissatisfaction and from body dissatisfaction to drive for thinness were not significantly different between boys and girls. In testing the mediating effect of body dissatisfaction on association between popularity status insecurity and drive for thinness, there was a full mediation in both boys and girls.

2.0 Bulimic Symptoms

2.1 Social Preference Models

2.1.1 Social Preference Insecurity as Predictor and Peer-Nominated Social Preference and Gender as Moderators

Multi-group path analysis yielded an adequate model fit for the unconstrained model: $\chi^2(2)$ = 2.08, p = .354, CFI = .999, TLI = .99, RMSEA = .02 [CI: .00, .17], SRMR = .01. In girls, social preference insecurity was positively related to body dissatisfaction (B = .41, SE = .14, p = .004); body dissatisfaction was positively related to bulimic symptoms (B = .25, SE = .07, p

< .001). Direct effect of social preference insecurity on bulimic symptoms at high social preference was significant ($B = .18$, $SE = .09$, $p = .048$). Indirect effect of social preference insecurity on bulimic symptoms at medium social preference was significant ($B = .10$, $SE = .05$, $p = .035$). No interaction was found.

In boys, social preference insecurity was positively related to body dissatisfaction ($B = .77$, $SE = .10$, $p < .001$) and bulimic symptoms ($B = .15$, $SE = .08$, $p = .048$); body dissatisfaction was not related to bulimic symptoms. None of the direct or indirect effect of social preference insecurity on bulimic symptoms at low, medium, or high social preference was significant. No interaction was found. No difference in conditional total, direct, or indirect effect was found between boys and girls.

To test differences in significant path coefficients between boys and girls, I first constrained the path from social preference insecurity to body dissatisfaction to be equal across two groups. The $\Delta\chi^2$ difference test showed that the unconstrained and constrained [$\chi^2(3) = 8.38$, $p = .039$, CFI = .95, TLI = .71, RMSEA = .11 [CI: .02, .21], SRMR = .06] models were significantly different from each other, $\Delta\chi^2(\Delta1) = 6.30$, $p = .012$. I then constrained the path from body dissatisfaction to bulimic symptoms to be equal across two groups. The $\Delta\chi^2$ difference test showed that the unconstrained and constrained [$\chi^2(3) = 6.02$, $p = .111$, CFI = .97, TLI = .84, RMSEA = .08 [CI: .00, .18], SRMR = .03] models were significantly different from each other, $\Delta\chi^2(\Delta1) = 3.94$, $p = .047$. Lastly, I constrained the path from social preference insecurity to bulimic symptoms to be equal across two groups. The $\Delta\chi^2$ difference test showed that the unconstrained and constrained [$\chi^2(3) = 2.84$, $p = .417$, CFI = 1.00, TLI = 1.01, RMSEA = .00 [CI: .00, .14], SRMR = .02] models were not significantly different from each other, $\Delta\chi^2(\Delta1) = .76$, $p = .383$.

In summary, social preference insecurity was more strongly related to body dissatisfaction in boys than in girls; body dissatisfaction was more strongly related to bulimic symptoms in girls than in boys. In testing the mediating effect of body dissatisfaction on association between social preference insecurity and bulimic symptoms, there was a full mediation in girls with medium social preference and no mediation in boys with all levels of social preference.

2.2 Popularity Status Models

2.2.1 Popularity Status Insecurity as Predictor and Peer-Nominated Popularity Status as Moderator

Path analysis yielded an adequate model fit: $\chi^2(1) = 3.47$, $p = .063$, CFI = .98, TLI = .79, RMSEA = .09 [CI: .00, .21], SRMR = .01. Results indicated that popularity status insecurity was positively related to body dissatisfaction ($B = .74$, $SE = .09$, $p < .001$) and bulimic symptoms ($B = .13$, $SE = .06$, $p = .025$); body dissatisfaction was positively related to bulimic symptoms ($B = .15$, $SE = .04$, $p < .001$). Direct effect of popularity status insecurity on bulimic symptoms at medium ($B = .13$, $SE = .06$, $p = .025$) popularity status was significant. Indirect effects of popularity status insecurity on bulimic symptoms at all levels of popularity status were significant (low: $B = .11$, $SE = .05$, $p = .021$; medium: $B = .11$, $SE = .03$, $p = .001$; high: $B = .12$, $SE = .04$, $p = .008$). No interaction was found. In summary, there was a partial mediation in adolescents with medium popularity status and a full mediation in those with low and high popularity status.

2.2.2 Popularity Status Insecurity as Predictor and Gender as Moderator

Multi-group path analysis indicated that the unconstrained model is a saturated model. In girls, popularity status insecurity was positively related to body dissatisfaction ($B = .54$, SE

$= .14$, $p < .001$); body dissatisfaction was positively related to bulimic symptoms ($B = .20$, SE

$= .07$, $p = .003$). Direct effect of popularity status insecurity on bulimic symptoms was not

significant. Indirect effect of popularity status insecurity on bulimic symptoms was significant (B

$= .11$, $SE = .05$, $p = .030$).

In boys, popularity status insecurity was positively related to body dissatisfaction (B

$= .80$, $SE = .10$, $p < .001$); body dissatisfaction was positively related to bulimic symptoms (B

$= .11$, $SE = .05$, $p = .029$). Direct effect of popularity status insecurity on bulimic symptoms was

not significant. Indirect effect of popularity status insecurity on bulimic symptoms was

significant ($B = .09$, $SE = .04$, $p = .025$). No difference in conditional total, direct, or indirect

effect was found between boys and girls.

To test gender difference in significant path coefficients, I first constrained the path from

popularity status insecurity to body dissatisfaction to be equal across two groups. The $\Delta\chi^2$

difference test showed that the unconstrained and constrained [$\chi^2(1) = 3.08$, $p = .079$, CFI = .98,

TLI = .90, RMSEA = .12 [CI: .00, .27], SRMR = .06] models were not significantly different

from each other, $\Delta\chi^2(\Delta1) = 3.08$, $p = .079$. I then constrained the path from body dissatisfaction

to bulimic symptoms to be equal across two groups. The $\Delta\chi^2$ difference test showed that the

unconstrained and constrained [$\chi^2(1) = 1.70$, $p = .193$, CFI = .99, TLI = .97, RMSEA = .07

[CI: .00, .24], SRMR = .03] models were not significantly different from each other, $\Delta\chi^2(\Delta1) =$

1.70, $p = .193$.

In summary, the paths from popularity status insecurity to body dissatisfaction and from

body dissatisfaction to bulimic symptoms were not significantly different between boys and

girls. In testing the mediating effect of body dissatisfaction on association between popularity

status insecurity and bulimic symptoms, there was a full mediation in both boys and girls.

3.0 Restrained Eating

3.1 Social Preference Models

3.1.1 Social Preference Insecurity as Predictor and Peer-Nominated Social Preference and Gender as Moderators

Multi-group path analysis yielded an adequate model fit for the unconstrained model: $\chi^2(2) = 2.08$, $p = .354$, CFI = .999, TLI = .99, RMSEA = .02 [CI: .00, .17], SRMR = .01. In girls, social preference insecurity was positively related to body dissatisfaction ($B = .41$, $SE = .14$, $p = .004$); body dissatisfaction was positively related to restrained eating ($B = .49$, $SE = .06$, $p < .001$). Interaction between social preference insecurity and social preference was positively related to restrained eating ($B = .23$, $SE = .11$, $p = .038$). Direct effect of social preference insecurity on restrained eating at high social preference was significant ($B = .34$, $SE = .16$, $p = .029$). Indirect effect of social preference insecurity on restrained eating at medium ($B = .20$, $SE = .07$, $p = .004$) and high ($B = .22$, $SE = .10$, $p = .020$) social preference was significant.

In boys, social preference insecurity was positively related to body dissatisfaction ($B = .77$, $SE = .10$, $p < .001$); body dissatisfaction was positively related to restrained eating ($B = .48$, $SE = .05$, $p < .001$). Moreover, social preference was positively related to restrained eating ($B = .24$, $SE = .12$, $p = .049$). None of the direct effect of social preference insecurity on restrained eating at low, medium, or high social preference was significant. Indirect effects of social preference insecurity on restrained eating at all levels of social preference were significant (low: $B = .37$, $SE = .09$, $p < .001$; medium: $B = .37$, $SE = .06$, $p < .001$; high: $B = .38$, $SE = .10$, $p < .001$). No interaction was found. Notably, total effect at low social preference was greater in boys than in girls ($\Delta B = .48$, $SE = .20$, $p = .014$). No difference in conditional direct or indirect effect was found between boys and girls.

To test differences in significant path coefficients between boys and girls, I first constrained the path from social preference insecurity to body dissatisfaction to be equal across two groups. The $\Delta\chi^2$ difference test showed that the unconstrained and constrained [$\chi^2(3) = 8.38$, $p = .039$, CFI = .98, TLI = .89, RMSEA = .11 [CI: .02, .21], SRMR = .07] models were significantly different from each other, $\Delta\chi^2(\Delta1) = 6.30$, $p = .012$. I then constrained the path from body dissatisfaction to restrained eating to be equal across two groups. The $\Delta\chi^2$ difference test showed that the unconstrained and constrained [$\chi^2(3) = 2.08$, $p = .56$, CFI = 1.00, TLI = 1.02, RMSEA = .00 [CI: .00, .12], SRMR = .01] models were not significantly different from each other, $\Delta\chi^2(1) = .004$, $p = .950$. Next, I constrained the path from social preference to restrained eating to be equal across two groups. The $\Delta\chi^2$ difference test showed that the unconstrained and constrained [$\chi^2(3) = 7.71$, $p = .053$, CFI = .98, TLI = .90, RMSEA = .11 [CI: .00, .20], SRMR = .02] models were significantly different from each other, $\Delta\chi^2(1) = 5.63$, $p = .018$. Lastly, I constrained the path from the interaction between social preference insecurity and social preference to restrained eating to be equal across two groups. The $\Delta\chi^2$ difference test showed that the unconstrained and constrained [$\chi^2(3) = 10.17$, $p = .017$, CFI = .98, TLI = .85, RMSEA = .13 [CI: .05, .22], SRMR = .01] models were significantly different from each other, $\Delta\chi^2(\Delta1) = 8.09$, $p = .004$.

In summary, social preference insecurity was more strongly related to body dissatisfaction in boys than in girls; social preference was more strongly related to restrained eating in boys than in girls. The interaction between social preference insecurity and social preference was only significantly related to restrained eating in girls, not in boys. Specifically, social preference insecurity was related to restrained eating among girls with medium ($B = .33$, $SE = .11$, $p = .003$) and high ($B = .56$, $SE = .14$, $p < .001$) social preference, not among those

with low ($B = .09$, $SE = .14$, $p = .504$) social preference. In testing the mediating effect of body

dissatisfaction on association between social preference insecurity and restrained eating, there

was a full mediation in girls with medium social preference and a partial mediation in girls with

high social preference. There was a full mediation in boys with all levels of social preference.

Total effect at low social preference was greater in boys than in girls.

3.2 Popularity Status Models

3.2.1 Popularity Status Insecurity as Predictor and Peer-Nominated Popularity Status as
Moderator

Path analysis yielded an adequate model fit: $\chi^2(1) = 3.47$, $p = .063$, CFI = .99, TLI = .91,

RMSEA = .09 [CI: .00, .21], SRMR = .01. Results indicated that popularity status insecurity was

positively related to body dissatisfaction ($B = .74$, $SE = .09$, $p < .001$); body dissatisfaction was

positively related to restrained eating ($B = .50$, $SE = .04$, $p < .001$). Moreover, popularity status

was positively related to restrained eating ($B = .21$, $SE = .10$, $p = .029$). Direct effect of

popularity status insecurity on restrained eating at low ($B = .20$, $SE = .08$, $p = .015$) popularity

status was significant. Indirect effects of popularity status insecurity on restrained eating at all

levels of popularity status were significant (low: $B = .37$, $SE = .07$, $p < .001$; medium: $B = .37$,

$SE = .05$, $p < .001$; high: $B = .36$, $SE = .08$, $p < .001$). No interaction was found. In summary,

there was a partial mediation in adolescents with low popularity status and a full mediation in

those with medium and high popularity status.

3.2.2 Popularity Status Insecurity as Predictor and Gender as Moderator

Multi-group path analysis indicated that the unconstrained model is a saturated model. In

girls, popularity status insecurity was positively related to body dissatisfaction ($B = .54$, SE

$= .14$, $p < .001$); body dissatisfaction was positively related to restrained eating ($B = .51$, SE

= .07, $p < .001$). Direct effect of popularity status insecurity on restrained eating was not

significant. Indirect effect of popularity status insecurity on restrained eating was significant (B

= .27, SE = .08, $p < .001$).

In boys, popularity status insecurity was positively related to body dissatisfaction (B

= .80, SE = .10, $p < .001$); body dissatisfaction was positively related to restrained eating (B

= .45, SE = .05, $p < .001$). Direct effect of popularity status insecurity on restrained eating was

significant (B = .18, SE = .08, p = .015). Indirect effect of popularity status insecurity on

restrained eating was significant (B = .36, SE = .06, $p < .001$). Total effect of popularity status

insecurity on restrained eating was greater in boys than in girls (ΔB = .29, SE = .13, p = .023).

No difference in conditional direct or indirect effect was found between boys and girls.

To test gender difference in significant path coefficients, I first constrained the path from

popularity status insecurity to body dissatisfaction to be equal across two groups. The $\Delta\chi^2$

difference test showed that the unconstrained and constrained [$\chi^2(1)$ = 3.08, p = .079, CFI = .99,

TLI = .96, RMSEA = .12 [CI: .00, .27], SRMR = .07] models were not significantly different

from each other, $\Delta\chi^2(\Delta1)$ = 3.08, p = .079. I then constrained the path from body dissatisfaction

to restrained eating to be equal across two groups. The $\Delta\chi^2$ difference test showed that the

unconstrained and constrained [$\chi^2(1)$ = .72, p = .396, CFI = 1.00, TLI = 1.01, RMSEA = .00

[CI: .00, .20], SRMR = .02] models were not significantly different from each other, $\Delta\chi^2(\Delta1)$

= .72, p = .396. Lastly, I constrained the path from popularity status insecurity to restrained

eating to be equal across two groups. The $\Delta\chi^2$ difference test showed that the unconstrained and

constrained [$\chi^2(1)$ = 3.56, p = .059, CFI = .99, TLI = .95, RMSEA = .13 [CI: .00, .29], SRMR

= .03] models were not significantly different from each other, $\Delta\chi^2(\Delta1)$ = 3.56, p = .059.

In summary, all paths were not significantly different between boys and girls. In testing the mediating effect of body dissatisfaction on association between popularity status insecurity and restrained eating, there was a full mediation in girls and a partial mediation in boys.

4.0 Behaviors to Increase Muscle

4.1 Social Preference Models

4.1.1 Social Preference Insecurity as Predictor and Peer-Nominated Social Preference and Gender as Moderators

Multi-group path analysis yielded an adequate model fit for the unconstrained model: $\chi^2(2) = 2.08$, $p = .354$, CFI = .999, TLI = .99, RMSEA = .02 [CI: .00, .17], SRMR = .01. In girls, social preference insecurity was positively related to body dissatisfaction ($B = .41$, $SE = .14$, $p = .004$); body dissatisfaction was positively related to behaviors to increase muscle ($B = .18$, $SE = .06$, $p = .001$). None of the direct effect of social preference insecurity on behaviors to increase muscle at low, medium, or high social preference was significant. Indirect effect of social preference insecurity on behaviors to increase muscle at medium social preference was significant ($B = .07$, $SE = .04$, $p = .036$). No interaction was found.

In boys, social preference insecurity was positively related to body dissatisfaction ($B = .77$, $SE = .10$, $p < .001$); body dissatisfaction was positively related to behaviors to increase muscle ($B = .20$, $SE = .06$, $p = .002$). None of the direct effect of social preference insecurity on behaviors to increase muscle at low, medium, or high social preference was significant. Indirect effect of social preference insecurity on behaviors to increase muscle at medium social preference was significant ($B = .15$, $SE = .05$, $p = .004$) and at high social preference was marginally significant ($B = .21$, $SE = .11$, $p = .050$). No interaction was found. No difference in conditional total, direct, or indirect effect was found between boys and girls.

To test differences in significant path coefficients between boys and girls, I first constrained the path from social preference insecurity to body dissatisfaction to be equal across two groups. The $\Delta\chi^2$ difference test showed that the unconstrained and constrained [$\chi^2(3) = 8.38$, $p = .039$, CFI = .94, TLI = .64, RMSEA = .11 [CI: .02, .21], SRMR = .06] models were significantly different from each other, $\Delta\chi^2(\Delta1) = 6.30$, $p = .012$. I then constrained the path from body dissatisfaction to behaviors to increase muscle to be equal across two groups. The $\Delta\chi^2$ difference test showed that the unconstrained and constrained [$\chi^2(3) = 2.14$, $p = .544$, CFI = 1.00, TLI = 1.06, RMSEA = .00 [CI: .00, .12], SRMR = .01] models were not significantly different from each other, $\Delta\chi^2(\Delta1) = .06$, $p = .805$.

In summary, social preference insecurity was more strongly related to body dissatisfaction in boys than in girls. In testing the mediating effect of body dissatisfaction on association between social preference insecurity and behaviors to increase muscle, there was a full mediation in both girls and boys with medium social preference.

4.2 Popularity Status Model

4.2.1 Popularity Status Insecurity as Predictor and Peer-Nominated Popularity Status as Moderator

Path analysis yielded an adequate model fit: $\chi^2(1) = 3.47$, $p = .063$, CFI = .98, TLI = .78, RMSEA = .09 [CI: .00, .21], SRMR = .01. Results indicated that popularity status insecurity was positively related to body dissatisfaction ($B = .74$, $SE = .09$, $p < .001$); body dissatisfaction was positively related to behaviors to increase muscle ($B = .16$, $SE = .05$, $p < .001$). None of the direct effect of popularity status insecurity on behaviors to increase muscle at low, medium, or high popularity status was significant. Indirect effects of popularity status insecurity on behaviors to increase muscle at all levels of popularity status were significant (low: $B = .12$, SE

= .05, p = .012; medium: B = .12, SE = .04, p = .001; high: B = .11, SE = .05, p = .031). No

interaction was found. In summary, there was a full mediation in adolescents with all levels of

popularity status.

4.2.2 Popularity Status Insecurity as Predictor and Gender as Moderator

Multi-group path analysis indicated that the unconstrained model is a saturated model. In

girls, popularity status insecurity was positively related to body dissatisfaction (B = .54, SE

= .14, p < .001); body dissatisfaction was positively related to behaviors to increase muscle (B

= .14, SE = .05, p = .008). Direct effect of popularity status insecurity on behaviors to increase

muscle was not significant. Indirect effect of popularity status insecurity on behaviors to increase

muscle was significant (B = .08, SE = .04, p = .033).

In boys, popularity status insecurity was positively related to body dissatisfaction (B

= .80, SE = .10, p < .001); body dissatisfaction was positively related to behaviors to increase

muscle (B = .16, SE = .06, p = .011). Direct effect of popularity status insecurity on behaviors to

increase muscle was not significant. Indirect effect of popularity status insecurity on behaviors to

increase muscle was significant (B = .13, SE = .05, p = .018). No difference in conditional total,

direct, or indirect effect was found between boys and girls.

To test gender difference in significant path coefficients, I first constrained the path from

popularity status insecurity to body dissatisfaction to be equal across two groups. The $\Delta\chi^2$

difference test showed that the unconstrained and constrained [$\chi^2(1)$ = 3.08, p = .079, CFI = .98,

TLI = .87, RMSEA = .12 [CI: .00, .27], SRMR = .06] models were not significantly different

from each other, $\Delta\chi^2(\Delta1)$ = 3.08, p = .079. I then constrained the path from body dissatisfaction

to behaviors to increase muscle to be equal across two groups. The $\Delta\chi^2$ difference test showed

that the unconstrained and constrained [$\chi^2(1)$ = .04, p = .835, CFI = 1.00, TLI = 1.06, RMSEA

= .00 [CI: .00, .13], SRMR = .01] models were not significantly different from each other,

$\Delta\chi^2(\Delta1) = .04$, $p = .835$.

In summary, the paths from popularity status insecurity to body dissatisfaction and from body dissatisfaction to behaviors to increase muscle were not significantly different between boys and girls. In testing the mediating effect of body dissatisfaction on association between popularity status insecurity and behaviors to increase muscle, there was a full mediation in both boys and girls.

5.0 Physical Exercise Level

5.1 Social Preference Models

5.1.1 Social Preference Insecurity as Predictor and Peer-Nominated Social Preference and Gender as Moderators

Multi-group path analysis yielded an adequate model fit for the unconstrained model: $\chi^2(2) = 2.08$, $p = .354$, CFI = .999, TLI = .99, RMSEA = .02 [CI: .00, .17], SRMR = .01. In girls, social preference insecurity was positively related to body dissatisfaction ($B = .41$, $SE = .14$, $p = .004$); body dissatisfaction was not related to physical exercise level. None of the direct or indirect effect of social preference insecurity on physical exercise level at low, medium, or high social preference was significant. No interaction was found.

In boys, social preference insecurity was positively related to body dissatisfaction ($B = .77$, $SE = .10$, $p < .001$); body dissatisfaction was positively related to physical exercise level ($B = .32$, $SE = .12$, $p = .005$). Moreover, social preference was positively related to physical exercise level ($B = .65$, $SE = .27$, $p = .017$). None of the direct effect of social preference insecurity on physical exercise level at low, medium, or high social preference was significant. Indirect effect of social preference insecurity on physical exercise level at low ($B = .31$, $SE = .14$,

$p = .030$) and medium ($B = .25$, $SE = .09$, $p = .007$) social preference was significant. No

interaction was found. Notably, indirect effect at medium social preference was greater in boys

than in girls ($\Delta B = .23$, $SE = .11$, $p = .037$). No difference in conditional total and direct effect

was found between boys and girls.

To test differences in significant path coefficients between boys and girls, I first

constrained the path from social preference insecurity to body dissatisfaction to be equal across

two groups. The $\Delta\chi^2$ difference test showed that the unconstrained and constrained [$\chi^2(3) = 8.38$,

$p = .039$, CFI = .94, TLI = .62, RMSEA = .11 [CI: .02, .21], SRMR = .06] models were

significantly different from each other, $\Delta\chi^2(\Delta 1) = 6.30$, $p = .012$. I then constrained the path from

body dissatisfaction to physical exercise level to be equal across two groups. The $\Delta\chi^2$ difference

test showed that the unconstrained and constrained [$\chi^2(3) = 3.67$, $p = .299$, CFI = .99, TLI = .95,

RMSEA = .04 [CI: .00, .15], SRMR = .03] models were not significantly different from each

other, $\Delta\chi^2(\Delta 1) = 1.59$, $p = .207$. Lastly, I constrained the path from social preference to physical

exercise level to be equal across two groups. The $\Delta\chi^2$ difference test showed that the

unconstrained and constrained [$\chi^2(3) = 2.18$, $p = .537$, CFI = 1.00, TLI = 1.06, RMSEA = .00

[CI: .00, .13], SRMR = .01] models were not significantly different from each other, $\Delta\chi^2(\Delta 1)$

$= .10$, $p = .755$.

In summary, social preference insecurity was more strongly related to body

dissatisfaction in boys than in girls. In testing the mediating effect of body dissatisfaction on

association between social preference insecurity and physical exercise level, there was no

mediation in girls with all levels of social preference; there was a full mediation in boys with low

and medium social preference. Indirect effect at medium social preference was greater in boys

than in girls.

5.2 Popularity Status Models

5.2.1 Popularity Status Insecurity as Predictor and Peer-Nominated Popularity Status as Moderator

Path analysis yielded an adequate model fit: $\chi^2(1) = 3.47$, $p = .063$, CFI = .98, TLI = .75, RMSEA = .09 [CI: .00, .21], SRMR = .01. Results indicated that popularity status insecurity was positively related to body dissatisfaction ($B = .74$, $SE = .09$, $p < .001$); body dissatisfaction was positively related to physical exercise level ($B = .19$, $SE = .09$, $p = .028$). Moreover, popularity status was positively related to physical exercise level ($B = .84$, $SE = .22$, $p < .001$). Direct effect of popularity status insecurity on physical exercise level at low ($B = .35$, $SE = .17$, $p = .032$) popularity status was significant. Indirect effect of popularity status insecurity on physical exercise level at medium ($B = .14$, $SE = .07$, $p = .038$) popularity status was significant. No interaction was found. In summary, there was a full mediation in adolescents with medium popularity status.

5.2.2 Popularity Status Insecurity as Predictor and Gender as Moderator

Multi-group path analysis indicated that the unconstrained model is a saturated model. In girls, popularity status insecurity was positively related to body dissatisfaction ($B = .54$, $SE = .14$, $p < .001$); body dissatisfaction was not related to physical exercise level. Direct and indirect effects of popularity status insecurity on physical exercise level were not significant.

In boys, popularity status insecurity was positively related to body dissatisfaction ($B = .80$, $SE = .10$, $p < .001$); body dissatisfaction was positively related to physical exercise level ($B = .26$, $SE = .11$, $p = .015$). Direct effect of popularity status insecurity on physical exercise level was not significant. Indirect effect of popularity status insecurity on physical exercise level

was significant ($B = .21$, $SE = .09$, $p = .022$). No difference in conditional total, direct, or indirect effect was found between boys and girls.

To test gender difference in significant path coefficients, I first constrained the path from popularity status insecurity to body dissatisfaction to be equal across two groups. The $\Delta\chi^2$ difference test showed that the unconstrained and constrained [$\chi^2(1) = 3.08$, $p = .079$, CFI = .98, TLI = .86, RMSEA = .12 [CI: .00, .27], SRMR = .06] models were not significantly different from each other, $\Delta\chi^2(\Delta 1) = 3.08$, $p = .079$. I then constrained the path from body dissatisfaction to physical exercise level to be equal across two groups. The $\Delta\chi^2$ difference test showed that the unconstrained and constrained [$\chi^2(1) = .95$, $p = .329$, CFI = 1.00, TLI = 1.00, RMSEA = .00 [CI: .00, .21], SRMR = .02] models were not significantly different from each other, $\Delta\chi^2(\Delta 1) = .95$, $p = .329$.

In summary, the paths from popularity status insecurity to body dissatisfaction and from body dissatisfaction to physical exercise level were not significantly different between boys and girls. In testing the mediating effect of body dissatisfaction on association between popularity status insecurity and physical exercise level, there was no mediation in girls and a full mediation in boys.

6.0 Specific Health Complaints

6.1 Social Preference Models

6.1.1 Social Preference Insecurity as Predictor and Peer-Nominated Social Preference and Gender as Moderators

Multi-group path analysis yielded an adequate model fit for the unconstrained model: $\chi^2(2) = 2.08$, $p = .354$, CFI = .999, TLI = .99, RMSEA = .02 [CI: .00, .17], SRMR = .01. In girls, social preference insecurity was positively related to body dissatisfaction ($B = .41$, $SE = .14$, p

= .004); body dissatisfaction was positively related to health complaints (B = .12, SE = .06, p

= .048). Interaction between social preference insecurity and social preference was positively

related to health complaints (B = .15, SE = .08, p = .046). Direct effect of social preference

insecurity on health complaints at high (B = .25, SE = .10, p = .014) social preference was

significant. None of the indirect effect of social preference insecurity on health complaints at

low, medium, or high social preference was significant.

In boys, social preference insecurity was positively related to body dissatisfaction (B

= .77, SE = .10, p < .001); body dissatisfaction was not related to health complaints. None of the

direct or indirect effect of social preference insecurity on health complaints at low, medium, or

high social preference was significant. No interaction was found. No difference in conditional

total, direct, or indirect effect was found between boys and girls.

To test differences in significant path coefficients between boys and girls, I first

constrained the path from social preference insecurity to body dissatisfaction to be equal across

two groups. The $\Delta\chi^2$ difference test showed that the unconstrained and constrained [$\chi^2(3)$ = 8.38,

p = .039, CFI = .94, TLI = .63, RMSEA = .11 [CI: .02, .21], SRMR = .06] models were

significantly different from each other, $\Delta\chi^2(\Delta 1)$ = 6.30, p = .012. I then constrained the path from

body dissatisfaction to health complaints to be equal across two groups. The $\Delta\chi^2$ difference test

showed that the unconstrained and constrained [$\chi^2(3)$ = 2.53, p = .470, CFI = 1.00, TLI = 1.03,

RMSEA = .04 [CI: .00, .15], SRMR = .01] models were not significantly different from each

other, $\Delta\chi^2(\Delta 1)$ = .45, p = .502. Lastly, I constrained the path from the interaction between social

preference insecurity and social preference to health complaints to be equal across two groups.

The $\Delta\chi^2$ difference test showed that the unconstrained and constrained [$\chi^2(3)$ = 5.44, p = .143,

CFI = .97, TLI = .83, RMSEA = .08 [CI: .00, .18], SRMR = .01] models were not significantly

different from each other, $\Delta\chi^2(\Delta 1) = 3.36$, $p = .067$.

In summary, social preference insecurity was more strongly related to body

dissatisfaction in boys than in girls. The interaction between social preference insecurity and

social preference was only significantly related to health complaints in girls, not in boys.

Specifically, social preference insecurity was related to health complaints among girls with

medium ($B = .16$, $SE = .07$, $p = .017$) and high ($B = .31$, $SE = .10$, $p = .002$) social preference, not

among those with low ($B = .01$, $SE = .09$, $p = .878$) social preference. In testing the mediating

effect of body dissatisfaction on association between social preference insecurity and health

complaints, there was no mediation in girls or boys with all levels of social preference.

6.2 Popularity Status Models

6.2.1 Popularity Status Insecurity as Predictor and Peer-Nominated Popularity Status as Moderator

Path analysis yielded an adequate model fit: $\chi^2(1) = 3.47$, $p = .063$, CFI = .98, TLI = .73,

RMSEA = .09 [CI: .00, .21], SRMR = .01. Results indicated that popularity status insecurity was

positively related to body dissatisfaction ($B = .74$, $SE = .09$, $p < .001$); body dissatisfaction was

positively related to health complaints ($B = .10$, $SE = .04$, $p = .005$). None of the direct effect of

popularity status insecurity on health complaints at low, medium, or high popularity status was

significant. Indirect effects of popularity status insecurity on health complaints at medium (B

$= .08$, $SE = .03$, $p = .007$) and high ($B = .09$, $SE = .04$, $p = .016$) popularity status was significant.

No interaction was found. In summary, there was a full mediation in adolescents with medium

and high popularity status.

6.2.2 Popularity Status Insecurity as Predictor and Gender as Moderator

Multi-group path analysis indicated that the unconstrained model is a saturated model. In girls, popularity status insecurity was positively related to body dissatisfaction ($B = .54$, $SE = .14$, $p < .001$); body dissatisfaction was positively related to health complaints ($B = .13$, $SE = .06$, $p = .024$). Direct and indirect effects of popularity status insecurity on health complaints were not significant.

In boys, popularity status insecurity was positively related to body dissatisfaction ($B = .80$, $SE = .10$, $p < .001$); body dissatisfaction was positively related to health complaints ($B = .10$, $SE = .04$, $p = .033$). Direct effect of popularity status insecurity on health complaints was not significant. Indirect effect of popularity status insecurity on health complaints was significant ($B = .08$, $SE = .04$, $p = .033$). No difference in conditional total, direct, or indirect effect was found between boys and girls.

To test gender difference in significant path coefficients, I first constrained the path from popularity status insecurity to body dissatisfaction to be equal across two groups. The $\Delta\chi^2$ difference test showed that the unconstrained and constrained [$\chi^2(1) = 3.08$, $p = .079$, CFI = .98, TLI = .87, RMSEA = .12 [CI: .00, .27], SRMR = .06] models were not significantly different from each other, $\Delta\chi^2(\Delta 1) = 3.08$, $p = .079$. I then constrained the path from body dissatisfaction to health complaints to be equal across two groups. The $\Delta\chi^2$ difference test showed that the unconstrained and constrained [$\chi^2(1) = .31$, $p = .576$, CFI = 1.00, TLI = 1.04, RMSEA = .00 [CI: .00, .18], SRMR = .01] models were not significantly different from each other, $\Delta\chi^2(\Delta 1) = .31$, $p = .576$.

In summary, the paths from popularity status insecurity to body dissatisfaction and from body dissatisfaction to health complaints were not significantly different between boys and girls.

In testing the mediating effect of body dissatisfaction on association between popularity status insecurity and health complaints, there was no mediation in girls and a full mediation in boys.

7.0 Self-Perceived General Health

7.1 Social Preference Models

7.1.1 Social Preference Insecurity as Predictor and Peer-Nominated Social Preference and Gender as Moderators

Multi-group path analysis yielded an adequate model fit for the unconstrained model: $\chi^2(2) = 2.08$, $p = .354$, CFI = .999, TLI = .99, RMSEA = .02 [CI: .00, .17], SRMR = .01. In girls, social preference insecurity was positively related to body dissatisfaction ($B = .41$, $SE = .14$, $p = .004$); body dissatisfaction was not related to self-perceived general health. Moreover, social preference was positively related to self-perceived general health ($B = 1.14$, $SE = .26$, $p < .001$). None of the direct or indirect effect of social preference insecurity on self-perceived general health at low, medium, or high social preference was significant. No interaction was found.

In boys, social preference insecurity was positively related to body dissatisfaction ($B = .77$, $SE = .10$, $p < .001$); body dissatisfaction was negatively related to self-perceived general health ($B = -.24$, $SE = .08$, $p = .002$). None of the direct effect of social preference insecurity on self-perceived general health at low, medium, or high social preference was significant. Indirect effect of social preference insecurity on self-perceived general health at low ($B = -.28$, $SE = .10$, $p = .005$) and medium ($B = -.19$, $SE = .06$, $p = .002$) social preference was significant. No interaction was found. Notably, indirect effect at low social preference was greater in boys than in girls ($\Delta B = -.29$, $SE = .11$, $p = .009$). No difference in conditional total or direct effect was found between boys and girls.

To test differences in significant path coefficients between boys and girls, I first constrained the path from social preference insecurity to body dissatisfaction to be equal across two groups. The $\Delta\chi^2$ difference test showed that the unconstrained and constrained [$\chi^2(3) = 8.38$, $p = .039$, CFI = .95, TLI = .69, RMSEA = .11 [CI: .02, .21], SRMR = .06] models were significantly different from each other, $\Delta\chi^2(\Delta1) = 6.30$, $p = .012$. I then constrained the path from body dissatisfaction to self-perceived general health to be equal across two groups. The $\Delta\chi^2$ difference test showed that the unconstrained and constrained [$\chi^2(3) = 4.13$, $p = .248$, CFI = .99, TLI = .93, RMSEA = .05 [CI: .00, .16], SRMR = .02] models were not significantly different from each other, $\Delta\chi^2(\Delta1) = 2.05$, $p = .152$. Lastly, I constrained the path from social preference to self-perceived general health to be equal across two groups. The $\Delta\chi^2$ difference test showed that the unconstrained and constrained [$\chi^2(3) = 6.57$, $p = .087$, CFI = .97, TLI = .79, RMSEA = .09 [CI: .00, .19], SRMR = .03] models were significantly different from each other, $\Delta\chi^2(\Delta1) = 4.49$, $p = .034$.

In summary, social preference insecurity was more strongly related to body dissatisfaction in boys than in girls; social preference was more strongly related to self-perceived general health in girls than in boys. In testing the mediating effect of body dissatisfaction on association between social preference insecurity and self-perceived general health, there was no mediation in girls with all levels of social preference; there was a full mediation in boys with low and medium social preference. Indirect effect at low social preference was greater in boys than in girls.

7.2 Popularity Status Models

7.2.1 Popularity Status Insecurity as Predictor and Peer-Nominated Popularity Status as Moderator

Path analysis yielded an adequate model fit: $\chi^2(1) = 3.47$, $p = .063$, CFI = .98, TLI = .77, RMSEA = .09 [CI: .00, .21], SRMR = .01. Results indicated that popularity status insecurity was positively related to body dissatisfaction ($B = .74$, $SE = .09$, $p < .001$); body dissatisfaction was negatively related to self-perceived general health ($B = -.18$, $SE = .07$, $p = .008$). Moreover, popularity status was positively related to self-perceived general health ($B = .52$, $SE = .17$, $p = .002$). None of the direct effect of popularity status insecurity on self-perceived general health at low, medium, or high popularity status was significant. Indirect effects of popularity status insecurity on self-perceived general health at medium ($B = -.13$, $SE = .05$, $p = .007$) and high ($B = -.17$, $SE = .07$, $p = .017$) popularity status was significant. No interaction was found. In summary, there was a full mediation in adolescents with medium and high popularity status.

7.2.2 Popularity Status Insecurity as Predictor and Gender as Moderator

Multi-group path analysis indicated that the unconstrained model is a saturated model. In girls, popularity status insecurity was positively related to body dissatisfaction ($B = .54$, $SE = .14$, $p < .001$); body dissatisfaction was not related to self-perceived general health. Direct and indirect effects of popularity status insecurity on self-perceived general health were not significant.

In boys, popularity status insecurity was positively related to body dissatisfaction ($B = .80$, $SE = .10$, $p < .001$); body dissatisfaction was negatively related to self-perceived general health ($B = -.21$, $SE = .08$, $p = .010$). Direct effect of popularity status insecurity on self-perceived general health was not significant. Indirect effect of popularity status insecurity on self-perceived general health was significant ($B = -.17$, $SE = .07$, $p = .009$). No difference in conditional total, direct, or indirect effect was found between boys and girls.

To test gender difference in significant path coefficients, I first constrained the path from popularity status insecurity to body dissatisfaction to be equal across two groups. The $\Delta\chi^2$ difference test showed that the unconstrained and constrained [$\chi^2(1) = 3.08$, $p = .079$, CFI = .98, TLI = .87, RMSEA = .12 [CI: .00, .27], SRMR = .06] models were not significantly different from each other, $\Delta\chi^2(\Delta 1) = 3.08$, $p = .079$. I then constrained the path from body dissatisfaction to self-perceived general health to be equal across two groups. The $\Delta\chi^2$ difference test showed that the unconstrained and constrained [$\chi^2(1) = .70$, $p = .403$, CFI = 1.00, TLI = 1.02, RMSEA = .00 [CI: .00, .20], SRMR = .02] models were not significantly different from each other, $\Delta\chi^2(\Delta 1) = .70$, $p = .403$.

In summary, the paths from popularity status insecurity to body dissatisfaction and from body dissatisfaction to self-perceived general health were not significantly different between boys and girls. In testing the mediating effect of body dissatisfaction on association between popularity status insecurity and self-perceived general health, there was no mediation in girls and a full mediation in boys.

8.0 Concern About Health

8.1 Social Preference Models

8.1.1 Social Preference Insecurity as Predictor and Peer-Nominated Social Preference and Gender as Moderators

Multi-group path analysis yielded an adequate model fit for the unconstrained model: $\chi^2(2) = 2.08$, $p = .354$, CFI = .999, TLI = .99, RMSEA = .02 [CI: .00, .17], SRMR = .01. In girls, social preference insecurity was positively related to body dissatisfaction ($B = .41$, $SE = .14$, $p = .004$); body dissatisfaction was not related to concern about health. None of the direct or

indirect effect of social preference insecurity on concern about health at low, medium, or high social preference was significant. No interaction was found.

In boys, social preference insecurity was positively related to body dissatisfaction (B = .77, SE = .10, $p < .001$); body dissatisfaction was not related to concern about health. Moreover, social preference was positively related to concern about health ($B = .58$, $SE = .25$, p = .018). None of the direct or indirect effect of social preference insecurity on concern about health at low, medium, or high social preference was significant. No interaction was found. No difference in conditional total, direct, or indirect effects was found between boys and girls.

To test differences in significant path coefficients between boys and girls, I first constrained the path from social preference insecurity to body dissatisfaction to be equal across two groups. The $\Delta\chi^2$ difference test showed that the unconstrained and constrained [$\chi^2(3) = 8.38$, p = .039, CFI = .94, TLI = .64, RMSEA = .11 [CI: .02, .21], SRMR = .06] models were significantly different from each other, $\Delta\chi^2(\Delta 1) = 6.30$, p = .012. I then constrained the path from social preference to concern about health to be equal across two groups. The $\Delta\chi^2$ difference test showed that the unconstrained and constrained [$\chi^2(3) = 2.27$, p = .519, CFI = 1.00, TLI = 1.05, RMSEA = .00 [CI: .00, .13], SRMR = .01] models were not significantly different from each other, $\Delta\chi^2(\Delta 1) = .19$, p = .665.

In summary, social preference insecurity was more strongly related to body dissatisfaction in boys than in girls. In testing the mediating effect of body dissatisfaction on association between social preference insecurity and concern about health, there was no mediation in girls or boys with all levels of social preference.

8.2 Popularity Status Models

8.2.1 Popularity Status Insecurity as Predictor and Peer-Nominated Popularity Status as Moderator

Path analysis yielded an adequate model fit: $\chi^2(1) = 3.47$, $p = .063$, CFI = .97, TLI = .72, RMSEA = .09 [CI: .00, .21], SRMR = .01. Results indicated that popularity status insecurity was positively related to body dissatisfaction ($B = .74$, $SE = .09$, $p < .001$); body dissatisfaction was not related to concern about health. None of the direct or indirect effect of popularity status insecurity on concern about health at low, medium, or high popularity status was significant. No interaction was found. In summary, there was no mediation in adolescents with low, medium, or high popularity status.

8.2.2 Popularity Status Insecurity as Predictor and Gender as Moderator

Multi-group path analysis indicated that the unconstrained model is a saturated model. In girls, popularity status insecurity was positively related to body dissatisfaction ($B = .54$, $SE = .14$, $p < .001$); body dissatisfaction was not related to concern about health. Direct and indirect effects of popularity status insecurity on concern about health were not significant.

In boys, popularity status insecurity was positively related to body dissatisfaction ($B = .80$, $SE = .10$, $p < .001$); body dissatisfaction was not related to concern about health. Direct and indirect effects of popularity status insecurity on concern about health were not significant. No difference in conditional total, direct, or indirect effect was found between boys and girls.

To test gender difference in significant path coefficients, I constrained the path from popularity status insecurity to body dissatisfaction to be equal across two groups. The $\Delta\chi^2$ difference test showed that the unconstrained and constrained [$\chi^2(1) = 3.08$, $p = .079$, CFI = .97, TLI = .84, RMSEA = .12 [CI: .00, .27], SRMR = .06] models were not significantly different from each other, $\Delta\chi^2(\Delta1) = 3.08$, $p = .079$.

In summary, the path from popularity status insecurity to body dissatisfaction was not significantly different between boys and girls. In testing the mediating effect of body dissatisfaction on association between popularity status insecurity and concern about health, there was no mediation in girls or boys.

9.0 Body Mass Index

9.1 Social Preference Models

9.1.1 Social Preference Insecurity as Predictor and Peer-Nominated Social Preference and Gender as Moderators

Multi-group path analysis yielded an adequate model fit for the unconstrained model: $\chi^2(2) = 2.08$, $p = .354$, CFI = .999, TLI = .995, RMSEA = .02 [CI: .00, .17], SRMR = .01. In girls, social preference insecurity was positively related to body dissatisfaction ($B = .41$, $SE = .14$, $p = .004$) and negatively related to BMI ($B = -1.09$, $SE = .48$, $p = .024$); body dissatisfaction was positively related to BMI ($B = 1.87$, $SE = .37$, $p < .001$). Direct effect of social preference insecurity on BMI at low ($B = -1.59$, $SE = .67$, $p = .017$) and medium ($B = -1.00$, $SE = .48$, $p = .035$) social preference was significant. Indirect effect of social preference insecurity on BMI at medium social preference was significant ($B = .74$, $SE = .32$, $p = .022$). No interaction was found.

In boys, social preference insecurity was positively related to body dissatisfaction ($B = .77$, $SE = .10$, $p < .001$); body dissatisfaction was positively related to BMI ($B = 2.75$, $SE = .53$, $p < .001$). None of the direct effect of social preference insecurity on BMI at low, medium, or high social preference was significant. Indirect effects of social preference insecurity on drive for thinness at all levels of social preference were significant (low: $B = 2.55$, $SE = .84$, $p = .002$; medium: $B = 2.13$, $SE = .54$, $p < .001$; high: $B = 1.70$, $SE = .69$, $p = .014$). No interaction was

found. Notably, indirect effect at medium social preference was greater in boys than in girls (ΔB = 1.39, SE = .63, p = .027); total effect at medium social preference was greater in boys than in girls (ΔB = 1.56, SE = .74, p = .036). No difference in conditional direct effects was found between boys and girls.

To test differences in significant path coefficients between boys and girls, I first constrained the path from social preference insecurity to body dissatisfaction to be equal across two groups. The $\Delta\chi^2$ difference test showed that the unconstrained and constrained [$\chi^2(3)$ = 8.38, p = .039, CFI = .96, TLI = .76, RMSEA = .11 [CI: .02, .21], SRMR = .06] models were significantly different from each other, $\Delta\chi^2(\Delta1)$ = 6.30, p = .012. I then constrained the path from body dissatisfaction to BMI to be equal across two groups. The $\Delta\chi^2$ difference test showed that the unconstrained and constrained [$\chi^2(3)$ = 4.57, p = .206, CFI = .99, TLI = .93, RMSEA = .06 [CI: .00, .16], SRMR = .06] models were not significantly different from each other, $\Delta\chi^2(\Delta1)$ = 2.49, p = .115. Lastly, I constrained the path from social preference insecurity to BMI to be equal across two groups. The $\Delta\chi^2$ difference test showed that the unconstrained and constrained [$\chi^2(3)$ = 2.21, p = .530, CFI = 1.00, TLI = 1.04, RMSEA = .00 [CI: .00, .13], SRMR = .01] models were not significantly different from each other, $\Delta\chi^2(\Delta1)$ = .13, p = .716.

In summary, social preference insecurity was more strongly related to body dissatisfaction in boys than in girls. In testing the mediating effect of body dissatisfaction on association between social preference insecurity and BMI, there was a partial mediation in girls with medium social preference. There was a full mediation in boys with all levels of social preference. Total and indirect effect at medium social preference was greater in boys than in girls.

9.2 Popularity Status Models

9.2.1 Popularity Status Insecurity as Predictor and Peer-Nominated Popularity Status as Moderator

Path analysis yielded an adequate model fit: $\chi^2(1) = 3.47$, $p = .063$, CFI = .99, TLI = .85, RMSEA = .09 [CI: .00, .21], SRMR = .01. Results indicated that popularity status insecurity was positively related to body dissatisfaction ($B = .74$, $SE = .09$, $p < .001$) and negatively related to BMI ($B = -1.03$, $SE = .42$, $p = .015$); body dissatisfaction was positively related to BMI ($B = 2.57$, $SE = .29$, $p < .001$). Interaction between body dissatisfaction and popularity status was negatively related to BMI ($B = -.85$, $SE = .30$, $p = .005$). Specifically, in follow-up analysis, after controlling for gender, body dissatisfaction was positively related to BMI among adolescents with all levels of popularity status (low: $B = 2.82$, $SE = .36$, $p < .001$; medium: $B = 2.19$, $SE = .27$, $p < .001$; high: $B = 1.57$, $SE = .40$, $p < .001$). Direct effect of popularity status insecurity on BMI at low ($B = -1.63$, $SE = .63$, $p = .010$) and medium ($B = -1.03$, $SE = .42$, $p = .016$) popularity status was significant. Indirect effects of popularity status insecurity on BMI at all levels of popularity status were significant (low: $B = 2.50$, $SE = .54$, $p < .001$; medium: $B = 1.89$, $SE = .34$, $p < .001$; high: $B = 1.28$, $SE = .49$, $p = .008$). In summary, there was a partial mediation in adolescents with low and medium popularity status and a full mediation in those with high popularity status.

9.2.2 Popularity Status Insecurity as Predictor and Gender as Moderator

Multi-group path analysis indicated that the unconstrained model is a saturated model. In girls, popularity status insecurity was positively related to body dissatisfaction ($B = .54$, $SE = .14$, $p < .001$); body dissatisfaction was positively related to BMI ($B = 1.86$, $SE = .38$, $p < .001$). Direct effect of popularity status insecurity on BMI was significant ($B = -1.34$, $SE = .49$,

$p = .007$). Indirect effect of popularity status insecurity on BMI was significant ($B = .996$, $SE = .37$, $p = .007$).

In boys, popularity status insecurity was positively related to body dissatisfaction ($B = .80$, $SE = .10$, $p < .001$); body dissatisfaction was positively related to BMI ($B = 2.81$, $SE = .49$, $p < .001$). Direct effect of popularity status insecurity on BMI was not significant. Indirect effect of popularity status insecurity on BMI was significant ($B = 2.25$, $SE = .52$, $p < .001$). Indirect effect of popularity status insecurity on BMI was greater in boys than in girls ($\Delta B = 1.26$, $SE = .63$, $p = .047$). Total effect of popularity status insecurity on BMI was greater in boys than in girls ($\Delta B = 1.62$, $SE = .75$, $p = .030$). No difference in conditional direct effect was found between boys and girls.

To test gender difference in significant path coefficients, I first constrained the path from popularity status insecurity to body dissatisfaction to be equal across two groups. The $\Delta\chi^2$ difference test showed that the unconstrained and constrained [$\chi^2(1) = 3.08$, $p = .079$, CFI = .99, TLI = .92, RMSEA = .12 [CI: .00, .27], SRMR = .06] models were not significantly different from each other, $\Delta\chi^2(\Delta 1) = 3.08$, $p = .079$. I then constrained the path from body dissatisfaction to BMI to be equal across two groups. The $\Delta\chi^2$ difference test showed that the unconstrained and constrained [$\chi^2(1) = 2.89$, $p = .089$, CFI = .99, TLI = .92, RMSEA = .11 [CI: .00, .27], SRMR = .07] models were not significantly different from each other, $\Delta\chi^2(\Delta 1) = 2.89$, $p = .089$. Lastly, I constrained the path from popularity status insecurity to BMI to be equal across two groups. The $\Delta\chi^2$ difference test showed that the unconstrained and constrained [$\chi^2(1) = .20$, $p = .654$, CFI = 1.00, TLI = 1.03, RMSEA = .00 [CI: .00, .16], SRMR = .01] models were not significantly different from each other, $\Delta\chi^2(\Delta 1) = .20$, $p = .654$.

In summary, all paths were not significantly different between boys and girls. In testing the mediating effect of body dissatisfaction on association between popularity status insecurity and BMI, there was a partial mediation in girls and a full mediation in boys.

10.0 Social Anxiety

10.1 Social Preference Models

10.1.1 Social Preference Insecurity as Predictor and Peer-Nominated Social Preference and Gender as Moderators

Multi-group path analysis yielded an adequate model fit for the unconstrained model: $\chi^2(2) = 2.08$, $p = .354$, CFI = 1.00, TLI = .997, RMSEA = .02 [CI: .00, .17], SRMR = .01. In girls, social preference insecurity was positively related to body dissatisfaction ($B = .41$, $SE = .14$, $p = .004$) and positively related to social anxiety ($B = .55$, $SE = .08$, $p < .001$); body dissatisfaction was positively related to social anxiety ($B = .17$, $SE = .07$, $p = .012$). Moreover, interaction between social preference insecurity and social preference was positively related to social anxiety ($B = .22$, $SE = .09$, $p = .013$). Direct effect of social preference insecurity on social anxiety at all levels of social preference were significant (low: $B = .38$, $SE = .11$, $p < .001$; medium: $B = .58$, $SE = .08$, $p < .001$; high: $B = .78$, $SE = .11$, $p < .001$). None of the indirect effect of social preference insecurity on social anxiety at low, medium, or high social preference was significant. No interaction was found.

In boys, social preference insecurity was positively related to body dissatisfaction ($B = .77$, $SE = .10$, $p < .001$) and positively related to social anxiety ($B = .53$, $SE = .08$, $p < .001$); body dissatisfaction was positively related to social anxiety ($B = .25$, $SE = .06$, $p < .001$). Direct effect of social preference insecurity on social anxiety at all levels of social preference were significant (low: $B = .54$, $SE = .14$, $p < .001$; medium: $B = .53$, $SE = .08$, $p < .001$; high: $B = .52$,

$SE = .14$, $p < .001$). Indirect effect of social preference insecurity on social anxiety at all levels of social preference were significant (low: $B = .17$, $SE = .07$, $p = .019$; medium: $B = .19$, $SE = .05$, $p < .001$; high: $B = .21$, $SE = .07$, $p = .004$). No interaction was found. No difference in conditional total, direct, or indirect effects was found between boys and girls.

To test differences in significant path coefficients between boys and girls, I first constrained the path from social preference insecurity to body dissatisfaction to be equal across two groups. The $\Delta\chi^2$ difference test showed that the unconstrained and constrained [$\chi^2(3) = 8.38$, $p = .039$, CFI = .98, TLI = .87, RMSEA = .11 [CI: .02, .21], SRMR = .07] models were significantly different from each other, $\Delta\chi^2(\Delta1) = 6.30$, $p = .012$. Next, I constrained the path from body dissatisfaction to social anxiety to be equal across two groups. The $\Delta\chi^2$ difference test showed that the unconstrained and constrained [$\chi^2(3) = 3.09$, $p = .378$, CFI = 1.00, TLI = .998, RMSEA = .01 [CI: .00, .14], SRMR = .02] models were not significantly different from each other, $\Delta\chi^2(\Delta1) = 1.01$, $p = .315$. I then constrained the path from social preference insecurity to social anxiety to be equal across two groups. The $\Delta\chi^2$ difference test showed that the unconstrained and constrained [$\chi^2(3) = 2.13$, $p = .547$, CFI = 1.00, TLI = 1.02, RMSEA = .00 [CI: .00, .12], SRMR = .01] models were not significantly different from each other, $\Delta\chi^2(\Delta1) = .05$, $p = .830$. Lastly, I constrained the path from the interaction between social preference insecurity and social preference to social anxiety to be equal across two groups. The $\Delta\chi^2$ difference test showed that the unconstrained and constrained [$\chi^2(3) = 5.37$, $p = .146$, CFI = .99, TLI = .94, RMSEA = .07 [CI: .00, .17], SRMR = .01] models were not significantly different from each other, $\Delta\chi^2(\Delta1) = 3.29$, $p = .070$.

In summary, social preference insecurity was more strongly related to body dissatisfaction in boys than in girls. The interaction between social preference insecurity and

social preference was only significantly related to social anxiety in girls, not in boys. Specifically, social preference insecurity was related to social anxiety among girls with all levels of social preference (low: $B = .45$, $SE = .11$, $p < .001$; medium: $B = .64$, $SE = .07$, $p < .001$; high: $B = .83$, $SE = .10$, $p < .001$). In testing the mediating effect of body dissatisfaction on association between social preference insecurity and social anxiety, there was no mediation in girls with all levels of social preference. There was a partial mediation in boys with all levels of social preference.

10.2 Popularity Status Models

10.2.1 Popularity Status Insecurity as Predictor and Peer-Nominated Popularity Status as Moderator

Path analysis yielded an adequate model fit: $\chi^2(1) = 3.47$, $p = .063$, CFI = .99, TLI = .89, RMSEA = .09 [CI: .00, .21], SRMR = .01. Results indicated that popularity status insecurity was positively related to body dissatisfaction ($B = .74$, $SE = .09$, $p < .001$) and positively related to social anxiety ($B = .52$, $SE = .07$, $p < .001$); body dissatisfaction was positively related to social anxiety ($B = .24$, $SE = .05$, $p < .001$). Direct effects of popularity status insecurity on social anxiety at all levels of popularity status were significant (low: $B = .50$, $SE = .10$, $p < .001$; medium: $B = .52$, $SE = .07$, $p < .001$; high: $B = .55$, $SE = .10$, $p < .001$). Indirect effects of popularity status insecurity on social anxiety at all levels of popularity status were significant (low: $B = .20$, $SE = .06$, $p = .002$; medium: $B = .18$, $SE = .04$, $p < .001$; high: $B = .16$, $SE = .05$, $p = .001$). No interaction was found. In summary, there was a partial mediation in adolescents with all levels of popularity status.

10.2.2 Popularity Status Insecurity as Predictor and Gender as Moderator

Multi-group path analysis indicated that the unconstrained model is a saturated model. In girls, popularity status insecurity was positively related to body dissatisfaction ($B = .54$, $SE = .14$, $p < .001$); body dissatisfaction was positively related to social anxiety ($B = .18$, $SE = .07$, $p = .01$). Direct effect of popularity status insecurity on social anxiety was significant ($B = .60$, $SE = .09$, $p < .001$). Indirect effect of popularity status insecurity on social anxiety was significant ($B = .10$, $SE = .05$, $p = .040$).

In boys, popularity status insecurity was positively related to body dissatisfaction ($B = .80$, $SE = .10$, $p < .001$); body dissatisfaction was positively related to social anxiety ($B = .25$, $SE = .05$, $p < .001$). Direct effect of popularity status insecurity on social anxiety was significant ($B = .50$, $SE = .08$, $p < .001$). Indirect effect of popularity status insecurity on social anxiety was significant ($B = .20$, $SE = .05$, $p < .001$). No difference in conditional direct, indirect, or total effect was found between boys and girls.

To test gender difference in significant path coefficients, I first constrained the path from popularity status insecurity to body dissatisfaction to be equal across two groups. The $\Delta\chi^2$ difference test showed that the unconstrained and constrained [$\chi^2(1) = 3.08$, $p = .079$, CFI = .99, TLI = .95, RMSEA = .12 [CI: .00, .27], SRMR = .06] models were not significantly different from each other, $\Delta\chi^2(\Delta1) = 3.08$, $p = .079$. I then constrained the path from body dissatisfaction to social anxiety to be equal across two groups. The $\Delta\chi^2$ difference test showed that the unconstrained and constrained [$\chi^2(1) = .73$, $p = .394$, CFI = 1.00, TLI = 1.01, RMSEA = .00 [CI: .00, .20], SRMR = .02] models were not significantly different from each other, $\Delta\chi^2(\Delta1) = .73$, $p = .394$. Lastly, I constrained the path from popularity status insecurity to social anxiety to be equal across two groups. The $\Delta\chi^2$ difference test showed that the unconstrained and

constrained [$\chi^2(1) = .73$, $p = .392$, CFI = 1.00, TLI = 1.01, RMSEA = .00 [CI: .00, .20], SRMR = .02] models were not significantly different from each other, $\Delta\chi^2(\Delta 1) = .73$, $p = .392$.

In summary, all paths were not significantly different between boys and girls. In testing the mediating effect of body dissatisfaction on association between popularity status insecurity and social anxiety, there was a partial mediation in both girls and boys.

11.0 Depressive symptoms

11.1 Social Preference Models

11.1.1 Social Preference Insecurity as Predictor and Peer-Nominated Social Preference and Gender as Moderators

Multi-group path analysis yielded an adequate model fit for the unconstrained model: $\chi^2(2) = 2.08$, $p = .354$, CFI = .999, TLI = .995, RMSEA = .02 [CI: .00, .17], SRMR = .01. In girls, social preference insecurity was positively related to body dissatisfaction ($B = .41$, $SE = .14$, $p = .004$) and positively related to depressive symptoms ($B = .13$, $SE = .04$, $p = .001$); body dissatisfaction was positively related to depressive symptoms ($B = .07$, $SE = .03$, $p = .030$). Direct effect of social preference insecurity on depressive symptoms at medium ($B = .14$, $SE = .04$, $p < .001$) and high ($B = .16$, $SE = .06$, $p = .004$) social preference was significant. None of the indirect effect of social preference insecurity on depressive symptoms at low, medium, or high social preference was significant. No interaction was found.

In boys, social preference insecurity was positively related to body dissatisfaction ($B = .77$, $SE = .10$, $p < .001$) and positively related to depressive symptoms ($B = .11$, $SE = .04$, $p = .003$); body dissatisfaction was positively related to depressive symptoms ($B = .05$, $SE = .03$, $p = .046$). Direct effect of social preference insecurity on depressive symptoms at medium social preference was significant ($B = .11$, $SE = .04$, $p = .003$). Indirect effect of social preference

insecurity on depressive symptoms at medium social preference was significant (B = .04, SE = .02, p = .049). No interaction was found. No difference in conditional total, direct, and indirect effects was found between boys and girls.

To test differences in significant path coefficients between boys and girls, I first constrained the path from social preference insecurity to body dissatisfaction to be equal across two groups. The $\Delta\chi^2$ difference test showed that the unconstrained and constrained [$\chi^2(3)$ = 8.38, p = .039, CFI = .96, TLI = .77, RMSEA = .11 [CI: .02, .21], SRMR = .06] models were significantly different from each other, $\Delta\chi^2(\Delta 1)$ = 6.30, p = .012. Next, I constrained the path from body dissatisfaction to depressive symptoms to be equal across two groups. The $\Delta\chi^2$ difference test showed that the unconstrained and constrained [$\chi^2(3)$ = 2.26, p = .521, CFI = 1.00, TLI = 1.03, RMSEA = .00 [CI: .00, .13], SRMR = .01] models were not significantly different from each other, $\Delta\chi^2(\Delta 1)$ = .18, p = .672. Lastly, I constrained the path from social preference insecurity to depressive symptoms to be equal across two groups. The $\Delta\chi^2$ difference test showed that the unconstrained and constrained [$\chi^2(3)$ = 2.30, p = .514, CFI = 1.00, TLI = 1.03, RMSEA = .00 [CI: .00, .13], SRMR = .01] models were not significantly different from each other, $\Delta\chi^2(\Delta 1)$ = .10, p = .752.

In summary, social preference insecurity was more strongly related to body dissatisfaction in boys than in girls. In testing the mediating effect of body dissatisfaction on association between social preference insecurity and depressive symptoms, there was no mediation in girls with all levels of social preference. There was a partial mediation in boys with medium social preference.

11.2 Popularity Status Models

11.2.1 Popularity Status Insecurity as Predictor and Peer-Nominated Popularity Status as Moderator

Path analysis yielded an adequate model fit: $\chi^2(1) = 3.47$, $p = .063$, CFI = .98, TLI = .82, RMSEA = .09 [CI: .00, .21], SRMR = .01. Results indicated that popularity status insecurity was positively related to body dissatisfaction ($B = .74$, $SE = .09$, $p < .001$) and positively related to depressive symptoms ($B = .13$, $SE = .03$, $p < .001$); body dissatisfaction was positively related to depressive symptoms ($B = .06$, $SE = .02$, $p = .006$). Direct effects of popularity status insecurity on depressive symptoms at all levels of popularity status were significant (low: $B = .12$, $SE = .05$, $p = .024$; medium: $B = .13$, $SE = .03$, $p < .001$; high: $B = .13$, $SE = .05$, $p = .004$). Indirect effect of popularity status insecurity on depressive symptoms at low ($B = .05$, $SE = .02$, $p = .049$) and medium ($B = .04$, $SE = .02$, $p = .006$) popularity status was significant. No interaction was found. In summary, there was a partial mediation in adolescents with low and medium popularity status.

11.2.2 Popularity Status Insecurity as Predictor and Gender as Moderator

Multi-group path analysis indicated that the unconstrained model is a saturated model. In girls, popularity status insecurity was positively related to body dissatisfaction ($B = .54$, $SE = .14$, $p < .001$); body dissatisfaction was positively related to depressive symptoms ($B = .07$, $SE = .03$, $p = .038$). Direct effect of popularity status insecurity on depressive symptoms was significant ($B = .17$, $SE = .04$, $p < .001$). Indirect effect of popularity status insecurity on social anxiety was not significant.

In boys, popularity status insecurity was positively related to body dissatisfaction ($B = .80$, $SE = .10$, $p < .001$); body dissatisfaction was not related to depressive symptoms. Direct effect of popularity status insecurity on depressive symptoms was significant ($B = .13$, $SE = .04$, $p = .002$). Indirect effect of popularity status insecurity on depressive symptoms was significant

($B = .04$, $SE = .02$, $p = .048$). No difference in conditional direct, indirect, or total effect was found between boys and girls.

To test gender difference in significant path coefficients, I first constrained the path from popularity status insecurity to body dissatisfaction to be equal across two groups. The $\Delta\chi^2$ difference test showed that the unconstrained and constrained [$\chi^2(1) = 3.08$, $p = .079$, CFI $= .99$, TLI $= .91$, RMSEA $= .12$ [CI: .00, .27], SRMR $= .06$] models were not significantly different from each other, $\Delta\chi^2(\Delta 1) = 3.08$, $p = .079$. I then constrained the path from body dissatisfaction to depressive symptoms to be equal across two groups. The $\Delta\chi^2$ difference test showed that the unconstrained and constrained [$\chi^2(1) = .20$, $p = .657$, CFI $= 1.00$, TLI $= 1.04$, RMSEA $= .00$ [CI: .00, .16], SRMR $= .01$] models were not significantly different from each other, $\Delta\chi^2(\Delta 1)$ $= .20$, $p = .657$. Lastly, I constrained the path from popularity status insecurity to depressive symptoms to be equal across two groups. The $\Delta\chi^2$ difference test showed that the unconstrained and constrained [$\chi^2(1) = .57$, $p = .452$, CFI $= 1.00$, TLI $= 1.02$, RMSEA $= .00$ [CI: .00, .19], SRMR $= .02$] models were not significantly different from each other, $\Delta\chi^2(\Delta 1) = .57$, $p = .452$.

In summary, all paths were not significantly different between boys and girls. In testing the mediating effect of body dissatisfaction on association between popularity status insecurity and depressive symptoms, there was no mediation in girls and a partial mediation in boys.

Discussion

To expand the research on the implications of social status insecurity on adolescents' outcomes, the main goal of the present study was to test a set of moderated mediation models where the associations between social status insecurity and body-image-related health outcomes were expected to be mediated by body dissatisfaction and moderated by peer status and gender. While a body of work has established connections between peer status (popularity status mostly)

and appearance as well as body image (Boyatzis et al., 1998; Li et al., 2012; Wang et al., 2006; Xie et al., 2006), the present study focuses on how the insecurity feelings about peer status (e.g., fear of losing status, worry about status not being high enough or desirable) were associated with body image. Given that high body dissatisfaction and eating disturbances are also prevalent among Chinese adolescents (e.g., Feng & Abebe, 2017), it is vital to continue identifying potential antecedents of maladaptive body-image-related cognitions and eating behaviors. The present study represents one of the first efforts to establish the relationships between social status insecurity and body-image-related health outcomes to underscore the importance of social status insecurity in adolescents as implicated by the associated adverse outcomes.

It was hypothesized that each of the two types of social status insecurity, popularity status insecurity and social preference insecurity, would be positively associated with body dissatisfaction (Hypothesis 1). Body dissatisfaction would be positively associated with maladaptive body-image-related outcomes (e.g., drive for thinness, bulimic symptoms, restrained eating, behaviors to increase muscle) and negatively associated with physical and mental health (e.g., body mass index, depression, anxiety; Hypothesis 2). Accordingly, body dissatisfaction was expected to mediate the associations between each type of social status insecurity and body-image-related health outcomes (Hypothesis 3). Lastly, gender and peer-nominated social status (i.e., popularity status, social preference) would moderate the mediation processes. Specifically, the mediation effects were predicted to be stronger for girls than for boys (Hypothesis 4) and for those with higher popularity status (Hypothesis 5a) and higher social preference (Hypothesis 5b), compared to those with lower statuses.

Results from the bivariate correlation analyses provided some support for Hypothesis 1 and 2. For both girls and boys, generally, popularity status insecurity, social preference

insecurity, and body dissatisfaction were reliably and positively related to maladaptive body image related outcomes and mental health outcomes, namely, social anxiety and depressive symptoms. They were also positively related to health complaints and negatively related to self-perceived general health. Body dissatisfaction held more positive correlations with physical exercises in boys. Interestingly, popularity status insecurity and social preference insecurity were positively related to BMI in boys only. Results from path analyses generally indicated that feeling insecured about one's status among peers is directly or indirectly associated with maladaptive eating behaviors, worse health conditions, social anxiety, and depressive symptoms, depending on the attained status and/or gender. The following discussion is first focused on Social Preference models and then Popularity Status models. Within each section, the discussions were organized by three outcome categories.

Social Preference Insecurity as Predictor and Peer-Nominated Social Preference and Gender as Moderators

Here I tested the models in which the relationships between social preference insecurity and body-image-related health outcomes were expected to be mediated by body dissatisfaction and moderated by peer-nominated social preference. In predicting all outcomes, social preference insecurity was consistently and positively related to body dissatisfaction, providing additional robust support for Hypothesis 1. Interestingly, this association was consistently stronger in boys. Below are specific findings and discussions regarding the testing of moderated mediation processes organized by types of outcomes.

Predicting Body Image Related Outcomes

In predicting maladaptive body image related outcomes, Hypothesis 3 and 5b were largely supported. Social preference insecurity had both indirect and direct effects on drive for

thinness, bulimic symptoms, and restrained eating through the mediation of body dissatisfaction

most likely in girls with average or above average social preference. These findings suggest that

when girls who are at least somewhat liked by their peers are still concerned that peers may not

like her, they are likely to be dissatisfied by their body shape and engage in maladaptive eating

behaviors. This pattern is consistent with the interaction found in the prediction of restrained

eating in girls. Social preference insecurity became more strongly related to restrained eating as

girls' social preference increased, suggesting that being well-liked might not confer all benefits

for girls (Ferguson & Ryan, 2019). On the other hand, in boys, only indirect effect, no direct

effect, of social preference insecurity on drive for thinness and restrained eating were found, and

no mediation was found in predicting bulimic symptoms. Along with a few other findings here,

for example, showing that the indirect effect of social preference insecurity on drive for thinness

was stronger in boys than in girls and that social preference was more strongly related to

restrained eating in boys than in girls, these results together suggest that social preference

insecurity is more likely to lead to maladaptive body image related outcomes in boys than in

girls, which contradict Hypothesis 4. The stronger effects were mostly found in boys perhaps

because the mean BMI of boys in the present sample was relatively high (mean of BMI = 25.24),

reaching the low borderline of the overweight range. The boys in the current sample are more

likely to have legitimate reasons to be more concerned and dissatisfied with their body size or

shape.

In predicting exercise behaviors, body dissatisfaction mediated the relationship between

social preference insecurity and both behaviors to increase muscle and physical exercise on

conditioned social preference in boys, but mediated the relationship between social preference

insecurity and behaviors to increase muscle only. Moreover, indirect effect at medium social

preference was greater in boys than in girls. These findings suggest that again, social preference insecurity is more likely to lead to bodybuilding and physical exercise in boys than in girls, which is consistent with the notion that compared to girls, boys are more likely to pursue masculine body shape (Baker et al., 2019).

Predicting Health Related Outcomes

In predicting physical health condition, Hypothesis 3 and 5b were both partially supported. The mediating effect of body dissatisfaction was only found in predicting self-perceived general health in boys with low or medium social preference. Noteworthy, body dissatisfaction was found to be negatively related to self-perceived general health in boys and not significantly related to self-perceived general health at all in girls. Moreover, the direct effect of social preference insecurity was only found in predicting health complaints in girls with high social preference. This accords with the interaction found in predicting health complaints in girls: social preference insecurity becomes more strongly related to health complaints as girls' social preference increases, suggesting the potential role of high social preference in intensifying the negative influence of social preference insecurity on girls' physical health.

In predicting BMI, both Hypothesis 3 and 5b were largely supported. Social preference insecurity was found to have an indirect effect on BMI in girls with medium social preference and boys with all levels of social preference, whereas its direct effect was only found in girls with low and medium social preference. It appears that the influence of social preference insecurity on higher body mass is most likely materialized through body dissatisfaction in boys, whereas for girls, social preference insecurity seems to directly affect body mass, as evidenced by the negative association between social preference insecurity and BMI in girls. Thus, girls who are concerned with whether or not peers like them tend to have lower body mass.

Furthermore, the total and indirect effect at medium social preference was greater in boys than in girls, suggesting that social preference insecurity may have a greater impact on body mass for boys with average social preference, which contradicts with Hypothesis 4. Again, as speculated above, this might be due to the relatively high mean BMI of boys in the present sample, rendering them more likely to be concerned with their body size or shape.

Predicting Mental Health Outcomes

Patterns shown in results when predicting social anxiety and depressive symptoms are similar and can be paralleled with Long et al. (2019)'s findings that indicate positive correlations between popularity status insecurity and depressive symptoms and anxiety. Specifically, body dissatisfaction did not mediate the relationship between social preference insecurity and social anxiety or depressive symptoms in girls. Social preference insecurity seems to be more directly related with these internalizing symptoms most likely among those with average or above average social preference. This is consistent with the pattern in the interaction found in predicting social anxiety in girls, such that as their social preference increases, social preference insecurity becomes more strongly related to social anxiety. Social preference, therefore, exacerbates the influence of social preference insecurity on social anxiety in girls. However, social preference insecurity had both direct and indirect effects on social anxiety in boys regardless of their level of social preference but on depressive symptoms in boys with medium social preference only. Thus, in predicting mental health outcomes, Hypothesis 3 was not supported in girls but largely supported in boys; Hypothesis 4 was not supported; and Hypothesis 5b was only partly supported. These findings, together with those found in girls, suggest that social preference insecurity is more likely to lead to internalizing symptoms more directly in girls and both directly and indirectly in boys.

Summary

Significant indirect effect of social preference insecurity was found in both girls and boys, especially in predicting body image related outcomes and mental health outcomes, and yet less likely in predicting worse health conditions. Interestingly, significant direct effect was much more likely to be found in girls than in boys in predicting these outcomes. These patterns suggest that the negative influence of social preference insecurity on body image related health outcomes may be more likely to be materialized through the dissatisfaction with one's body in boys, whereas social preference insecurity appears to bear the capacity to directly and negatively affect girls' perceptions of their body image, eating behaviors, and physical and mental health. Moreover, significant mediating effect was more likely to be found in girls, especially those with medium social preference. It is advised to interpret these findings with caution because this may be simply driven by the greater sample size in medium social preference group and the resulting greater power to detect the effects. Alternatively, it could be because an average level of social preference and a sense of insecurity regarding social preference put adolescents at a particularly ambiguous position where they need to tackle with. Lastly, higher social preference intensifies the negative impact of social preference insecurity on restrained eating, health complaints, and social anxiety in girls. High social preference seems to be harmful to girls' eating behaviors and both physical and mental health, probably through the experienced stress accompanied by a high social preference.

Popularity Status Insecurity as Predictor and Peer-Nominated Popularity Status as Moderator

As noted earlier , as a pragmatic solution for the poor model fit of the original popularity status model, I needed to test popularity status moderation and gender moderation separately.

This subsection concerns the models in which the relationships between popularity status insecurity and body-image-related health outcomes were expected to be mediated by body dissatisfaction and moderated by peer-nominated popularity status, while controlling for gender. In predicting all included outcomes, popularity status insecurity was consistently positively related to body dissatisfaction, providing additional robust support for Hypothesis 1.

Predicting Body Image Related Outcomes

In predicting maladaptive body image related outcomes, Hypothesis 3 was generally supported whereas Hypothesis 5a was not supported. The indirect effect of popularity status insecurity on drive for thinness, bulimic symptoms, and restrained eating through the mediation of body dissatisfaction was found at all levels of popularity status, while the direct effect was found at medium popularity status in predicting drive for thinness and bulimic symptoms and at low popularity status in predicting restrained eating only. In predicting exercise behaviors, body dissatisfaction mediated the relationships of popularity status insecurity with behaviors to increase muscle at all levels of popularity status and with physical exercise level only at medium popularity status. However, the direct effect was only found at low popularity status in predicting physical exercise level. Overall, in predicting maladaptive body image related outcomes, mediation was mostly found independently of popularity status except for physical exercise level. Moreover, direct effect was mostly found at low or medium popularity status, suggesting that popularity status insecurity may have a greater impact on maladaptive body image related outcomes for those with relatively low popularity status.

Predicting Health Related Outcomes

In predicting physical health conditions, Hypothesis 3 was generally supported while Hypothesis 5a was not supported. Specifically, body dissatisfaction mediated the relationship of

popularity status insecurity with health complaints and self-perceived general health only at medium and high popularity status. No mediation was found in predicting concern about health, and no direct effect was found in predicting any of these three outcomes. It appears that, based on these findings, popularity status insecurity is related to worse physical health conditions, rather than one's concern about health, via body dissatisfaction for those with above average popularity status.

Some interesting findings emerged in predicting BMI. Specifically, Hypothesis 3 was generally supported, whereas Hypothesis 5a was not supported. Body dissatisfaction mediated the relationship between popularity status insecurity and BMI at all levels of popularity status. Popularity status insecurity had a direct effect on BMI only for those with low and medium popularity status. This is reasonable as popularity status insecurity was found to be negatively related to BMI, suggesting that as adolescents feel increasingly concerned about their popularity status, they tend to have lower BMI. Within the scope of the present study, this could be due to the feeling of dissatisfaction with their body image. Importantly, an interaction between body dissatisfaction and popularity status was found, such that body dissatisfaction was more strongly positively related to BMI as popularity status decreased, which is at odds with Hypothesis 5a. Thus, for those who are not popular, higher body dissatisfaction was strongly related to higher BMI. Given the cross-sectional design of this study, causal direction between body dissatisfaction and BMI here cannot be inferred. Taken together, these findings suggest a role of popularity status insecurity that potentially plays in maladaptive weight management.

Predicting Mental Health Outcomes

Body dissatisfaction mediated the relationship between popularity status insecurity and social anxiety at all levels of popularity status. The direct effect of popularity status insecurity on

social anxiety was also found at all levels of popularity status. In predicting depressive symptoms, indirect effect of body dissatisfaction was found at low and medium level of popularity status only, whereas direct effect was found at all levels of popularity status. Overall these findings are consistent with Long et al. (2019)'s, who also identified positive correlations between popularity status insecurity and depressive symptoms and anxiety, as well as provided support for Hypothesis 3 and contradict Hypothesis 5a. As such, this set of findings on mental health outcomes suggests that the concern over one's popularity status may directly engender social anxiety and depressive symptoms but also lead to mental health maladjustment through the dissatisfaction with one's body image.

Summary

The mediating effect of body dissatisfaction was virtually found in predicting all outcomes, except for the prediction of concern about health where neither indirect nor direct effect was found. Moreover, these mediating effects were most likely found in those with average popularity status. Again as noted above, this may simply result from the greater sample size in the medium status group and thus the resultant greater power to detect the effects. Only one interaction was found in testing this set of models: body dissatisfaction was more strongly positively related to BMI as popularity status decreased. It seems that adolescents with lower popularity are particularly vulnerable to body dissatisfaction accompanying a higher BMI.

Popularity Status Insecurity as Predictor and Gender as Moderator

Due to the lack of model fit in testing the original popularity status model, popularity status and gender could not be examined as moderators simultaneously. This subsection concerns the models with gender as the sole moderator. Specifically, the relationships between popularity status insecurity and body-image-related health outcomes were expected to be mediated by body

dissatisfaction and moderated by gender. In predicting all included outcomes, popularity status insecurity was consistently positively related to body dissatisfaction, providing robust additional support for Hypothesis 1.

Predicting Body Image Related Outcomes

In predicting maladaptive body image related outcomes, Hypothesis 3 was generally supported, and Hypothesis 4 was partially supported at best. Specifically, popularity status insecurity was indirectly related to drive for thinness and bulimic symptoms through the mediation of body dissatisfaction for both girls and boys. Noteworthy, whereas only an indirect effect of popularity status insecurity on restrained eating was found in girls, both indirect and direct effects of popularity status insecurity were found in predicting restrained eating in boys. This seems to correspond to the present finding that the total effect of popularity status insecurity on restrained eating was found to be greater in boys than in girls. Therefore, popularity status insecurity appears to impact boys to a greater extent than girls in terms of conferring motivations to be thin and engage in maladaptive behaviors to lose weight. In predicting exercise behaviors, an indirect effect of popularity status insecurity through the mediation of body dissatisfaction was found in predicting behaviors to increase muscle in both girls and boys, and predicting physical exercise level in boys only. No mediating effect of body dissatisfaction on physical exercise level was found in girls.

Predicting Health Related Outcomes

In predicting physical health conditions, an indirect effect of popularity status insecurity on health complaints and self-perceived general health through the mediation of body dissatisfaction was found in boys, but not in girls. Neither indirect nor direct effect was found for predicting these two outcomes in girls. Notably, in boys, body dissatisfaction was negatively

correlated with self-perceived general health, suggesting that high body dissatisfaction may not

signal good health as perceived by boys. Neither indirect nor direct effect was found for

predicting concern about health in girls or boys. Indeed, body dissatisfaction was not related to

concern about health in neither girls or boys.

Some gender differences emerged in predicting BMI, yet Hypothesis 3 was partially

supported. In girls, popularity status insecurity was found to have both indirect and direct effects

on their BMI. Notably, however, popularity status insecurity was negatively correlated with

BMI; that is, as girls feel more insecure about their popularity status, they tend to have lower

BMI. In boys, popularity status insecurity was found to only have an indirect effect on their

BMI. Furthermore, both indirect and total effects of popularity status insecurity on BMI was

greater in boys than in girls, again suggesting that popularity status insecurity had an overall

greater impact on BMI in boys than in girls. This contradicts with Hypothesis 4, which predicts

that the mediating effect would be stronger for girls than for boys. Again, as speculated above,

this might be due to the relatively high mean BMI of boys in the present sample, rendering them

more likely to be concerned with their body size or shape.

Predicting Mental Health Outcomes

Results in predicting mental health outcomes were generally consistent with those

reported in previous studies that have investigated the associations between social status

insecurity and depressive symptoms and anxiety (Long et al., 2019) and provided some evidence

for Hypothesis 3 yet did not support Hypothesis 4. In the present study, popularity status

insecurity was found to have both indirect and direct effects on social anxiety in both girls and

boys. However, whereas popularity status insecurity was found to have both indirect and direct

effects on depressive symptoms in boys, no mediating effect of body dissatisfaction was found in

girls, but only a direct effect of popularity status insecurity on depressive symptoms was found in girls. This may suggest that popularity status insecurity itself can strongly predict high depressive symptoms in girls. Nevertheless, some of these findings indeed join others that have also found a positive relationship between popularity status insecurity and depression and anxiety (Long et al., 2019).

Summary

In Popularity Status models in which gender moderation was tested, more mediating effects of body dissatisfaction were found in boys than in girls in predicting body image related outcomes and worse health conditions. In predicting mental health outcomes, when discounting the moderation effect of status, mediation was found in both girls and boys, except for the prediction of depressive symptoms in girls where only direct effect was found. Similar to, the direct and indirect effects of popularity status insecurity on the outcomes tended to be greater in boys than in girls, which could be due to the higher mean BMI in boys from the current sample, leading them to be more concerned and dissatisfied with their body shape.

Implications of the Present Findings

The present study expanded the literature on social status insecurity by examining its associations with an array of outcomes, including body image related outcomes, physical exercise, physical health outcomes, and mental health outcomes. Results generally demonstrated that feeling concerned with one's status among peers is directly or indirectly associated with maladaptive eating behaviors, worse health conditions, social anxiety, and depressive symptoms, depending on the attained status and/or gender. In particular, results in predicting weight or body shape management strategies (e.g., restrained eating, behaviors to increase muscle) were of the greatest interest in the present study. Although to my knowledge there has not been any studies

directly investigating status insecurity and maladaptive eating behaviors in adolescents, this part

of the results could be remotely connected with some adult literature. For example, events

involving loss of social status (measured by the Social Comparison Rating Scale; Allan &

Gilbert, 1995) were related to eating pathology in women who reported self-perceived low rank,

whereas events that did not concern social status were unrelated to eating pathology (Troop,

2016). While a close comparison between the present study and this one would not be opportune

due to different foci on social status and populations, they seem to together suggest that women's

negative cognitions on their social status are related to eating disturbances.

Nonetheless, what cannot be known from the present findings and might be of valuable

interest is the goal of engaging in these weight-loss behaviors. Addressing this question is

pertinent also because the direct relationships found between social status insecurity and BMI

showed that social status insecurity was consistently negatively related to BMI, suggesting that

the greater one feels concerned with their peer status, the lower their BMI is. This intuitively

makes one wonder why it was not the opposite case, that the greater one is concerned with their

peer status, the higher their BMI is, since one might be worried being unpopular among peers, or

unfavored or discriminated against by peers due to their larger body size (Sutin et al., 2021). The

present study identified body dissatisfaction as one mechanism that links social status insecurity

to lower BMI, making it increasingly intriguing with respect to the purpose of engaging in

weight-loss behaviors. Studies in adult populations might be useful in informing researchers.

Past studies have shown that status-aspiring women reported greater body dissatisfaction after

being exposed to thin, successful women than those who were not so aspired by status (Smith et

al., 2011). Moreover, women who believe one can control or modify their appearance (i.e.,

determine their looks) were found to be more likely to expect higher possibility of upward social

mobility, especially among those who are convinced that appearance is valued by society and vital for success (Wang et al., 2020). It appears possible that engaging in weight-loss behaviors might spring from a desire to gain status. In support of this supposition, previous research has found that eating pathology is related to striving to avoid feelings of inferiority (Bellew et al., 2006) and achieving status (Faer et al., 2005). Unfortunately, the current cross-sectional design cannot provide further insights on this question. As such, an interesting future research avenue would be to collect multiple waves of data and examine how weight change trajectory is related to social status insecurity and body dissatisfaction.

Results of this study suggest that social status insecurity undermines normal eating behaviors as well as physical and mental health, directly or indirectly. Therefore, eating disorder prevention programs and those targeting adolescents' internalizing symptoms may be strengthened by the inclusion of a module that aims to decrease insecurity feelings about their social status and body dissatisfaction in adolescents. Regarding interventions, it might also be beneficial for therapists to specifically probe adolescent clients about their perceptions of and experiences in their peer environment in order to be informed of their potential status insecurity level. Lastly, as indicated by the three significant interactions in Social Preference models, very high social preference seems to be harmful to girls' eating behaviors and both physical and mental health, likely due to the stress associated with the high social preference. Therefore, school and teachers should make explicit efforts to foster an accepting and benevolent classroom climate that could serve to curb girls' stress possibly accompanied by a high social preference, for example, by leading open discussions on the personal costs of being highly well-liked by peers during adolescence and illustrating the importance of friendships and intimacy (Ferguson & Ryan, 2019).

Limitations and Future Research Directions

The present findings provide insights into the implications of social status insecurity and the role of body dissatisfaction; however, these findings should be understood in the context of several study limitations. First, part of this study's focus was to test a mediation model, which would have had a greater explanatory adequacy if a longitudinal design was employed. Given the cross-sectional nature of the present study, neither causal inferences nor longitudinal effects of social status insecurity cannot be made and examined. Therefore, future studies may benefit from a prospective design to determine if social status insecurity would cause maladaptive eating behaviors through body dissatisfaction across time. Second, the poor model fit of the Popularity Status models resulted in the separate tests of status and gender moderations. It is considered mainly due to the less "most popular" and "most unpopular" nominations, insufficient total sample size, as well as small sample size of girls. The adequate model fit of Social Preference models lends some support and confidence for the potential acceptable model fit of Popularity Status models, if a greater sample size would be obtained. That said, future research may want to test the combined popularity status and gender moderations for the Popularity Status models. Moreover, the present study did not test the motivation behind the maladaptive body image related cognitions and eating behaviors. A new research avenue would be to explore, as suggested above, whether a desire for higher popularity (i.e., social status goals; Li & Wright, 2014; Wright et al., 2014) would be one driving or moderating factor here.

<div align="center">

Conclusion

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The present study tested a set of moderated mediation models where the associations between social status insecurity and body-image-related health outcomes were mediated by body dissatisfaction and moderated by social status and gender in a sample of Chinese high school

students. Results generally showed that feeling concerned with one's status among peers is indeed directly or indirectly associated with maladaptive eating behaviors, worse physical health conditions, social anxiety, and depressive symptoms depending on the attained status and/or gender. The present study is one of the first to establish the relationships between social status insecurity and body-image-related health outcomes and suggests the importance of giving attention to adolescents' social status insecurity as implicated by the associated adverse outcomes.

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Table 1

Correlations Among All Study Variables in Girls

Measures	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Popularity Status Insecurity	–															
2. Social Preference Insecurity	.88***	–														
3. Body Dissatisfaction	.38***	.35***	–													
4. Drive for Thinness	.33***	.37***	.72***	–												
5. Bulimic Symptoms	.31***	.24**	.41***	.40***	–											
6. Restrained Eating	.23*	.29**	.64***	.82***	.36***	–										
7. Behavior to Increase Muscle	.11	.06	.27**	.29**	.29**	.37***	–									
8. Physical Exercise Level	.02	.06	.07	.09	-.03	.12	.04	–								
9. Specific Health Complaints	.21*	.23*	.28**	.31***	.22*	.38***	.15	-.09	–							
10. Self-Perceived General Health	-.18*	-.17	-.18*	-.27**	-.23*	-.31***	-.13	.11	-.55***	–						
11. Concern About Health	-.12	-.10	-.05	.00	-.16	.03	.03	.24**	-.29**	.36***	–					
12. Body Mass Index	-.06	-.06	.35***	.28**	.27**	.30***	.13	.11	.17	-.14	-.02	–				
13. Social Anxiety	.62***	.66***	.43***	.51***	.42***	.46***	.25**	-.05	.37***	-.32***	-.21*	.05	–			
14. Depressive Symptoms	.45***	.44***	.34***	.36***	.24**	.30***	.16	-.09	.46***	-.27**	-.43***	.03	.48***	–		
15. Popularity Status	.06	.06	.02	.06	.00	.03	.01	.21*	-.12	.17	.13	-.22*	-.05	-.27**	–	
16. Social Preference	-.07	-.06	.01	.04	.03	.04	-.03	.08	-.12	.29**	.18	-.08	-.10	-.32***	.60***	–

Note. $N = 117$.

*$p < .05$. **$p \le .01$. ***$p \le .001$.

Table 2

Correlations Among All Study Variables in Boys

Measures	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Popularity Status Insecurity	–															
2. Social Preference Insecurity	.87***	–														
3. Body Dissatisfaction	.54***	.52***	–													
4. Drive for Thinness	.52***	.47***	.84***	–												
5. Bulimic Symptoms	.28***	.31***	.30***	.22**	–											
6. Restrained Eating	.52***	.49***	.74***	.77***	.22**	–										
7. Behavior to Increase Muscle	.11	.03	.20**	.22**	.11	.31***	–									
8. Physical Exercise Level	.16*	.09	.23**	.23***	.05	.29***	.31***	–								
9. Specific Health Complaints	.11	.16*	.19**	.20**	.10	.20**	.02	.01	–							
10. Self-Perceived General Health	-.17*	-.14	-.27***	-.18*	-.03	-.12	.19**	.09	-.33***	–						
11. Concern About Health	-.06	-.08	-.05	.04	-.03	.09	.28***	.31***	-.09	.39***	–					
12. Body Mass Index	.16*	.15*	.47***	.40**	.11	.37***	.09	.12	.07	-.02	-.01	–				
13. Social Anxiety	.60***	.66***	.55***	.51***	.32***	.48***	.06	.12	.29***	-.25***	-.08	.07	–			
14. Depressive Symptoms	.37***	.38***	.31***	.27***	.00	.22**	-.05	-.18*	.41***	-.37**	-.41***	.06	.38***	–		
15. Popularity Status	-.18*	-.17*	.03	.04	-.12	-.04	.18*	.16*	-.04	.18*	.23**	-.06	-.05	-.25***	–	
16. Social Preference	-.11	-.10	.01	.04	.03	.04	.17*	.16*	-.02	.14	.36***	-.06	-.01	-.24**	.63***	–

Note. $N = 191$.

*p < .05. **p ≤ .01. ***p ≤ .001.

Table 3

Mean Differences on Study Variables Between Girls and Boys

| | Gender | | | | | |
| | Girls | | Boys | | | |
Criterion	*M*	*SD*	*M*	*SD*	*t*	Cohen's *d*
Popularity Status Insecurity	1.89	.79	1.80	.81	.96	.11
Social Preference Insecurity	2.11	.91	1.86	.87	2.35*	.28
Body Dissatisfaction	2.78	1.12	2.36	1.22	3.07**	.36
Drive for Thinness	2.62	1.17	2.19	1.17	3.19**	.37
Bulimic Symptoms	1.68	.67	1.51	.65	2.27*	.27
Restrained Eating	2.06	.89	1.84	.85	2.15*	.25
Behavior to Increase Muscle	1.56	.61	1.98	.93	-4.41***	.52
Physical Exercise Level	3.20	1.45	3.46	1.59	-1.43	.17
Specific Health Complaints	1.54	.62	1.44	.62	1.35	.16
Self-Perceived General Health	3.52	1.01	3.66	1.05	-1.09	.13
Concern About Health	3.58	1.08	3.53	1.23	.34	.04
Body Mass Index	22.30	4.85	25.24	6.35	-4.30***	.50
Social Anxiety	2.53	.90	2.26	.95	2.43*	.29
Depressive Symptoms	1.45	.37	1.42	.38	.77	.09

Notes. For boys, *n* = 191. For girls, *n* = 117.
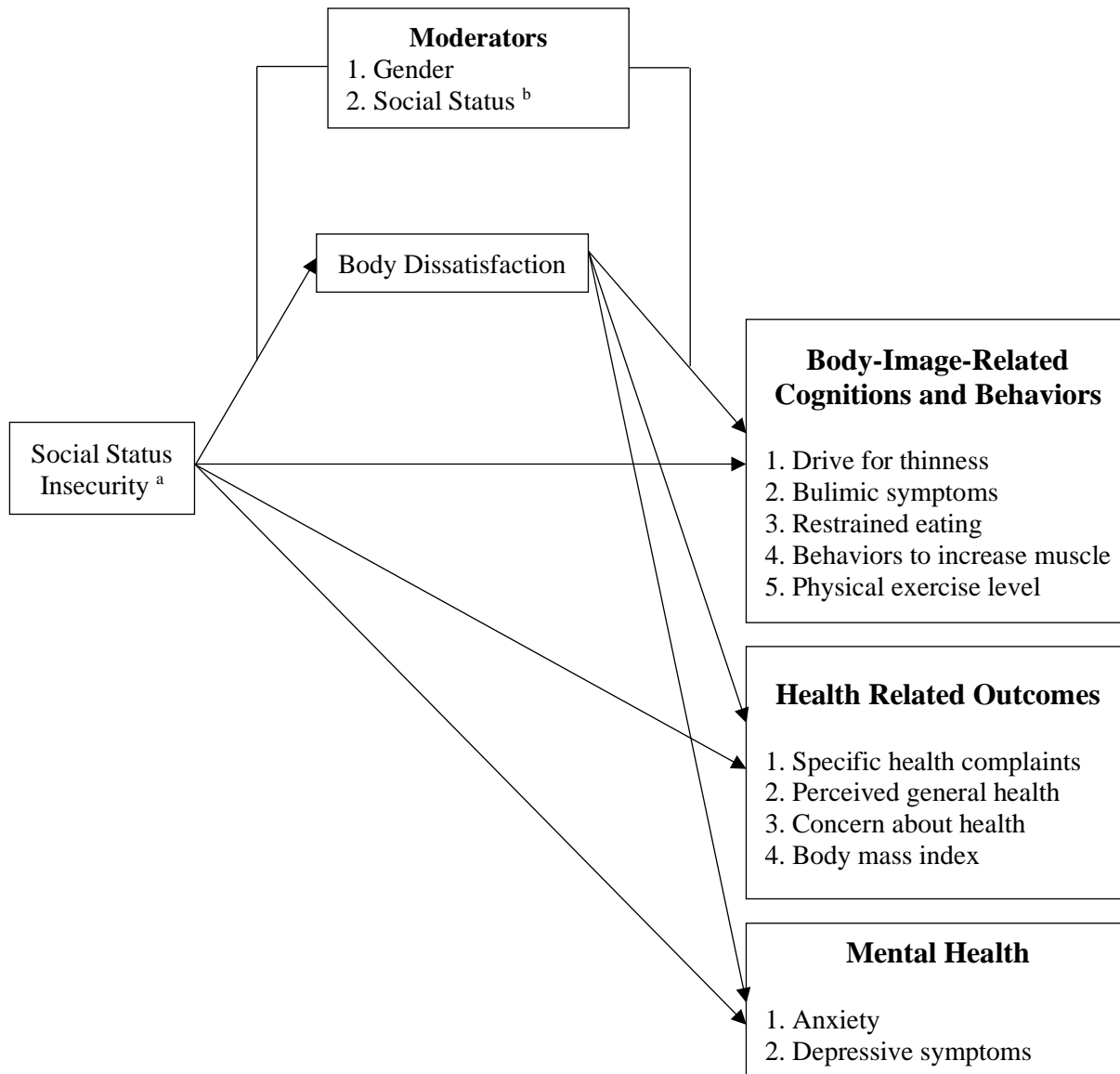
*p < .05. **p < .01. ***p < .001.

Figure 1. Conceptual Moderated Mediation Model

[a] Two types of social status insecurity were entered in the model separately.

[b] The types of social status was entered as moderator depend on which status insecurity was entered as predictor. For example, if popularity status insecurity was the predictor, then popularity status was selected to be the moderator.