



Exploring the links between celebrity worship, body dissatisfaction, and disordered eating among young adult celebrity worshippers in China



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ABSTRACT

Considerable evidence exists on the associations of celebrity worship with body dissatisfaction and disordered eating. However, relevant findings are confined to Western contexts and thinness-oriented body dissatisfaction and disordered eating. Consequently, the relationships of celebrity worship with muscularity-oriented body dissatisfaction and disordered eating are largely underexplored, especially in non-Western countries. Thus, the present study aimed to examine the relationships of celebrity worship with body dissatisfaction and disordered eating in China. A total of 593 young adult celebrity worshippers in China were recruited online. Correlation and mediation analyses were conducted. In contrast to previous findings, celebrity worship was not associated with thinness-oriented body dissatisfaction. However, significant associations were identified between celebrity worship and muscularity-oriented body dissatisfaction for men ($r = 0.32, p < .001$) and women ($r = 0.26, p < .001$), thinness-oriented disordered eating for men ($r = 0.31, p < .001$) and women ($r = 0.37, p < .001$), and muscularity-oriented disordered eating for men ($r = 0.58, p < .001$). Body image inflexibility mediated the associations between celebrity worship and disordered eating in men and women. Findings indicate that celebrity worship correlates positively with body dissatisfaction and disordered eating in Chinese young adults.

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1. Introduction

Celebrities are famous public figures in fields such as entertainment, sports, writing, politics, and science (Schimmelpfennig & Hunt, 2020) that have powerful impacts on their viewers (Fraser & Brown, 2002). Celebrity worship was conceptualized on a continuum, ranging from healthy enthusiasm to pathological involvement with celebrities (Zsilá & Demetrovics, 2020), and typically assessed by the Celebrity Attitude Scale (CAS) (McCutcheon et al.,

2002). Specifically, in the CAS, celebrity worship is operationalized by attitudes and behaviors reflecting the strength of one's attachment to a favorite celebrity (McCutcheon et al., 2002). A recent systematic review focusing on studies using the CAS reported that celebrity worship has increased dramatically in the United States, with the percentage of celebrity worshippers increasing from 3.95–24.69% in 2001 to 26.61–54.80% in 2021 (McCutcheon & Aruguete, 2021). More research is needed to elucidate the correlates and consequences of celebrity worship.

Empirical evidence shows that intense celebrity worship is not only associated with poorer psychological well-being (e.g., lower self-esteem and higher psychological distress; Chia & Poo, 2009; Maltby et al., 2004; Shabahang et al., 2020a), but also body dissatisfaction and disordered eating across individuals with different gender identities and different cultural backgrounds (see a recent review in Brown & Tiggemann, 2022). However, as shown in Brown and Tiggemann (2022), most previous studies examining the associations between celebrity worship, body dissatisfaction, and disordered eating were conducted in Western societies and were mainly focused on thinness-

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oriented body dissatisfaction and/or thinness-oriented disordered eating in women. Furthermore, there is also limited research on the potential mechanisms explaining the relationships between celebrity worship, body dissatisfaction, and disordered eating. Therefore, speaking to the need for more research on eating and body image disturbances in non-Western countries (He et al., 2022), the present study used a non-Western context (i.e., China) to examine relationships between celebrity worship and thinness-oriented and muscularity-oriented body dissatisfaction and disordered eating in men and women, and further explored potential mechanisms (e.g., body image inflexibility) of these relationships.

1.1. Celebrity worship, body dissatisfaction, and disordered eating

As proposed in the tripartite influence model (Thompson et al., 1999; Van den Berg et al., 2002), media is a core factor influencing individuals' body dissatisfaction and disordered eating. A number of empirical studies reported that appearance pressures (e.g., from the media) regarding thinness and muscularity correspond to the internalization of body image ideals and are associated with thinness-oriented body dissatisfaction, muscularity-oriented body dissatisfaction, and thinness-oriented disordered eating in both men and women (e.g., Barnhart et al., 2022a, 2022b; Tylka, 2011).

Media contents often glamorize celebrities' body image idealization, and celebrity idolization may contribute to the reinforcement of such idealization with regard to one's own body image (Maltby et al., 2005; Romo et al., 2016). Pursuing media-promoted body ideals (e.g., thinness for girls and women; muscularity for boys and men; Salusso-Deonier et al., 1993) could lead to disordered eating behaviors (Cuzzolaro & Fassino, 2018; Lavender et al., 2017). Indeed, a growing body of research describes the associations of celebrity worship with body image and disordered eating, generally indicating that higher celebrity worship is related to higher body dissatisfaction and disordered eating behaviors (see a review in Brown & Tiggemann, 2022). For instance, Ho et al. (2016) found that celebrity worship was positively associated with body dissatisfaction in both boys and girls from Singapore. However, there are also studies reporting mixed findings. For instance, with a sample of university students from the US, Aruguete et al. (2014) found that celebrity worship was not related to body objectification for both men and women, and celebrity worship was only significantly correlated with disordered eating for men, not women. These mixed findings highlight the complexity of the relationships of celebrity worship with body dissatisfaction and disordered eating.

Despite this evidence regarding the links between celebrity worship, body dissatisfaction, and disordered eating, previous studies, mainly from Western countries, mostly focused on thinness-oriented body dissatisfaction and thinness-oriented disordered eating in women (Brown & Tiggemann, 2022). Growing research on body dissatisfaction and disordered eating suggests there are also muscularity-oriented manifestations, especially for men (Murray et al., 2017). However, there is still very limited research that has investigated the relationships between celebrity worship and muscularity-oriented body dissatisfaction and disordered eating.

1.2. The mediating role of body image inflexibility

Body image (in)flexibility reflects the degree to which one is willing (or unwilling) to handle body image-related thoughts, feelings, sensations, and beliefs (Sandoz et al., 2013, 2019). Ample evidence suggests that body image (in)flexibility is an important correlate of body dissatisfaction and disordered eating in both men and women, across both Western and Eastern countries (Duarte & Pinto-Gouveia, 2016; Ferreira et al., 2011; He et al., 2021; Lee et al., 2017; Linardon et al., 2021; Mendes et al., 2021; Ren et al., 2022; Rogers et al., 2018; Sandoz et al., 2019; Tang et al., 2021; Timko et al., 2014).

Previous research suggests that celebrity worship was significantly correlated with cognitive inflexibility (e.g., Shabahang et al., 2020b). Specifically, higher levels of celebrity worship was significantly related to lower cognitive flexibility which, in turn, was related to elevated body image concerns (Shabahang et al., 2020b). Thus, body image (in)flexibility, as a body image specific psychological (in)flexibility, might function similarly as a mediator of the relationships between celebrity worship and eating and body image disturbances in those who are susceptible to celebrity influence (i.e., celebrity worshippers).

1.3. Celebrity worship in the Chinese context

With the rapid development of the entertainment industry in China, celebrity worship has become highly prevalent in China, especially among Chinese youth (Xie, 2021; Zhang, 2022). For example, according to a recent survey conducted in Chinese undergraduate students, 83.99% of undergraduate students were celebrity worshippers (Wang & Peng, 2021). Consequently, celebrity worship has gained increased research attention in China, especially from psychological and behavioral perspectives (Xie, 2021). For example, recent research evidence on celebrity worship in Chinese youth showed that celebrity worship was significantly related to lower self-esteem (Tang, 2022), lower self-control (Zhang, 2022), and lower self-efficacy and poorer general mental health (Deng, 2021). Some, albeit limited, research has identified celebrity worship as a correlate of body image concerns in Chinese adolescents (Liu, 2022) and higher consideration of cosmetic surgery in Chinese undergraduate students (Cui & Fang, 2022).

However, to our knowledge, there are no studies that have explored whether and/or how celebrity worship may be related to disordered eating in the Chinese context. Given the evidence supporting the links between celebrity worship and eating and body image disturbances as discussed above, the increasing popularity of celebrity worship may contribute to the increasing prevalence of eating and body image disturbances in China (Wu et al., 2022). To this end, the present study examined the associations of celebrity worship with body dissatisfaction and disordered eating in the Chinese context.

1.4. The present study

The present study explored whether and how celebrity worship might be related to body dissatisfaction and disordered eating in Chinese young-adult celebrity worshippers. We focused on young-adult celebrity worshippers because celebrity worship is highly prevalent in Chinese young adults (e.g., 83.99% of undergraduate students; Wang & Peng, 2021) and the survey platform we used (i.e., Credamo) only provided access to adult Chinese populations. Based on previous literature, we hypothesized that celebrity worship would be positively related to thinness-oriented body dissatisfaction, muscularity-oriented body dissatisfaction, thinness-oriented disordered eating, muscularity-oriented disordered eating, and body image inflexibility in young adult celebrity worshippers. We further proposed that body image inflexibility and thinness-oriented and muscularity-oriented body dissatisfaction would mediate the relationships between celebrity worship and both thinness-oriented and muscularity-oriented disordered eating. The proposed models for men and women are shown in Fig. 1 and Fig. 2, respectively.

2. Method

2.1. Participants and procedure

The protocol for this study was approved by the Institutional Review Board of the Chinese University of Hong Kong, Shenzhen (no.

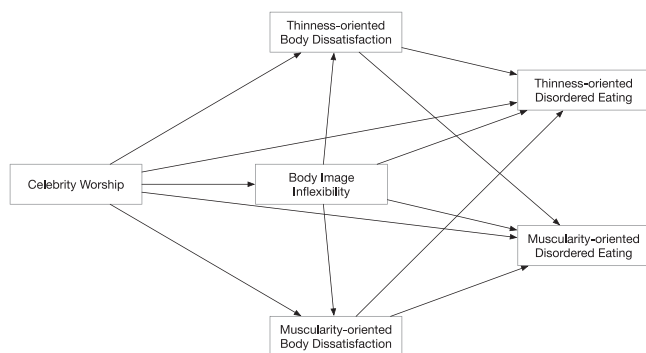


Fig. 1. Conceptual Model for Men.

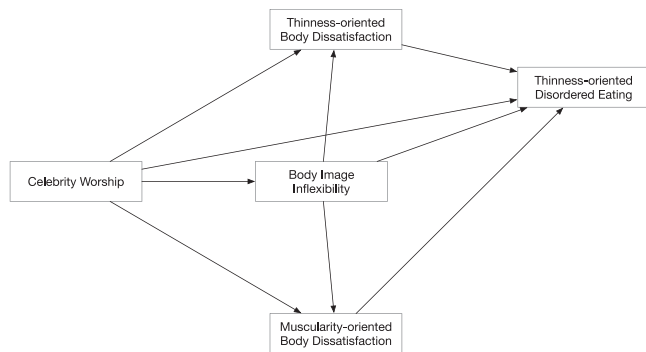


Fig. 2. Conceptual Model for Women.

EF20200817001). Data were collected using Credamo, which has over 3 million Chinese adult registers and has been demonstrated as a reliable survey platform (Wang et al., 2022). As we only focused on young Chinese adults who self-identified as celebrity worshippers, the eligibility criteria were: 1) self-identified as a celebrity worshipper and 2) aged 18–25 years old, which is in line with prior studies defining the age range of young Chinese adults (O’Cass & Siahtiri, 2013; Huang et al., 2015). Specifically, in the survey, to identify celebrity worshippers, we used two questions: the first question was about whether they have any favorite celebrities that they worship, with response being (1) No and (2) Yes. Participants who responded with “Yes” on the first question then answered a second question which requested participants to indicate the profession of their favorite celebrity, including actor, singer, athlete, journalist, television host, writer, entrepreneur, scientist, politician, virtual character, or other. Prior to this, the informed consent form was provided on the first page of the survey and its completion was required to gain access to the questionnaires. To prevent the issue of bots or scripts on survey platforms (Chmielewski & Kucker, 2020), we used a voice recording question that requested participants to record and upload the phrase “I agree with all contents in the informed consent and voluntarily participate in the survey.” Furthermore, we also adopted a “CAPTCHA” question provided by the platform. Both the voice recording and “CAPTCHA” questions are easy for humans but nearly impossible for bots or scripts. In addition, to ensure the quality of responses, we also embedded two attention check questions throughout the survey, and surveys from participants failing to pass the two attention check questions were removed.

Of 309 men and 307 women who accessed the survey, 593 participants (297 men and 296 women) remained after removing those who did not meet the inclusion criteria, did not upload clear voice recordings, or failed the attention checks. The mean age of the included participants was 21.98 ($SD = 1.98$) years and their body mass index (BMI) ranged from 16.02 to 32.69 ($M = 20.84$, $SD = 2.85$) kg/m².

Based on previous research (e.g., McCutcheon et al., 2002), we designated two celebrity types, the first of which (actor, singer, and athlete) is more likely than the second (journalist, television host, writer, entrepreneur, scientist, politician, and virtual character) to be admired for body appearance. Most (58%) participants worshipped actors, singers, or athletes, and the remaining 42% worshipped other types of celebrities.

2.2. Measures

2.2.1. Celebrity worship

The original CAS is a 34-item scale measuring celebrity worship (McCutcheon et al., 2002). The original CAS contains three factors, entertainment-social, intense-personal, and borderline-pathological. The items of the CAS are rated on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). Peng et al. (2010) translated the English version of the CAS into Chinese Mandarin and validated the Chinese version in Chinese adolescents and young adults. Specifically, Peng et al. (2010) added two items in the 34-item version of the CAS, and then they further deleted 9 items based on the results of item analysis and factor analysis, leading to a 27-item Chinese version of the CAS (C-CAS). An example item is “I enjoy watching, reading, or listening to my favorite celebrity because it means a good time.” The C-CAS contains five factors, including entertainment-social, emotion-casted, completely-identity, relation fantasy, and borderline-pathological. Furthermore, the C-CAS also showed good psychometric properties (e.g., acceptable internal consistency reliability, acceptable test-retest reliability, and good construct validity) and the factor structure was invariant across gender groups (Peng et al., 2010). However, as there is evidence that supports the use of a total score of the CAS (Swami et al., 2011), and in line with previous studies focusing on the relationships between celebrity worship, body image, and disordered eating (e.g., Aruguete et al., 2014; Shabahang et al., 2020b), we calculated a total score of the C-CAS, with a higher total score reflecting higher levels of celebrity worship. The Cronbach’s α values for the C-CAS in the present study were .93 for men and .91 for women.

2.2.2. Thinness-oriented body dissatisfaction

Thinness-oriented body dissatisfaction was assessed with the 9-item Body Dissatisfaction subscale of the Eating Disorder Inventory (EDI-BD; Garner, 1991), which reflects dissatisfaction with particular body parts and overall body shape in relation to body fat. An example item is “I think that my stomach is too big.” Respondents rated the items on a 6-point Likert scale, ranging from 1 (never) to 6 (always), with higher scores indicating higher levels of thinness-oriented body dissatisfaction. The EDI has been translated into Chinese and showed eight factors, including the factor of body dissatisfaction, in both Chinese young adult men and women (Lee et al., 1997). In the current study, the Chinese version of the EDI-BD had Cronbach’s α values of .91 for men and .90 for women.

2.2.3. Thinness-oriented disordered eating

The 12-item Eating Disorder Examination– Questionnaire Short Form (EDE-QS), developed by Gideon et al. (2016), was used to measure thinness-oriented disordered eating. An example item is “Have you been deliberately trying to limit the amount of food you eat to influence your weight or shape (whether or not you have succeeded)?” Respondents indicated the frequency of their thinness-oriented disordered eating in the last week on a scale ranging from 0 to 3, with higher scores denoting higher levels of thinness-oriented disordered eating. The Chinese version of the EDE-QS showed good internal consistency reliability and good construct validity in Chinese undergraduates (He et al., 2021). However, as He et al. (2021) confirmed the unidimensional factor structure of the EDE-QS with a sample containing both men and women, we reanalyzed these data

from He et al. (2021) by confirming the unidimensional factor structure of the EDE-QS in men and women separately and also explored whether the factor structure would fit these data in the current study. As shown in the supplementary file, the unidimensional factor structure was confirmed in both men and women in He et al. (2021) as well as in the current study. The EDE-QS had Cronbach’s α values of .85 for men and .86 for women in the current study.

2.2.4. Muscularity-oriented body dissatisfaction

To measure muscularity-oriented body dissatisfaction in men, we used the 7-item attitude subscale of the Drive for Muscularity Scale (DMS; McCreary et al., 2004). An example item is “I wish that I were more muscular.” Responses are structured on a 6-point Likert-type scale, ranging from 1 (always) to 6 (never). Items were reverse coded to have the same directionality as other study measures such that higher scores reflected higher levels of muscularity-oriented body dissatisfaction. The DMS was validated in Chinese men, replicating the two-factor solution (i.e., attitude and behavior subscales; McCreary et al., 2004), and this study also showed good internal consistency reliability and construct validity of the DMS in Chinese men (He et al., 2021). In the current study, the DMS attitude subscale had a Cronbach’s α value of .85 for the sample of men.

To measure muscularity-oriented body dissatisfaction in women, we used the 5-item attitude subscale of the Female Muscularity Scale (FMS; Rodgers et al., 2018). An example item is “I wish I were more toned.” Responses are structured on a 5-point Likert-type scale, ranging from 1 (never) to 5 (always). Higher total scores indicated higher levels of muscularity-oriented body dissatisfaction. The Chinese version of the FMS replicated the two-factor solution (i.e., attitude and behavior subscales; Rodgers et al., 2018) and showed strong internal consistency reliability and construct and incremental validity in Chinese women (Tang et al., 2022). In the current study, the attitude subscale demonstrated good internal consistency reliability (Cronbach’s $\alpha=0.81$) for the sample of women.

2.2.5. Muscularity-oriented disordered eating

The Muscularity-Oriented Eating Test was used to measure aspects of muscularity-oriented eating attitudes and behaviors. Respondents rated the 15 items (e.g., “I have been deliberately trying to limit the overall volume of some foods, so that my muscles look more defined.”) on a 5-point Likert scale, ranging from 0 (never) to 4 (always), with higher scores indicating higher levels of muscularity-oriented disordered eating over the past 4 weeks. The Chinese version of the MOET showed an unidimensional factor solution and had good internal consistency reliability and concurrent validity in Chinese men (He et al., 2021). As it has not been validated for

Chinese women, the Chinese version of the MOET was administered only to men in the current study (Cronbach’s $\alpha=0.91$).

2.2.6. Body image inflexibility

The 5-item Body Image–Acceptance and Action Questionnaire (BI-AAQ) was used to measure body image inflexibility (Sandoz et al., 2013). An example item is “I shut down when I feel bad about my body shape or weight.” Responses are structured on a 7-point Likert scale, ranging from 1 (never true) to 7 (always true), with higher scores indicating higher levels of body image inflexibility. The Chinese version of the BI-AAQ showed an unidimensional factor solution for both men and women and also demonstrated good test-retest reliability, internal consistency reliability, and construct validity in Chinese men and women (He et al., 2021). In the present study, this instrument had Cronbach’s α values of .83 for men and .86 for women.

2.3. Data analysis

These data were analyzed using R 4.1.0 (R Core Team, 2021) with the lavaan (Rosseel, 2012) and psych (Revelle, 2017) packages. As the associations between celebrity worship and well-being measures can be moderated by gender (Zsila et al., 2021), we conducted all analyses by gender. Pearson correlation analysis was used to examine bivariate associations between variables, and a correlation coefficient of 0.10, 0.30, and 0.50 indicated a small, medium, and large effect size, respectively (Cohen, 1992). All variables were standardized for the mediation analyses. Indirect effects were examined using 10,000 bootstrap replicates with 95% confidence intervals (CIs). CIs that did not include zero were considered to indicate significant indirect effects. Given that the BMI and age are likely related to body image and eating behaviors (Grogan, 2021; Rodgers et al., 2011), they were included as covariates in the mediation analyses.

3. Results

3.1. Descriptive and correlation analyses

Participant characteristics and correlations between variables are shown in Table 1. In particular, regarding the relationships between celebrity worship and body dissatisfaction and disordered eating, men reporting higher celebrity worship also reported higher muscularity-oriented body dissatisfaction (a medium effect size), body image inflexibility (a medium effect size), thinness-oriented disordered eating (a medium effect size), and muscularity-oriented disordered eating (a large effect size); however, men reporting higher celebrity worship did not report higher thinness-oriented body dissatisfaction (a small effect size). Similar to the findings of

Table 1
Descriptive and Correlation Analyses.

| Variable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|--|----------|----------|----------|----------|----------|----------|----------|----------|-------|
| 1. Celebrity Worship | - | -0.06 | 0.32 *** | 0.40 *** | 0.31 *** | 0.58 *** | 0.25 *** | -0.10 | -0.09 |
| 2. Thinness-oriented Body Dissatisfaction | 0.01 | - | -0.04 | 0.42 *** | 0.49 *** | 0.06 | -0.01 | 0.51 *** | -0.03 |
| 3. Muscularity-oriented Body Dissatisfaction | 0.26 *** | 0.21 *** | - | 0.18 ** | 0.12 * | 0.41 *** | 0.01 | -0.18 ** | -0.06 |
| 4. Body Image Inflexibility | 0.45 *** | 0.42 *** | 0.41 *** | - | 0.68 *** | 0.54 *** | 0.11 | 0.23 *** | -0.01 |
| 5. Thinness-oriented Disordered Eating | 0.37 *** | 0.43 *** | 0.34 *** | 0.68 *** | - | 0.50 *** | 0.09 | 0.41 *** | 0.01 |
| 6. Muscularity-oriented Disordered Eating | - | - | - | - | - | - | 0.20 *** | 0.06 | -0.11 |
| 7. Age | 0.20 ** | -0.07 | 0.11 | 0.08 | 0.13 * | - | - | 0.06 | -0.03 |
| 8. BMI | -0.10 | 0.53 *** | 0.09 | 0.16 ** | 0.20 ** | - | -0.03 | - | 0.02 |
| 9. Celebrity Type | -0.14 * | -0.11 | -0.09 | -0.08 | -0.01 | - | -0.01 | -0.05 | - |
| Men (Mean) | 2.85 | 7.73 | 3.63 | 14.89 | 20.97 | 2.39 | 22.10 | 21.91 | 1.44 |
| Men (SD) | 0.69 | 6.83 | 0.97 | 5.52 | 5.88 | 0.71 | 2.07 | 2.80 | 0.50 |
| Women (Mean) | 2.75 | 9.83 | 3.01 | 14.60 | 21.08 | - | 21.85 | 19.77 | - |
| Women (SD) | 0.60 | 7.07 | 0.78 | 6.01 | 5.98 | - | 1.88 | 2.49 | - |

Notes: correlations for women are below the diagonal; correlations for men are above the diagonal. * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 2
Standardized Regression Coefficients and Standard Errors for Men (n = 297).

| Antecedent variables | Consequent variables | | | | | | | | | | | | | | | |
|----------------------|----------------------|-----------|------|---------|-------|------------|------|---------|-------|-----------|------|----------|------|-----------|------|---------|
| | BII | | | | MOBD | | | | TODE | | | | MODE | | | |
| | β | 95%CI | SE | z | β | 95%CI | SE | z | β | 95%CI | SE | z | β | 95%CI | SE | z |
| Age | -0.01 | -0.11~.10 | 0.05 | -0.16 | -0.06 | -0.17~.06 | 0.06 | -0.97 | -0.02 | -0.02~.15 | 0.04 | -0.40 | 0.07 | -0.02~.15 | 0.04 | 1.46 |
| BMI | 0.27 | 0.17~.36 | 0.05 | 5.54*** | -0.18 | -0.28~-.06 | 0.06 | -3.16** | 0.30 | 0.21~.39 | 0.05 | 6.29*** | 0.06 | -0.03~.17 | 0.05 | 1.25 |
| CW | 0.42 | 0.31~.53 | 0.06 | 7.70*** | 0.27 | 0.14~.39 | 0.06 | 4.24*** | 0.11 | 0.02~.21 | 0.05 | 2.26* | 0.36 | 0.26~.46 | 0.05 | 6.99*** |
| BII | | | | | 0.13 | -0.001~.25 | 0.06 | 1.99* | 0.57 | 0.48~.65 | 0.04 | 13.09*** | 0.33 | 0.23~.43 | 0.05 | 6.44*** |
| MOBD | | | | | | | | | 0.03 | -0.05~.11 | 0.04 | 0.74 | 0.24 | 0.15~.34 | 0.05 | 5.14*** |
| R ² | 0.23 | | | | 0.14 | | | | 0.55 | | | | | | | |

Notes: CI = confidence interval; SE = standard error; CW = celebrity worship; BII = body image inflexibility; MOBD = muscularity-oriented body dissatisfaction; TODE = thinness-oriented disordered eating; MODE = muscularity-oriented disordered eating; BMI = body mass index; DE = disordered eating. *p < .05, ** p < .01, *** p < .001.

men, women reporting higher celebrity worship also reported higher muscularity-oriented body dissatisfaction (a small effect size), body image inflexibility (a medium effect size), and thinness-oriented disordered eating (a medium effect size). Furthermore, there was also a null relationship between celebrity worship and thinness-oriented body dissatisfaction (a small effect size) in women. Furthermore, for both men and women, among the covariates (age, BMI, and celebrity type), age and BMI were significantly related to one or more study variables, but celebrity type was not significantly related to any of the study variables. Thus, based on the results of bivariate correlations, thinness-oriented body dissatisfaction as a potential mediator and celebrity type as a potential covariate were not included in the subsequent mediation analyses for both men and women.

3.2. Mediation analyses

3.2.1. Men

As shown in Table 2 and Fig. 3, after controlling for covariates (i.e., age and BMI), higher celebrity worship was uniquely associated with higher body image inflexibility. After controlling for covariates and body image inflexibility, higher celebrity worship was uniquely associated with higher muscularity-oriented body dissatisfaction. With control for covariates, body image inflexibility, and muscularity-oriented body dissatisfaction, higher celebrity worship was uniquely associated with higher thinness-oriented disordered eating and higher muscularity-oriented disordered eating.

Table 3 shows the indirect effects of celebrity worship on thinness-oriented disordered eating and muscularity-oriented disordered eating via body image inflexibility and muscularity-oriented body dissatisfaction. Specifically, only the indirect pathway from celebrity worship to thinness-oriented disordered eating through body image inflexibility was significant. That is, higher celebrity worship was associated with higher body image inflexibility which,

in turn, was associated with higher thinness-oriented disordered eating in men.

Moreover, all indirect pathways from celebrity worship to muscularity-oriented disordered eating were significant, including a single mediation pathway through body image inflexibility, a single mediation pathway through muscularity-oriented body dissatisfaction, and a serial mediation pathway through body image inflexibility and muscularity-oriented body dissatisfaction. Specifically, higher celebrity worship was associated with higher body image inflexibility which, in turn, was associated with higher muscularity-oriented disordered eating. Furthermore, higher celebrity worship was associated with higher muscularity-oriented body dissatisfaction which, in turn, was associated with higher muscularity-oriented disordered eating. Finally, higher celebrity worship was associated with higher body image inflexibility which, in turn, was associated with higher muscularity-oriented body dissatisfaction which was then related to higher muscularity-oriented disordered eating in men.

3.2.2. Women

As shown in Table 4 and Fig. 4, after controlling for covariates, higher celebrity worship was uniquely associated with higher body image inflexibility. However, after controlling for covariates and body image inflexibility, celebrity worship was not directly associated with muscularity-oriented body dissatisfaction. With control for covariates, body image inflexibility, and muscularity-oriented body dissatisfaction, celebrity worship was also not directly associated with thinness-oriented disordered eating.

As shown in Table 5, only the indirect pathway from celebrity worship to thinness-oriented disordered eating through body image inflexibility was significant. Specifically, higher celebrity worship was associated with higher body image inflexibility which, in turn, was associated with higher thinness-oriented disordered eating in women.

4. Discussion

The current study explored the relationships of celebrity worship with body dissatisfaction and disordered eating among Chinese young-adult celebrity worshippers. We also examined the potential mediating roles of body image inflexibility and (thinness- and muscularity-oriented) body dissatisfaction in the relationship between celebrity worship and disordered eating. Celebrity worship was positively associated with disordered eating and muscularity-oriented (but not thinness-) oriented body dissatisfaction in men and women. Body image inflexibility consistently mediated the relationship between celebrity worship and disordered eating in men and women.

Even though there is empirical evidence supporting the link between celebrity worship and thinness-oriented body dissatisfaction in both men and women (Brown & Tiggemann, 2022), we found small, non-significant correlations between celebrity worship and

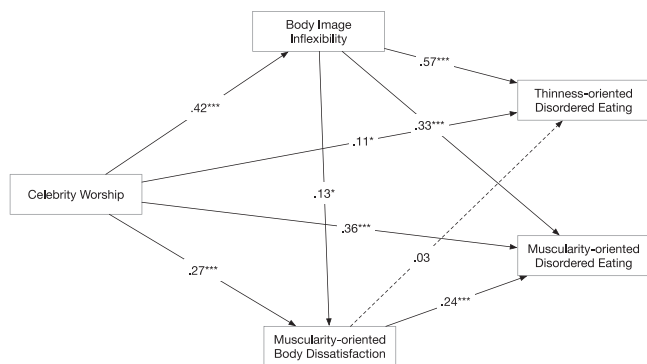


Fig. 3. Statistical Model for Chinese Men. Body mass index and age were covariates in the model. *p < .05, *** p < .001.

Table 3
Pathways of Indirect Effects from Celebrity Worship to Disordered Eating in Men (n = 297).

| Consequent variables | Indirect effects | Point estimate | 95% CI |
|--|----------------------------|----------------|-------------|
| Thinness-oriented Disordered Eating | Total | 0.25 | 0.18 ~.33 |
| | Path 1: CW →BII →TODE | 0.24 | 0.17 ~.32 |
| | Path 2: CW →MOBD →TODE | 0.01 | -0.01 ~.03 |
| | Path 3: CW →BII →MOBD→TODE | 0.002 | -0.002 ~.01 |
| | Total | 0.22 | 0.16 ~.29 |
| Muscularity-oriented Disordered Eating | Total | 0.14 | 0.09 ~.20 |
| | Path 1: CW →BII →MODE | 0.07 | 0.03 ~.11 |
| | Path 2: CW →MOBD →MODE | 0.07 | 0.03 ~.11 |
| | Path 3: CW →BII →MOBD→MODE | 0.01 | 0.001 ~.03 |

Notes: CI = confidence interval; SE = standard error; CW = celebrity worship; BII = body image inflexibility; MOBD = muscularity-oriented body dissatisfaction; TODE = thinness-oriented disordered eating; MODE = muscularity-oriented disordered eating.

thinness-oriented body dissatisfaction in both men and women. Since relevant studies were mainly conducted in Western countries (Brown & Tiggemann, 2022) rather than China, this non-significant finding may be partly explained by cultural differences. Specifically, contemporary China is experiencing an intense shift in emphasizing masculinity in boys and men as indicated by the prevalent public opinions encouraging boys to be more masculine (Yu & Sui, 2022) and the national/state media policies against male celebrities with low masculinity (Song, 2022). For example, male images with low masculinity have been heavily stigmatized, and male celebrities with low masculinity have been “blacklisted” by the state media in China (Song, 2022). Given muscularity, instead of thinness, is the major presentation of masculinity, it may not be surprising to find a non-significant relationship between celebrity worship and thinness-oriented body dissatisfaction, but a significant relationship between celebrity worship and muscularity-oriented body dissatisfaction in men. Moreover, given that women may also worship male celebrities, the trends in contemporary China of encouraging masculinity (Song, 2022) may also influence women. For example, it is possible that a woman witnessing her favorite celebrity being “blacklisted” due to low masculinity may feel that being less muscular is a bad thing, which may partly explain the similar relation patterns between men and women.

Another possible explanation of the non-significant association between celebrity worship and thinness-oriented body dissatisfaction may reflect the fact that we included all types of celebrity worshippers, those that worship celebrities with and without thin ideal body images. Specifically, as celebrities can be from various fields (McCutcheon et al., 2002), including fields characterized by thinness idealization (e.g., models and dancers) and fields that do not have such body idealizations (e.g., politicians and scientists), it is possible that our inclusion of all types of celebrity worshippers weakened the associations between celebrity worship and thinness-oriented body dissatisfaction in both men and women. Still, continued research is needed on this ever-evolving topic in the Chinese context.

In the present study, we found significant relationships between celebrity worship and thinness-oriented disordered eating for both

Table 4
Standardized Regression Coefficients and Standard Errors for Women (n = 296).

| Antecedent variables | Consequent variables | | | | | | | | | | | |
|----------------------|----------------------|-------------|------|----------|------|-------------|------|----------|------|-------------|------|-----------|
| | BII | | | | MOBD | | | | TODE | | | |
| | β | 95% CI | SE | z | β | 95% CI | SE | z | β | 95% CI | SE | z |
| Age | -0.01 | -0.11 ~ .09 | 0.05 | -0.25 | 0.06 | -0.05 ~ .17 | 0.06 | 1.14 | 0.07 | -0.01 ~ .15 | 0.04 | 1.67 |
| BMI | 0.20 | 0.06 ~ .35 | 0.08 | 2.73 ** | 0.04 | -0.07 ~ .15 | 0.06 | 0.67 | 0.11 | 0.02 ~ .19 | 0.04 | 2.46 * |
| CW | 0.47 | 0.37 ~ .57 | 0.05 | 9.13 *** | 0.07 | -0.05 ~ .19 | 0.06 | 1.09 | 0.09 | -0.01 ~ .18 | 0.05 | 1.75 |
| BII | | | | | 0.36 | 0.24 ~ .49 | 0.06 | 5.85 *** | 0.60 | 0.50 ~ .71 | 0.05 | 11.24 *** |
| MOBD | | | | | | | | | 0.06 | -0.03 ~ .16 | 0.05 | 1.28 |
| R ² | 0.24 | | | | 0.18 | | | | 0.49 | | | |

Notes: CI = confidence interval; SE = standard error; CW = celebrity worship; BII = body image inflexibility; MOBD = muscularity-oriented body dissatisfaction; TODE = thinness-oriented disordered eating; BMI = body mass index; DE = disordered eating. * p < .05, ** p < .01, *** p < .001.

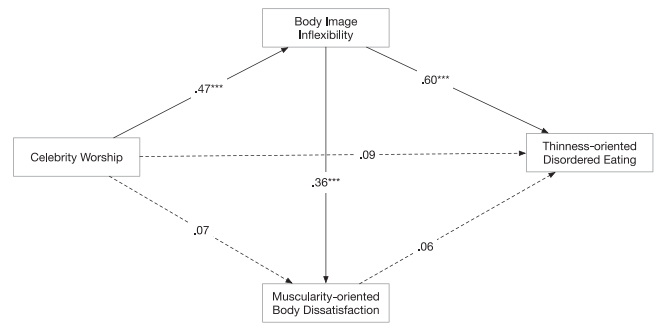


Fig. 4. Statistical Model for Chinese Women. Body mass index and age were covariates in the model. *** p < .001.

men and women, and a significant relationship between celebrity worship and muscularity-oriented disordered eating for men, which provides support for previous findings on relationships between celebrity worship and disordered eating (Brown & Tiggemann, 2022). Interestingly, these significant relationships with disordered eating were seemingly contrary to the non-significant relationship between celebrity worship and thinness-oriented body dissatisfaction, a finding that is peculiar given that thinness-oriented body dissatisfaction is a key risk factor or predictor of thinness-oriented disordered eating (Cuzzolaro & Fassino, 2018). However, considering the strong association between thinness-oriented disordered eating and muscularity oriented disordered eating (e.g., r = 0.74 between the MOET and EDE-Q in Messer et al., 2021), the significant association between celebrity worship and thinness-oriented disordered eating may be explained by the overlap between thinness-oriented disordered eating and muscularity-oriented disordered eating (e.g., eating concerns). For example, it is possible that a celebrity worshipper who is dissatisfied with muscularity may also have eating concerns in the service of a lean and muscular body given muscularity body ideals in both men and women involve leanness but in a toned way (Lavender et al., 2017; Rodgers et al., 2018).

Our finding that the associations between celebrity worship and disordered eating were consistently mediated by body image

Table 5
Pathways of Indirect Effects from Celebrity Worship to Disordered Eating in Women ($n = 296$).

| Consequent variable | Indirect effects | Point estimate | 95% CI |
|-------------------------------------|----------------------------|----------------|------------|
| Thinness-oriented Disordered Eating | Total | 0.30 | 0.22~.38 |
| | Path 1: CW →BII →TODE | 0.28 | 0.21~.37 |
| | Path 2: CW →MOBD →TODE | 0.004 | -0.002~.02 |
| | Path 3: CW →BII →MOBD→TODE | 0.01 | -0.004~.03 |

Notes: CI = confidence interval; SE = standard error; CW = celebrity worship; TOBD = thinness-oriented body dissatisfaction; BII = body image inflexibility; MOD = muscularity-oriented dissatisfaction; TODE = thinness-oriented disordered eating.

inflexibility in both men and women speaks to the significant role of body image inflexibility in disordered eating (see Linardon et al., 2021; Rogers et al., 2018). As described in Ferreira et al. (2016) with a sample of Portuguese young adults, body image inflexibility was found to be partly explained by social comparison through physical appearance. Thus, celebrity worshippers who are frequently exposed to celebrity images may be more likely to make appearance comparisons with celebrities in terms of physical appearance (Brown & Tiggemann, 2022) which, in turn, may make them more likely to develop body image inflexibility. Thus, our results suggest that celebrity worship may have an indirect effect on disordered eating via body image inflexibility in Chinese young adult celebrity worshippers.

The findings for the present study may have clinical implications. Interventions targeting disordered eating in celebrity worshippers may aim to address these factors. For example, media literacy interventions may aim to equip people with critical thinking skills while using social media, which could be employed to reduce eating disorder risk factors. A meta-analytic review showed that such interventions have the potential to increase media literacy and reduce body dissatisfaction among adolescents (Kuruz et al., 2021). Likewise, media-literacy psychoeducation of adult women exposed to thin body image ideals via the media effectively reduced body image disturbances (Yamamiya et al., 2005). Given that celebrities feature predominantly in contemporary social media and represent the embodiment of cultural beauty standards (Brown & Tiggemann, 2022), media literacy interventions could equip celebrity worshippers with critical attitudes toward the ideal body image, thereby reducing eating and body image disturbances. Further, given that body image inflexibility played a significant mediating role in the relationships between celebrity worship and disordered eating, acceptance and commitment therapy (ACT; Hayes et al., 2011), which has been found effective in improving body image flexibility (Givohki et al., 2018), may be promising in the reduction of disordered eating in celebrity worshippers. However, the efficacy of ACT in celebrity worshippers should be tested in future studies with experimental designs.

The current study has several strengths. For example, it provides valuable data on celebrity worship, body dissatisfaction, and disordered eating in the Chinese population, providing a basis for cross-cultural comparison in this field. Furthermore, we included male participants, a strength given most studies in this field have been conducted with women. An additional strength is our examination of muscularity-oriented body dissatisfaction and disordered eating, which fills a gap in the literature as previous studies have focused mainly on thinness-oriented body dissatisfaction and disordered eating.

Nevertheless, the current study has several limitations. First, given the cross-sectional design, causal relationships among the study variables could not be explored. Thus, future studies with experimental designs are warranted to explore whether there are causal relationships, particularly in reference to our mediation analyses. Second, celebrity worship was measured in the current study using the CAS which was developed decades ago in the Western context. Considering that the publicity of celebrities relies

largely on rapidly changing social media platforms, this measure might not be perfectly applicable to the assessment of contemporary celebrity worship in Chinese young adults. Third, the present study, due to the wide variety of celebrities, did not cover all types of celebrity worshippers, especially those who worship celebrities with “prototypical” professions (e.g., gymnasts, models, and dancers), which might have accounted for the weak associations between celebrity worship and thinness-oriented body dissatisfaction in both men and women. Future research may consider examining the relationship between celebrity worship and thinness-oriented body dissatisfaction for specific types of celebrity worshippers (e.g., those worshipping gymnasts, models, or dancers). Fourth, because certain measures used were different by gender (e.g., for muscularity-oriented body dissatisfaction, the DMS was used in men, while the FMS was used in women), we were unable to test gender differences in the proposed mediation models. Thus, future studies using measures invariant to gender groups are needed to replicate the present study and examine the potential for gender differences. Fifth, given that the validity and reliability of the Chinese version of the MOET was verified only in men when the study was conducted, muscularity-oriented disordered eating in Chinese women (He et al., 2023) was not assessed in this study. Future studies are needed to test these relationships with a validated scale of muscularity-oriented disordered eating in women. Finally, this study was conducted with Chinese young adults, and the findings cannot be generalized to other populations, such as adolescents, older age groups, and non-Chinese populations. Further examination of the observed relationships in celebrity worshippers in other cultural contexts (e.g., the U.S.) would meaningfully add to the literature.

The current study showed that celebrity worship was associated with body dissatisfaction and disordered eating in Chinese young adult celebrity worshippers. Furthermore, body image inflexibility and muscularity-oriented body dissatisfaction partially mediated the relationship between celebrity worship and muscularity-oriented disordered eating in men, and body image inflexibility partially mediated the relationships between celebrity worship and thinness-oriented disordered eating in both men and women. As celebrity worship continues on an upward trend in current society, playing an important part in young people’s lives, our findings provide insights into the underlying mechanisms of associations between celebrity worship and eating and body image disturbances in the Chinese context.

Ethical approval

The ethical approval was obtained from the Institutional Review Board of the Chinese University of Hong Kong, Shenzhen (No. EF20200817001).

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CRedit authorship contribution statement

Yitong Lin: Investigation, Writing – original draft. **Chen Lu:** Investigation, Writing – original draft. **Zizhen Huang:** Investigation, Writing – original draft. **Wesley R. Barnhart:** Writing – review & editing. **Tianxiang Cui:** Investigation, Writing – review & editing. **Jinbo He:** Conceptualization, Supervision, Funding acquisition, Formal analysis, Writing – original draft, Writing – review & editing. All authors approved the manuscript for submission.

Data Availability

Data will be made available on request.

Conflict of interest

All authors declare that they have no conflict(s) of interest.

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References

- Aruguete, M., Griffith, J., Edman, J., Green, T., & Mccutcheon, L. (2014). Body image and celebrity worship. *Implicit Religion*, 17(2), 223–234. <https://doi.org/10.1558/jimr.v17i2.223>
- Barnhart, W. R., Cui, T., Cui, S., Han, X., Lu, C., & He, J. (2022a). Examining appearance pressures, thinness and muscularity internalizations, and social comparisons as correlates of drive for muscularity and thinness-oriented disordered eating in Chinese heterosexual men and women: Testing an integrated model. *Body Image*, 43, 429–439. <https://doi.org/10.1016/j.bodyim.2022.10.005>
- Barnhart, W. R., Sun, H., Lin, Z., Lu, C., Han, X., & He, J. (2022b). Integrating the tripartite influence, minority stress, and social comparison theories to explain body image and disordered eating in Chinese sexual minority men and women. *Body Image*, 43, 95–106. <https://doi.org/10.1016/j.bodyim.2022.08.012>
- Brown, Z., & Tiggemann, M. (2022). Celebrity influence on body image and eating disorders: A review. *Journal of Health Psychology*, 27(5), 1233–1251. <https://doi.org/10.1177/1359105320988312>
- Chia, S. C., & Poo, Y. L. (2009). Media, celebrities, and fans: An examination of adolescents' media usage and involvement with entertainment celebrities. *Journalism & Mass Communication Quarterly*, 86(1), 23–44. <https://doi.org/10.1177/107769900908600103>
- Chmielewski, M., & Kucker, S. C. (2020). An MTurk crisis? Shifts in data quality and the impact on study results. *Social Psychological and Personality Science*, 11(4), 464–473. <https://doi.org/10.1177/1948550619875149>
- Cohen, J. (1992). A power primer. *Psychological Bulletin*, 112(1), 155–159. <https://doi.org/10.1037/0033-2909.112.1.155>
- Cui, J., & Fang, Y. (2022). Mediating effects of self-concept clarity and self-objectification on the relationship between celebrity worship and the process of considering cosmetic surgery among Chinese undergraduates. *BMC Psychology*, 10(1), 1–8. <https://doi.org/10.1186/s40359-022-00975-6>
- Cuzzolaro, M., & Fassino, S. (2018). *Body Image, Eating, and Weight*. Cham: Springer.
- Deng, J. (2021). Relationship between idolatry and mental health of middle school students: The mediating effects of self-efficacy [Master Dissertation, Sichuan Normal University]. *China National Knowledge Infrastructure*. <https://doi.org/10.27347/d.cnki.gssdu.2021.000588>
- Duarte, C., & Pinto-Gouveia, J. (2016). Body image flexibility mediates the effect of body image-related victimization experiences and shame on binge eating and weight. *Eating Behaviors*, 23, 13–18. <https://doi.org/10.1016/j.eatbeh.2016.07.005>
- Ferreira, C., Gouveia, J. P., & Duarte, C. (2011). The validation of the Body Image Acceptance and Action Questionnaire: exploring the Moderator Effect on Acceptance on Disordered Eating. *International Journal of Psychology and Psychological Therapy*, 11(3), 327–345.
- Ferreira, C., Trindade, I. A., & Martinho, A. (2016). Explaining rigid dieting in normal-weight women: the key role of body image inflexibility. *Eating and Weight Disorders-Studies on Anorexia, Bulimia and Obesity*, 21(1), 49–56. <https://doi.org/10.1007/s40519-015-0188-x>
- Fraser, B. P., & Brown, W. J. (2002). Media, celebrities, and social influence: Identification with Elvis Presley. *Mass Communication & Society*, 5(2), 183–206. https://doi.org/10.1207/S15327825MCS0502_5
- Garner, D.M. (1991). *Eating Disorder Inventory-2*; Professional Manual. Psychological Assessment Resources.
- Gideon, N., Hawkes, N., Mond, J., Saunders, R., Tchanturia, K., & Serpell, L. (2016). Development and psychometric validation of the EDE-QS, a 12 item short form of the Eating Disorder Examination Questionnaire (EDE-Q). *PLoS One*, 11(5), Article e0152744. <https://doi.org/10.1371/journal.pone.0152744>
- Givehki, R., Afshar, H., Goli, F., Scheidt, C. E., Omidi, A., & Davoudi, M. (2018). Effect of acceptance and commitment therapy on body image flexibility and body awareness in patients with psychosomatic disorders: a randomized clinical trial. *Electronic Physician*, 10(7), 7008. <https://doi.org/10.19082/7008>
- Grogan, S. (2021). *Body image: Understanding body dissatisfaction in men, women, and children*. Routledge. <https://doi.org/10.4324/9781003100041>
- Hayes, S.C., Strosahl, K.D., & Wilson, K.G. (2011). Acceptance and commitment therapy: The process and practice of mindful change. Guilford press.
- He, J., Cai, Z., Chen, X., Lu, T., & Fan, X. (2021). Validation of the Chinese version of the body image acceptance and action questionnaire and the mediating role of body image flexibility in the relationship between body dissatisfaction and psychological distress. *Behavior Therapy*, 52(3), 539–551. <https://doi.org/10.1016/j.beth.2020.07.003>
- He, J., Cui, T., Barnhart, W. R., Cui, S., Xu, Y., Compte, E. J., ... Nagata, J. M. (2023). Validation of the Muscularity-Oriented Eating Test in adult women in China. *International Journal of Eating Disorders*, 1–12. <https://doi.org/10.1002/eat.23927>
- He, J., Kang, J., Sun, S., Cooper, M., Zickgraf, H. F., & Zhai, Y. (2022). The landscape of eating disorders research: A 40-year bibliometric analysis. *European Eating Disorders Review*, 30(2), 96–109. <https://doi.org/10.1002/erv.2884>
- He, J., Murray, S., Compte, E. J., Song, J., & Nagata, J. M. (2021). The Muscularity-Oriented Eating Test, Drive for Muscularity Scale, and Muscle Dysmorphic Disorder Inventory among Chinese Men: Confirmatory factor analyses. *International Journal of Environmental Research and Public Health*, 18(21), 11690. <https://doi.org/10.3390/ijerph182111690>
- He, J., Sun, S., & Fan, X. (2021). Validation of the 12-item Short Form of the Eating Disorder Examination Questionnaire in the Chinese context: Confirmatory factor analysis and Rasch analysis. *Eating and Weight Disorders-Studies on Anorexia, Bulimia and Obesity*, 26(1), 201–209. <https://doi.org/10.1007/s40519-019-00840-3>
- Ho, S., Lee, W., & Liao, Y. (2016). Social network sites, friends, and celebrities: The roles of social comparison and celebrity involvement in adolescents' body image dissatisfaction. *Social Media + Society*, 2(3), 1–11. <https://doi.org/10.1177/2056305116664216>
- Kurz, M., Rosendahl, J., Rodeck, J., Muehleck, J., & Berger, U. (2021). School-based interventions improve body image and media literacy in youth: A systematic review and meta-analysis. *The Journal of Primary Prevention*, 1–19. <https://doi.org/10.1007/s10935-021-00660-1>
- Lavender, J. M., Brown, T. A., & Murray, S. B. (2017). Men, muscles, and eating disorders: An overview of traditional and muscularity-oriented disordered eating. *Current Psychiatry Reports*, 19(6), 1–7. <https://doi.org/10.1007/s11920-017-0787-5>
- Lee, E. B., Smith, B. M., Twohig, M. P., Lensegrav-Benson, T., & Quakenbush-Roberts, B. (2017). Assessment of the body image-acceptance and action questionnaire in a female residential eating disorder treatment facility. *Journal of Contextual Behavioral Science*, 6(1), 21–28. <https://doi.org/10.1016/j.jcbs.2016.11.004>
- Linardon, J., Anderson, C., Messer, M., Rodgers, R. F., & Fuller-Tyszkiewicz, M. (2021). Body image flexibility and its correlates: A meta-analysis. *Body Image*, 37, 188–203. <https://doi.org/10.1016/j.bodyim.2021.02.005>
- Liu, Y. (2022). A study on the relationship and its intervention among idol worship, core self-evaluation and depression of body image of junior high school students [Master Dissertation, Yunnan Normal University]. *China National Knowledge Infrastructure*. <https://doi.org/10.27459/d.cnki.gynfc.2022.001390>
- Maltby, J., Day, L., McCutcheon, L. E., Gillett, R., Houran, J., & Ashe, D. D. (2004). Personality and coping: A context for examining celebrity worship and mental health. *British Journal of Psychology*, 95, 411–428. <https://doi.org/10.1348/0007126042369794>
- Maltby, J., Giles, D. C., Barber, L., & McCutcheon, L. E. (2005). Intense-personal celebrity worship and body image: Evidence of a link among female adolescents. *British Journal of Health Psychology*, 10(1), 17–32. <https://doi.org/10.1348/13591070415257>
- McCreary, D. R., Sasse, D. K., Saucier, D. M., & Dorsch, K. D. (2004). Measuring the drive for muscularity: factorial validity of the drive for muscularity scale in men and women. *Psychology of Men & Masculinity*, 5(1), 49. <https://doi.org/10.1037/1524-9220.5.1.49>
- McCutcheon, L. E., & Aruguete, M. S. (2021). Is celebrity worship increasing over time? *Journal of Studies in Social Sciences and Humanities*, 7(1), 66–75.
- McCutcheon, L. E., Lange, R., & Houran, J. (2002). Conceptualization and measurement of celebrity worship. *British Journal of Psychology*, 93(1), 67–87. <https://doi.org/10.1348/000712602162454>
- Mendes, A. L., Canavaro, M. C., & Ferreira, C. (2021). How psychological inflexibility mediates the association between general feelings of shame with body image-related shame and eating psychopathology severity. *Appetite*, 163, Article 105228. <https://doi.org/10.1016/j.appet.2021.105228>
- Messer, M., McClure, Z., Norton, B., Smart, M., & Linardon, J. (2021). Using an app to count calories: Motives, perceptions, and connections to thinness- and muscularity-oriented disordered eating. *Eating Behaviors*, 43, Article 101568. <https://doi.org/10.1016/j.eatbeh.2021.101568>
- Murray, S. B., Nagata, J. M., Griffiths, S., Calzo, J. P., Brown, T. A., Mitchison, D., Blashill, A. J., & Mond, J. M. (2017). The enigma of male eating disorders: A critical review and synthesis. *Clinical Psychology Review*, 57, 1–11. <https://doi.org/10.1016/j.cpr.2017.08.001>
- Peng, W., Qiu, X., Liu, D., & Wang, P. (2010). Ouxiang chongbai liangbiao de xiuding jiqi lilun moxing de yanzheng [Revision of the scale of celebrity worship]. *Psychological Development and Education*, 05, 543–548. <https://doi.org/10.16187/j.cnki.issn1001-4918.2010.05.002>

- R Core Team. (2021). *R: A Language and Environment for Statistical Computing*. Vienna, Austria: R Foundation for Statistical Computing.
- Ren, Y., Lu, C., Yang, H., Ma, Q., Barnhart, W. R., Zhou, J., & He, J. (2022). Using machine learning to explore core risk factors associated with the risk of eating disorders among non-clinical young women in China: A decision-tree classification analysis. *Journal of Eating Disorders*, 10(1), 1–11. <https://doi.org/10.1186/s40337-022-00545-6>
- Revelle, W.R. (2017). psych: Procedures for personality and psychological research.
- Rodgers, R. F., Franko, D. L., Lovering, M. E., Luk, S., Pernal, W., & Matsumoto, A. (2018). Development and validation of the Female Muscularity Scale. *Sex Roles*, 78(1), 18–26. <https://doi.org/10.1016/j.bodyim.2021.03.009>
- Rodgers, R. F., Paxton, S. J., & Wertheim, E. H. (2021). Take idealized bodies out of the picture: A scoping review of social media content aiming to protect and promote positive body image. *Body Image*, 38, 10–36. <https://doi.org/10.1016/j.bodyim.2021.03.009>
- Rogers, C. B., Webb, J. B., & Jafari, N. (2018). A systematic review of the roles of body image flexibility as correlate, moderator, mediator, and in intervention science (2011–2018). *Body Image*, 27, 43–60. <https://doi.org/10.1016/j.bodyim.2018.08.003>
- Romo, L. F., Mireles-Rios, R., & Hurtado, A. (2016). Cultural, media, and peer influences on body beauty perceptions of Mexican American adolescent girls. *Journal of Adolescent Research*, 31, 474–501. <https://doi.org/10.1177/0743558415594424>
- Rosseel, Y. (2012). lavaan: An R package for structural equation modeling. *Journal of Statistical Software*, 48, 1–36. <https://doi.org/10.18637/jss.v048.i02>
- Salusso-Deonier, C. J., Markee, N. L., & Pedersen, E. L. (1993). Gender differences in the evaluation of physical attractiveness ideals for male and female body builds. *Perceptual and Motor Skills*, 76(3_suppl), 1155–1167. <https://doi.org/10.2466/pms.1993.76.3c.1155>
- Sandoz, E. K., Webb, J. B., Rogers, C. B., & Squyres, E. (2019). Body image flexibility. In T. L. Tylka, & N. Piran (Eds.). *Handbook of positive body image and embodiment: Constructs, protective factors, and interventions* (pp. 42–51). Oxford University Press. <https://doi.org/10.1093/med-psych/9780190841874.003.0005>
- Sandoz, E. K., Wilson, K. G., Merwin, R. M., & Kellum, K. K. (2013). Assessment of body image flexibility: the body image-acceptance and action questionnaire. *Journal of Contextual Behavioral Science*, 2(1–2), 39–48. <https://doi.org/10.1016/j.jcbs.2013.03.002>
- Schimmelpfennig, C., & Hunt, J. B. (2020). Fifty years of celebrity endorsement research: Support for a comprehensive celebrity endorsement strategy framework. *Psychology & Marketing*, 37(3), 488–505. <https://doi.org/10.1002/mar.21315>
- Shabahang, R., Besharat, M. A., Hossein khazadeh, A. A., & Rezaei, S. (2020b). Celebrity worship and body image concern: Mediating role of cognitive flexibility. *International Journal of Psychology (IPA)*, 14(1), 35–58.
- Shabahang, R., Besharat, M. A., Hossein Khazadeh, A. A., & Bagheri Sheykhangafshe, F. (2020a). Structural analysis of relationship between celebrity worship and psychological wellbeing: Mediating role of cognitive flexibility. *Social Cognition*, 9(1), 9–28. <https://doi.org/10.30473/sc.2019.41971.2260>
- Slevec, J. H., & Tiggemann, M. (2011). Predictors of body dissatisfaction and disordered eating in middle-aged women. *Clinical Psychology Review*, 31(4), 515–524. <https://doi.org/10.1016/j.cpr.2010.12.002>
- Song, G. (2022). "Little fresh meat": The politics of sissiness and sissyphobia in contemporary China. *Men and Masculinities*, 25(1), 68–86. <https://doi.org/10.1177/1097184x211014939>
- Swami, V., Taylor, R., & Carvalho, C. (2011). Body dissatisfaction assessed by the Photographic Figure Rating Scale is associated with sociocultural, personality, and media influences. *Scandinavian Journal of Psychology*, 52(1), 57–63. <https://doi.org/10.1111/j.1467-9450.2010.00836.x>
- Tang, C., Barnhart, W. R., Zhang, B., & He, J. (2022). Psychometric properties of the Chinese version of the female muscularity scale among Chinese young women. *Eating and Weight Disorders-Studies on Anorexia, Bulimia and Obesity*. <https://doi.org/10.1007/s40519-022-01448-w>
- Tang, C., Cooper, M., Wang, S., Song, J., & He, J. (2021). The relationship between body weight and dietary restraint is explained by body dissatisfaction and body image inflexibility among young adults in China. *Eating and Weight Disorders-Studies on Anorexia, Bulimia and Obesity*, 26(6), 1863–1870. <https://doi.org/10.1007/s40519-020-01032-0>
- Tang, Y. (2022). A study of the relationship between idolatry, self-identity and self-worth for middle school students and its educational strategies [Master Dissertation, Shaanxi University of Technology]. *China National Knowledge Infrastructure*. <https://doi.org/10.27733/d.cnki.gsxlg.2022.000082>
- Thompson, J. K., Heinberg, L. J., Altabe, M., & Tantleff-Dunn, S. (1999). *Exacting beauty: Theory, assessment, and treatment of body image disturbance*. American Psychological Association <https://doi.org/10.1037/10312-000>
- Timko, C. A., Juarascio, A. S., Martin, L. M., Faherty, A., & Kalodner, C. (2014). Body image avoidance: An under-explored yet important factor in the relationship between body image dissatisfaction and disordered eating. *Journal of Contextual Behavioral Science*, 3(3), 203–211. <https://doi.org/10.1016/j.jcbs.2014.01.002>
- Tylka, T. L. (2011). Refinement of the tripartite influence model for men: Dual body image pathways to body change behaviors. *Body Image*, 8(3), 199–207. <https://doi.org/10.1016/j.bodyim.2011.04.008>
- Van den Berg, P., Thompson, J. K., Obremski-Brandon, K., & Coovert, M. (2002). The tripartite influence model of body image and eating disturbance: A covariance structure modeling investigation testing the mediational role of appearance comparison. *Journal of Psychosomatic Research*, 53(5), 1007–1020. [https://doi.org/10.1016/S0022-3999\(02\)00499-3](https://doi.org/10.1016/S0022-3999(02)00499-3)
- Wang, T., & Peng, W. (2021). Research on the relationship of idolatry and spouse preferences in college students. *Advances in Social Sciences*, 10(3), 553–559. <https://doi.org/10.12677/ASS.2021.103080>
- Wu, J., Lin, Z., Liu, Z., He, H., Bai, L., & Lyu, J. (2022). Secular trends in the incidence of eating disorders in China from 1990 to 2017: A joinpoint and age-period-cohort analysis. *Psychological Medicine*, 52(5), 946–956. <https://doi.org/10.1017/S0033291720002706>
- Xie, S. (2021). The relationship between peer influence and teenagers' celebrity worship phenomenon. *Frontiers in Educational Research*, 4(12), 88–96. <https://doi.org/10.25236/FER.2021.041219>
- Yamamiya, Y., Cash, T. F., Melnyk, S. E., Posavac, H. D., & Posavac, S. S. (2005). Women's exposure to thin-and-beautiful media images: Body image effects of media-ideal internalization and impact-reduction interventions. *Body Image*, 2(1), 74–80. <https://doi.org/10.1016/j.bodyim.2004.11.001>
- Yu, Y., & Sui, H. (2022). The anxiety over soft masculinity: a critical discourse analysis of the "prevention of feminisation of male teenagers" debate in the Chinese-language news media. *Feminist Media Studies*, 1–14. <https://doi.org/10.1080/14680777.2022.2046124>
- Zhang, R. (2022). Idolatry and delay discounting: The effects of future orientation and self-control [Master Dissertation, Sichuan Normal University]. *China National Knowledge Infrastructure*. <https://doi.org/10.27347/d.cnki.gssdu.2022.001190>
- Zsila, Á., & Demetrovics, Z. (2020). Psychology of celebrity worship: A literature review. *Psychiatria Hungarica: A Magyar Pszichiatriai Tarsasag Tudományos Folyoirata*, 35(3), 322–336.
- Zsila, Á., Orosz, G., McCutcheon, L. E., & Demetrovics, Z. (2021). Individual differences in the association between celebrity worship and subjective well-being: The moderating role of gender and age. *Frontiers in Psychology*, 1749. <https://doi.org/10.3389/fpsyg.2021.651067>