RESEARCH ARTICLE

Attractive appearance, future wealth! How exposure to visual wealth on social media contributes to female self-objectification

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ABSTRACT

Exposure to visual wealth on social media is a common phenomenon in daily life, but little research has been conducted to examine how this phenomenon affects individuals' self-concept. By employing the social adaptation hypothesis of female self-objectification as a theoretical framework, the present research firstly investigated how visual wealth exposure on social media contributed to the self-objectification of women, and the downstream consequences linked to the self-objectification. To this end, three preregistered online studies were conducted. By adopting an online questionnaire survey, Study 1 found that there was a significantly positive relationship between visual wealth exposure and self-objectification, and economic inequality perception and competence perception played a chain-mediating role between them. By randomly assigning participants to the wealth-relevant image exposure condition or the natural scenery image exposure condition, Study 2 conceptually replicated the findings of Study 1. The following Study 3 further found that, participants exposed to wealth-relevant images displayed more preferences for an appearance-dominated job (working as a network entertainment-anchor) than those exposed to natural scenery images, and self-objectification mediated the effect of exposure condition on career choice. The current research provided additional empirical supports for the social adaptation hypothesis of female self-objectification, and also deepened our understanding of the relationship between social media use and the self-objectification of women.

Keywords: social media; visual wealth exposure; economic inequality; objectification theory; female psychology

In modern society, women, especially young women, tend to put a great emphasis on their appearance, even over their competence and body functionality. Researchers term this phenomenon as the self-objectification of women, which is found to be related to negative psychological and behavioral consequences[1,2]. Prior literature reveals that exposure to appearance-relevant content (e.g., ideal bodies) on social media platforms enable women to gradually internalize social-cultural beauty standards, which in turn contributes to the self-objectification of women [3-5]. For example, by using a questionnaire survey, Yao et al. found that when female undergraduates engaged in more selfie-related behaviors, they would report more body surveillance, a typically behavioral index of female self-objectification [5].

Recently, from a perspective of social adaption, researchers attempt to interpret the self-objectification of women as a self-promotion strategy for survival [6, 7]. Under this vein, attractive appearance can be regarded as an effective tool to increase women's probability of acquiring survival resources in social competition (e.g., an excellent mate or a job offer). Despite the fact that a large body of research reveals negative psychological and behavioral consequences of female self-objectification, the social adaptation hypothesis attempts to elucidate how female self-objectification serves for their social competition [6]. Indeed, the social adaptation hypothesis of female self-objectification has received initial supports from empirical research. For example, Wang and colleagues found that young women exhibited greater appearance focus when they perceived high competition in the both mating and job market [7, 8]. Moreover, those attractive individuals seem to be more likely get job interviews and rapid career advancements [9, 10].

By employing the social adaptation hypothesis of female self-objectification as a theoretical framework, the present research firstly proposed that visual wealth exposure on social media, a common phenomenon in daily life, may exacerbate the self-objectification of women. Specially, visual wealth exposure has been evidenced to magnify individuals' perception of economic inequality, and strong economic inequality perception further constructs high-competitive circumstances [11-13]. Under high-competitive circumstances, as mentioned above, women are found to be more likely to value their physical features in order to increase their chances of winning social competition, thus displaying higher self-objectification [7, 8]. It should be noted that, although the existing research indicates the feasibility for the relationship between visual wealth exposure on social media and female self-objectification, so far, no empirical research has been conducted to provide direct evidence for this proposition. To fill this gap, the present research conducted three studies to examine the relationship between visual wealth exposure on social media and female self-objectification, and the underlying mechanisms. Three studies would be conducted to achieve the above goals. In Study 1, we employed a questionnaire survey to explore the relationship between visual wealth exposure on social media and female self-objectification, and the chain-mediating role of economic inequality perception and competition perception. In Study 2, we conducted an online experiment to conceptually replicate the results of Study 1. In Study 3, we again conducted an online experiment to investigate whether visual wealth exposure would motivate women to engage in the appearance-dominant job — working as a network entertainment-anchor — via the mediating role of self-objectification.

1. Literature review

1.1. The self-objectification of women

More than two decades ago, the objectification theory was proposed to explain the phenomenon in Western society — the whole society empowers women to believe that physical appearance plays an important role in their self-worth, even over body functionality and agency [1]. While men and women are both likely to experience objectifying events, women are found to perceive more objectifying experiences (being the target of objectification and witnessing objectifying events) than men in daily life[2, 14]. For instance, by using ecological momentary assessment to track the occurrence of objectifying events in the period of one week, Holland et al. found that young women experienced the objectifying gaze approximately once every 2 days and witnessed sexual objectification of others approximately 1.35 times per day [15]. For those women who live in a society with prevalent objectifying experiences, they may internalize societal beauty standards and view their bodies like objects, which is termed as self-objectification of women [1, 16, 17].

An extensive line of research demonstrates that high self-objectification exerts negative impacts on women's physical and mental health [2]. For example, past research reveals that women with high self-objectification are likely to perceive body shame and body dissatisfaction because those ideal body standards

are difficult to be achieved [18, 19]. When women have a poor body image, they tend to take some compensatory strategies, such as taking appearance-oriented exercises [5], investing in cosmetic medicine [8], and engaging in an unhealthy diet [20, 21]. Self-objectification also enables women to experience negative emotions. In a 3-year longitudinal study with adolescent girls as participants, researchers found that those girls who based their self-worth on body weight were more likely to report higher depressive symptoms[22]. In another study with adolescent girls as participants, researchers revealed a close connection between self-objectification and social avoidance [23]. Additionally, self-objectification can reduce women's sexual satisfaction via body monitoring, body shame and anxiety [1]. In the long term, self-objectification may make women less confident that they can live productive, fulfilling, and meaningful lives in future [7].

1.2. The social adaption hypothesis of female self-objectification

As mentioned in the beginning section, from a perspective of evolutionary psychology, Davis and Arnocky proposed that women's emphasis on appearance can be regarded as a self-promotion strategy so that they can enhance their success rates in hunting excellent mates[6]. In line with this proposition, Wang et al. found that when women perceived high intrasexual competition, they tended to put greater emphasis on their appearance[8]. For example, researchers selected female college students from colleges with large OSR variations (operational sex ratio, OSR), in which females were significantly more than males (high-competition condition), or significantly less than males (low-competition condition) [8]. The results showed that female undergraduates in the high-competition condition showed greater body surveillance than those in the low-competition condition. And another research by Wang and colleagues showed that beyond the mating market, the contributing effect of competition perception on female self-objectification can also be observed in the job market, or when temporarily priming a competitive state in the lab setting [7]. Overall, an emerging body of research indicates that women can regard attractive appearance as a competitive strategy for a better social adaption, which is conceptualized as the social adaption hypothesis of female self-objectification in the present research.

Indeed, several studies have demonstrated that women with attractive appearance tend to display high self-esteem and assertiveness[24, 25]. Additionally, those beautiful women are more likely to get high salaries and have a rapid career advancement [10, 24, 25]. These findings suggest that overemphasizing the importance of appearance will bring a series of negative consequences for women on one hand [1]; however, on the other hand, it seems to be true that physical attractiveness can function as an effective tool to help women gain more valuable resources in social competition. Moreover, upon women believe their physical features are more important than their inner qualities, they are willing to engage in appearance-focused strategies to create an advantage in social competition [7].

1.3. Visual wealth exposure on social media and female self-objectification

Today, social media is popular across the world. Through social media, people can communicate with each other beyond the limits of space and time, which provides great convenience for people's work and life [28]. However, excessive social media use is found to be associated with various of negative psychological consequences, including lower self-esteem, social anxiety, and depression[29, 30]. More relevant to the present research, social media use is considered to play a key role in exacerbating female self-objectification[31]. For example, by adopting a questionnaire survey, Fardouly and Vartanian revealed that young women who spend more time on Facebook concerned more about their body, and upward comparison played a mediating role between them[32]. Similarly, Davis conducted a textual analysis for two Instagram sites and found that using Instagram can contribute to the self-objectification of female undergraduates [33]. On social media, women (in comparison to men) seem to be more willing to share their fitness-relevant contents and selfies [5, 34]; however,

correlational and causal evidence consistently demonstrates that such contents highlight appearance-relevant benefits, which will increase women's body image concerns [4, 5, 35, 36].

Past research indicates that the positive self-presentation tendency on social media may account for such negative consequences — people tend to present an ideal self or the wonderful parts of their lives on social media [29, 37]. For example, prior literature concerning selfies reveals that social media users often present an ideal image by means of filters or beauty applications [38]. Even when people allege that they engage in fitness activities for the health purpose, they may still deliberately make good poses and share them on social media[4]. As a consequence, social media users often experience upward social comparison when they use social media. In addition to selfies and fitness widely documented in prior research, it is also common for people to display some luxuries to manifest their wealth or social status (e.g., jewelry or luxury cars). Surprisingly, the existing research in the field of social media discussed little about possible consequences of exposure to visual wealth on social media.

Considering that most societies across the world are living in the most unequal time since the industrial revolution, most individuals actually perceive economic inequality more or less[11]. However, exposure to visual wealth on social media is likely to exacerbate individuals' economic inequality perception. Supporting this speculation, Nishi et al. manipulated the wealth visibility of participants' neighbors in the lab circumstance, and found when people can see the wealth of others whom they are linked with in a social network, participants' inequality perception would significantly increase[12]. Greater economic inequality, in turn, is associated with greater competition perception, because economic inequality leads individuals to attribute more importance to their social status and increase the salience of social categories [39, 40]. To move into the upper class, individuals must devote more efforts to get an advantage in social competition. In simple words, we reasoned that exposure to visual wealth on social media would induce greater economic inequality perception of individuals, and greater economic inequality perception would further lead to greater competition perception.

It is well known that competence is closely linked to social status [41, 42]. So, intuitively, high competition climates will make individuals value more competence in social competition. However, we have reasons to believe that women may not be the case. In concrete terms, the literature concerning gender stereotypes shows that compared to men, women are stereotyped to be positive on the warmth dimension, but negative on the competence dimension [41, 43]. That means, in some competence-dominated domains, women are likely to suffer from the pre-existing disadvantages when competing with men. In contrast, in the society with pervasive objectifying experiences, it is true that adhering to the evaluation criterion for women hold by the majority of the society — emphasizing the role of attractive appearance (self-objectification) — can more or less serve for the social competition of women. For example, as we have mentioned in previous section, attractive appearance will help women gain necessary survival resources in multiple settings [26, 27]. Taken together, our above reasoning suggests that it is possible that visual wealth exposure on social media contributes to female self-objectification via the chain-mediating role of economic inequality perception and competition perception.

1.4. Visual wealth exposure on social media, female self-objectification, and career choice

Past research suggests that the self-objectification of women can result in downstream consequences on the both cognitive and behavioral levels [1, 44]. For example, due to internalizing unrealistic beauty standards, women often perceive lower body esteem and are willing to enhance their appearance via the cosmetic surgery[6, 8]. To pursuit the so-called ideal bodies, some women engage in unhealthy dieting and other compensatory behaviors such as excessive exercises [45, 46]. Beyond such short-term effects on women, several studies indicate that the self-objectification of women can also exert long-term impacts on personal growth and career development [6, 47]. As an example, Wang et al. randomly assigned participants to the high- or low-

competitive condition, then asked them to report state self-objectification and the belief of personal growth (measuring to what extent participants believed they could live productive, fulfilling, and meaningful lives) [6]. The results showed that participants in the high-competitive condition reported higher self-objectification and lower personal growth scores than those in the low-competitive condition. And the self-objectification score mediated the relationship between competitive condition and personal growth score. It should be pointed out, compared to the short-term effects, researchers pay relatively less attention to possible long-term consequences linked to the self-objectification of women. Given that, we sought to explore whether the self-objectification activated by visual wealth exposure would affect women's career choice. More concretely, we reasoned that exposure to visual wealth on social media would elevate the self-objectification of women, which would further increase their willingness to engage in appearance-dominated jobs. That means, visual wealth exposure on social media may motivate women to take on appearance-dominated jobs via the mediating role of self-objectification.

2. The present research

In the present research, we aimed to investigate the effects of visual wealth exposure on social media on the self-objectification of women, and the underlying mechanisms. Additionally, we also investigated whether visual wealth exposure on social media would increase women's willingness to take on appearance-dominated jobs via the mediating role of self-objectification. The above goals can be summarized into four specific hypotheses:

H1: Exposure to visual wealth on social media was likely to elevate the self-objectification of women.

H2: Exposure to visual wealth on social media may produce an influence on the self-objectification of women via the chain-mediating role of economic inequality perception and competition perception.

H3: Visual wealth exposure on social media would motivate women to take on appearance-dominated jobs.

H4: Visual wealth exposure exerted an influence on women's career choice via the mediating role of self-objectification.

We conducted three studies to test our hypotheses. In Study 1, by applying an online questionnaire survey, we investigated the relationship between wealth exposure on social media and the self-objectification of women, and the chain-mediating role of perceived economic inequality and perceived competition between them. In Study 2, by conducting an online experiment, we randomly assigned participants to the wealth-relevant image exposure condition (experimental condition) or the natural scenery image exposure condition (control condition), then assessed participants' economic inequality perception, competition perception, and self-objectification. Additionally, we again examined the chain-mediating role of perceived economic inequality and perceived competition between exposure condition and self-objectification. Study 3 was also an online experiment, in which participants were randomly assigned into the wealth-relevant image exposure condition or the natural scenery image exposure condition. After that, we asked participants to report their self-objectification tendency, and predict to what extent the female protagonist is willing to work as a network entertainment-anchor in an imaginary scenery. In addition, we also explored whether self-objectification would mediate the relationship between exposure condition and career choice. All three studies were preregistered on the website https://doi.org/10.17605/OSF.IO/FW54S. Databases involved in the present research were unloaded on the website https://kdocs.cn/l/cvW3ZtA4W2Ho. Data analyses were planned a priori, and all data exclusions and variables analyzed were reported.

3. Study 1：A correlational study about the relationship and mechanism between visual wealth exposure and female self-objectification

The primary goal of Study 1 was to provide initial evidence for H1 and H2. To this end, we conducted an online questionnaire survey to examine the relationship between visual wealth exposure on social media and the objectification of women, and the chain-mediating role of economic equality perception and competition perception between them.

3.1. Methodology of Study 1

3.1.1. Participants of Study 1

We determined the sample size of Study 1 by using the G*power 3.1 [48]. According to the calculation of the software, a presupposed regression model with $\beta = 0.2$, 80% statistical power, and the significance at the 0.05 level required at least 150 participants. Considering possible invalid data, we finally recruited 160 women to participate in the study via the Credamo platform (www.credamo.com). Those participants who failed to pass the attention check were automatically dropped from the survey by the platform. No participant was identified as invalid data due to unrealistically short response times or intentionally random responses. As a result, all 160 participants were included in final data analyses.

3.1.2. Measures of Study 1

Measuring visual wealth exposure on social media. Following previous research [49], we presented seven types of social media activities for participants, which can be identified as visual wealth or wealth symbol. These activities include: 1) showing a lot of money, 2) taking photos with a luxury car or yacht, 3) dining or staying at a luxury hotel/villa, 4) showing brand-name cosmetics, 5) showing designer clothes, shoes or bags, 6) showing valuable electronics or watches, and 7) sharing the experiences of traveling abroad. Exposure to the above activities has been found to have a close connection to economic inequality perception of individuals[49]. For each activity, participants were asked to recall the frequency of exposure to the activity on social media platforms. They needed to indicate their answers on the 7-point scale (1 = *never*, 7 = *always*). The frequency of visual wealth exposure was assessed by summing the score on each activity, with higher values indicating higher exposure frequency. The internal consistency coefficient of the scale was 0.87.

Measuring economic inequality perception. Following García-Castro et al. [50], the 12-item economic competition perception scale developed by García-Castro et al. was used to assess participants' economic inequality perception in the present research [51]. An example item was "among the people I know, some have bigger and more luxurious homes than others". For each item, participants were asked to indicate their agreements on the 7-point scale (1 = *strongly disagree*, 7 = *strongly agree*). The score of economic inequality perception was calculated by averaging the scores on all 12 items, with higher scores indicating greater economic inequality perception. The internal consistency coefficient of the scale was 0.78.

Measuring competition perception. Following Sommet et al. [13], the competition perception scale by Murayama and Elliot was used to assess the competition perception of participants [52]. The scale consisted of 5 items (e.g., today, it seems that people are competing with each other) and participants needed to give their agreements for each item (1 = *strongly disagree*, 5 = *strongly agree*). The score of competition perception was calculated by averaging the scores on all 5 items, with higher scores indicating higher competition perception. The internal consistency coefficient of the scale was 0.72.

Measuring the self-objectification of women. Following previous research [53], the Body Surveillance subscale of the Objectified Body Consciousness scale developed by McKinley and Hyde was applied to assess the self-objectification of women [16]. The Body Surveillance subscale includes 8 items in total (e.g., during

the day, I think about how I look many times) and participants needed to provide their agreements for each item on the 7-point scale (1 = *strongly disagree*, 7 = *strongly agree*). For each participant, after the item 1, 2, 3, 4, 7 and 8 were reversely scored, the score of body surveillance was calculated by averaging her scores on all items, with higher scores indicating greater body surveillance. The internal consistency coefficient of the subscale was 0.89 in the present research.

Measuring demographic information. At the end of the survey, participants needed to report necessary demographic information, including age, residence (country/city), nationality, height, weight, education background, month income, and subjective socioeconomic status (SSES). Education background and monthly income were combined and averaged to represent objective socioeconomic status of participants (OSES), with higher values indicating higher OSES. SSES was assessed by asking participants to mark one of 10 rungs on a ladder to indicate their social class rank in the society [46].

3.1.3. Procedure of Study 1

Study 1 was an online questionnaire survey. We recruited participants via the Credamo platform and only women were allowed to participate in the survey. When participants clicked on the questionnaire link, a brief introduction for the purpose of the survey was presented for them. If they were willing to go on the survey, they needed to sign the electronic version of informed consent. When they completed the survey, they would receive 3 RMB (approximately 0.4 dollars). Procedures of three studies were schematically presented in **Figure 1**.
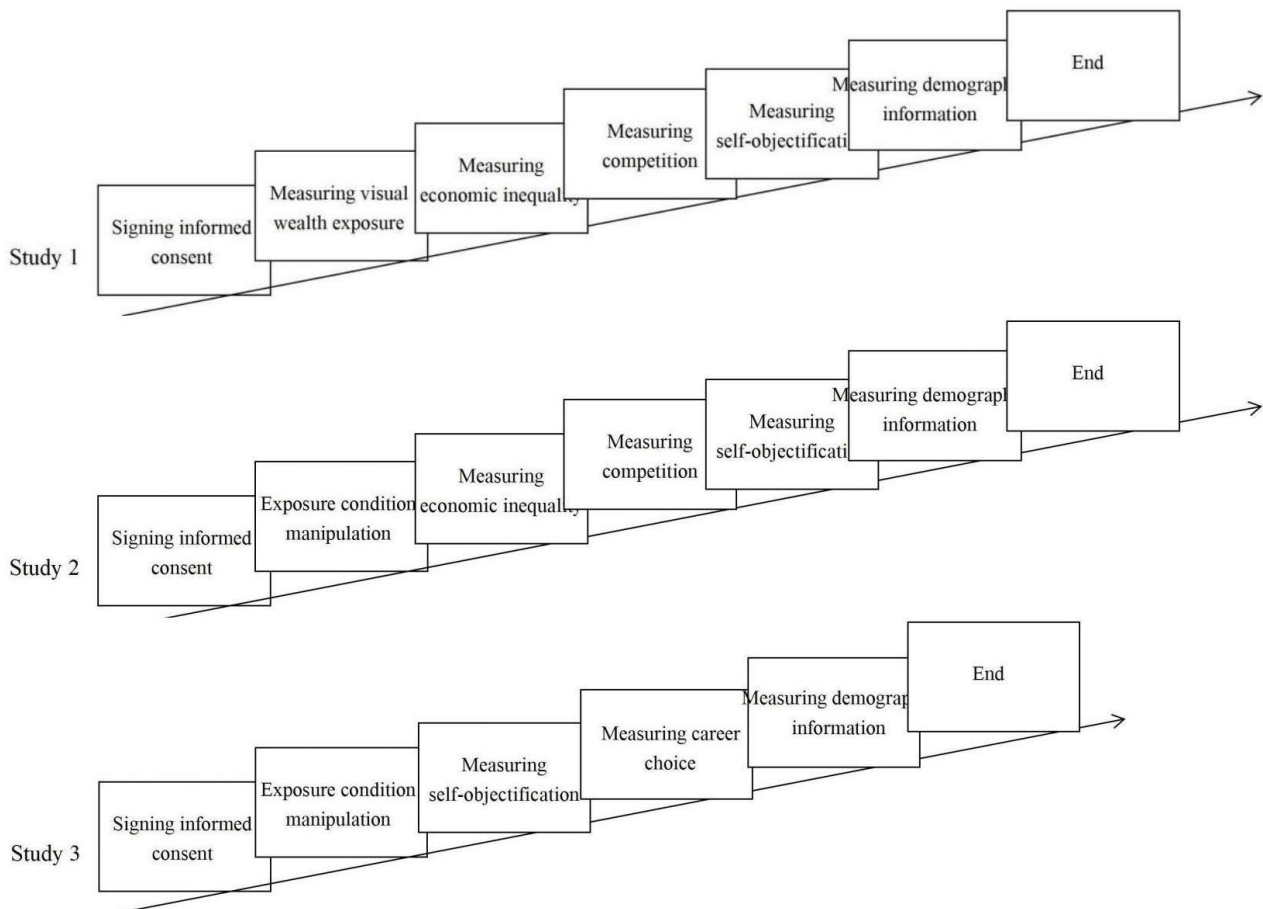
Figure 1. The procedures of three studies were presented schematically.

3.2. Results of Study 1

3.2.1. Sample characteristics

We conducted all data analyses using SPSS 23.0. The average age of participants was 30.15 years old (*SD* = 8.29, ranging from 18.17 to 50.00 years old), and 144 participants were younger than 40 years old. One hundred and forty-one participants were Han nationality, and the others were identified as national minorities in China-Mainland, including Zhuang, Hui, Miao, Bai and so on. There were 133 participants living in the city and 27 participants living the country. For education background, 156 participants reported that they had a college or above degree. BMI was calculated by dividing one's weight in kg by her height in meters squared. The calculated BMI ranged from 12.86 to 34.96, with a mean *M* = 20.14, *SD* = 3.18. There were 150 participants with a BMI below 25.

3.2.2. Correlational results among variables

There were significant correlations among key variables in Study 1 and specific correlation coefficients were provided in **Table 1**. As shown in Table 1, correlations among key variables were significant, $ps < 0.01$. Additionally, age is significantly and positively correlated with BMI and SSES, $ps < 0.01$. There was a slightly negative but significant correlation between BMI and OSES, $p < 0.05$.

3.2.3. The relationship and mechanism between visual wealth exposure and self-objectification

After controlling for age, residence (country = 0 and city = 1), BMI, SSES, and OSES, we performed a linear regression analysis, in which standardized values of self-objectification were regressed on standardized values of visual wealth exposure. This analysis revealed a significantly positive prediction of visual wealth exposure on self-objectification, $\beta = 0.21$, $p = 0.009$, providing initial support for H1. That is, those women frequently accessing visual wealth on social media tended to displayed greater self-objectification.

The Macro Process (model 6) developed by Hayes was applied to examine whether economic inequality perception and competition perception played a chain-mediating role between visual wealth exposure and self-objectification [55]. A bootstrapping method with 5000 times revealed a significantly indirect effect of economic inequality perception and competition perception, $f = 0.04$, 95% CI [0.01, 0.11]. Thus, Study 2 provided preliminary support for H2 that economic inequality perception and competition perception played a chain-mediating role between visual wealth exposure and self-objectification. Additionally, we also found an unexpected simple-mediation of competition perception between visual wealth exposure and self-objectification, $f = 0.12$, 95% CI [0.04, 0.21]. When the mediating effects were taken into account, the predicted coefficient of visual wealth exposure on self-objectification was reduced to be nonsignificant, $\beta = 0.02$, $p = 0.78$. All path coefficients were presented in **Figure 2**.
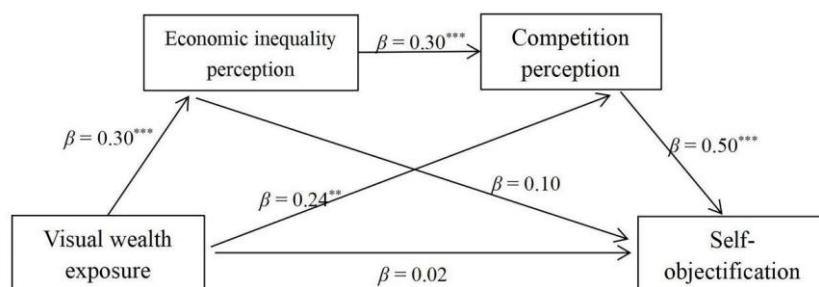
Note. **p < 0.01, ***p < 0.001. For a concise presentation, control variables were not presented. Standardized coefficients were reported.

Figure 2. The chain-mediating role of economic inequality perception and competition perception between visual wealth exposure and self-objectification in Study 1.

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Table 1. Means, standard deviations, and correlations among variables in Study 1.

	M	*SD*	Wealth exposure	Inequality perception	Competition perception	Self-objectification	Age	BMI	OSES	SSES
Wealth exposure	36.74	7.76	1							
Inequality perception	6.13	0.52	0.29**	1						
Competition perception	4.09	0.65	0.32**	0.35**	1					
Self-objectification	4.91	1.19	0.21**	0.28**	0.53**	1				
Age	30.15	8.30	-0.10	-0.14	-0.02	-0.03	1			
BMI	20.14	3.19	-0.10	-0.04	0.06	0.03	0.26**	1		
OSES	4.84	1.01	0.10	-0.10	0.11	0.03	0.15	-0.18*	1	
SSES	5.18	1.45	0.05	-0.14	-0.003	-0.03	0.33**	-0.03	0.35**	1

Note. * $p < 0.05$, ** $p < 0.01$. *M* = mean, *SD* = standard deviation, BMI = body mass index, OSES = objective socioeconomic status, SSES = subjective socioeconomic status

4. Study 2

Considering that Study 1 in nature was a correlational design, the core goal of Study 2 was to provide causal evidence for H1 and H2 by conducting an online experiment. Specifically, in the experimental condition, we presented wealth-relevant images for participants, which were declared to be selected from WeChat Moments, a highly popular social media platform in China-Mainland. In the control condition, we presented the images of natural scenery in travel for participants, which were also declared to be selected from WeChat Moments. After the wealth/natural scenery images exposure, we successively measured participants' inequality perception, competition perception, and self-objection.

4.1. Methodology of Study 2

4.1.1. Participants and design of Study 2

Study 2 was a one-factor experimental design, whose key independent variable was exposure condition (wealth-relevant images vs. natural scenery images). According to the calculation of G*power 3.1 [48], a presupposed 0.5 effect size, 80% statistical power, and being significant at the 0.05 level approximately required 102 participants. However, considering that we would conduct the mediating analyses in Study 2, we finally determined the same sample size as in Study 1 (150 participants). All participants were women.

4.1.2. Stimuli and measures of Study 2

Exposure condition manipulation. In Study 2, we randomly assigned participants to the wealth-relevant image exposure condition or the natural scenery image exposure condition. In the former, we presented 20 wealth-relevant images and 4 natural scenery images for participants; in the latter, we presented 24 natural scenery images for participants. The presented 20 wealth-relevant images were selected by two psychological postgraduates from an image pool consisting of 60 wealth-relevant images. All images were selected from available open resources on the internet. The selected wealth-relevant images can be classified into five categories — vehicles, cosmetics, jewelry, villas, and money. In an independent pretest ($n = 29$, 14 males, 15 females), we asked participants to report the extent to which each image can be regarded as a wealthy symbol on the 7-point scale (1 = *not at all*, 7 = *strongly*). The results showed that the mean was 5.52 ($SD = 1.24$), significantly higher than the median $t(28) = 6.57$, $p < 0.001$. In another pretest, we invited 33 undergraduates to rate perceived quality of images, and no significant difference was found between the two conditions ($M_{wealth} = 4.64$, $M_{scenery} = 4.67$), $t(32) = 0.6$, $p = 0.55$. The above results indicated that the selected images can be applied to the visual wealth exposure manipulation in Study 2.

By using a photo-editing software, each selected image was embedded in the framework of WeChat Moments (See **Figure 3**). So, we ostensibly presented some screenshots of WeChat Moments, which were declared to come from kindly anonymous users. To controlling for possible confounding factors, each screenshot was pixelated except for the image itself. And participants were asked to give their ratings for the composition and innovation of each image. All images were presented for participants in a random order. Example images can be found in **Figure 3** and we uploaded all images on the website https://kdocs.cn/l/cs06l7OQweru.

Measuring economic inequality perception. A three‑item scale developed by Sommet et al. was used to assess participants' perception of economic inequality (e.g., there is a huge gap between rich and poor). For each item, participants should give their agreements on the 7-point scale (1 = *strongly disagree*, 7 = *strongly agree*) [13]. Participants were explicitly reminded that they should report their feelings at the moment. The score of perceived economic inequality was calculated by averaging the scores on all items, with higher scores indicating higher inequality perception.

Figure 3. Example images in the wealth-relevant image exposure condition (left) and the natural scenery image exposure condition (right) of Study 2.

Measuring competition perception. Following Sánchez‑Rodríguez et al. [56], one item "to what extent do you perceive a lot of competition at the moment" was used to assess participants' competition perception. Participants needed to give their answers on the 7-point scale (1 = *not at all*, 7 = *very much*), with higher values indicating greater competition perception.

Measuring self-objectification. Self-objectification of women was measured via the Self-Objectification Questionnaire by Noll and Fredrickson [17]. Participants were asked to rank a list of ten attributes in order of perceived importance for their self-concept at the moment. Among the listed ten attributes, five were appearance-based attributes and the other five were competence-based attributes. The most important attribute was scored nine points, and second most important attribute was scored eight points. And so on, the least important attribute was scored zero [17]. The score of self-objectification was calculated by subtracting the aggregate score of the competence-based attributes from the aggregate score of appearance-based attributes, producing a self-objectification score ranging from −25 to +25. As a result, a higher and more positive score indicated greater state self-objectification.

Measuring demographic information. As in Study 1, we in Study 2 collected necessary demographic information.

4.1.3. Procedure of Study 2

Study 2 was conducted on the Credamo platform. Prior to the formal task, participants firstly read the introduction about the purpose of the study. If they were willing to go on with the task, they needed to assigned the informed consent. Then, they completed an image-rating task, in which they were asked to give their ratings for the composition and innovation of each image. They were explicitly told that all images were selected from the screenshots of volunteers' WeChat moments. After the image-rating task, they successively reported their economic inequality perception, competition perception, self-objectification, and demographic information. Finally, participants were told that they can express any views about the study if they liked. After completing all tasks, participants were rewarded 3RMB for their participation. Schematic procedure of Study 2 can be found in **Figure 1**.

4.2. Results of Study 2

4.2.1. Sample characteristics

We conducted all data analyses using SPSS 23.0. As in Study 1, those participants failing to pass the attention check had been automatically excluded from the data collection by the platform. Two participants were excluded from any data analyses because they displayed unrealistically short reaction times. As a result, there were 148 participants involved in the formal data analyses. The average age of participants was 30.03 years old, $SD = 6.83$, ranging from 18.08 to 58.33 years old. Of them, the age of 143 participants was below 40 years old. Similar to Study 1, most participants were Han nationality (140 participants), and the other nationalities included Hui (2 participants), Man (2 participants), Zhuang (3 participants), and Yao (1 participant). The majority of participants reported that they lived in the city (137 participants). For education background, 144 participants had a college or above degree. BMI was calculated by using the same method as in Study 1, which fluctuated from 16.22 to 30.78, with a mean value 21.12 ($SD = 2.66$). There were 144 participants with a BMI below 25.00.

4.2.2. Comparisons for self-objectification, economic inequality perception, and competition perception between the two conditions

An independent-samples T test was conducted to examine whether there were any differences for self-objectification between the wealth image exposure and the natural scenery image exposure conditions. The results showed that participants in the wealth image exposure condition reported greater self-objectification than those in the natural scenery condition ($M_{wealth} = 4.30$, $M_{scenery} = -4.24$), $t(146) = 3.59$, $p < 0.001$, d = 0.59, thus providing causal evidence for H1. Additionally, participants in the wealth image exposure condition also reported greater economic inequality perception ($M_{wealth} = 6.28$, $M_{scenery} = 5.45$), $t(146) = 7.78$, $p < 0.001$, d = 1.28, and greater competition perception ($M_{wealth} = 5.62$, $M_{scenery} = 5.12$), $t(146) = 2.97$, $p <= 0.004$, d = 0.49. The between-groups differences for the above three variables were vividly presented in **Figure 4**.
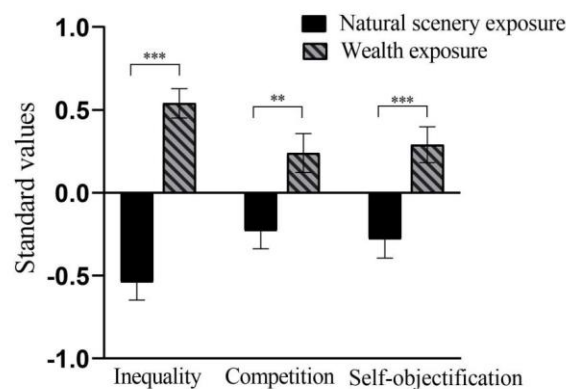
Note. $^{**}p < 0.01$, $^{***}p < 0.001$. For a concise presentation, standard values were reported on the y-axis.

Figure 4. Between-groups comparisons for economic inequality perception, competition perception, and self-objectification in Study 2.

4.2.3. The chain-mediating role of economic inequality perception and competition perception

After exposure condition was coded as a dummy variable (the wealth image exposure condition = 0, the natural scenery image exposure condition = 1), we again used the Macro Process (model 6) developed by Hayes to test the chain-mediating role of economic inequality perception and competition perception (bootstrapping 5000 times) [55]. As shown in **Table 2**, this analysis showed that the overall indirect effect was significant, $f = 0.13$, 95% CI [0.03, 0.24]. Importantly, the indirect path via the chain-mediating role of

economic inequality perception and competition perception was significant, $f = 0.03$, 95% CI [0.01, 0.09], thus providing causal evidence for H2. No other significant indirect effects were found. When indirect effects were taken into account, the direct effect between exposure condition and self-objectification was not significant, $f = 0.13$, 95% CI [-0.05, 0.31]. Specific coefficients were presented in **Figure 5**.

Table 2. Direct and indirect effects in the mediating analyses of Study 1 and 2.

		Effect	SE	LLCI	ULCI
	Direct effect	0.02	0.07	-0.12	0.16
	Indirect effect				
	Total	0.19	0.05	0.10	0.31
Study 1	Wealth exposure→Inequality perception→Self-objectification	0.03	0.03	-0.01	0.10
	Wealth exposure→Inequality perception→Competition perception→Self-objectification	0.04	0.03	0.01	0.11
	Wealth exposure→Competition perception→Self-objectification	0.12	0.04	0.04	0.21
	Direct effect	0.13	0.09	-0.05	0.31
	Indirect effect				
	Total	0.13	0.05	0.03	0.24
Study 2	Wealth exposure→Inequality perception→Self-objectification	0.08	0.04	-0.01	0.18
	Wealth exposure→Inequality perception→Competition perception→Self-objectification	0.03	0.02	0.01	0.09
	Wealth exposure→Competition perception→Self-objectification	0.02	0.02	-0.02	0.09

Note. SE = standard error, LLCI = lower limit of confidence interval, ULCI = upper limit of confidence interval.
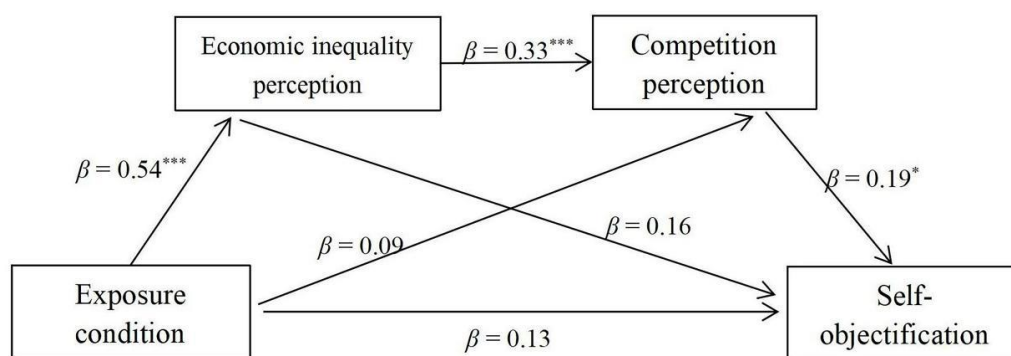
Note. $^*p < 0.05$, $^{***}p < 0.001$. For a concise presentation, control variables were not presented. Standardized coefficients were reported.

Figure 5. The chain-mediating role of economic inequality perception and competition perception between exposure condition and self-objectification in Study 2.

5. Study 3

The results of Study 1 and 2 consistently showed that visual wealth exposure on social media elevated the self-objectification of women. Based on this finding, Study 3 further investigated whether this self-

objectification would produce an influence on women's career choice. Specifically, as in Study 2, we firstly assigned participants to the wealth image exposure or natural scenery image exposure condition, then asked participants to report their state self-objectification. Besides, by creating an imaginary scenario, we examined whether participants in the wealth image exposure condition (compared to the control condition) were more likely to hold the belief that the female protagonist was appropriate to work as a network entertainment-anchor, and engage in this job in future. We also explored whether self-objectification played a mediating role between exposure condition and career choice. By doing so, Study 3 would firstly provide evidence for H3 and H4.

5.1. Methodology of Study 3

5.1.1. Participants and design of Study 3

The design of Study 3 in nature was identical to that of Study 2. So, according to the logic documented in the "participants and design" section of Study 2, we finally recruited 150 participants to participate in Study 3.

5.1.2. Stimuli and measures of Study 3

Visual wealth exposure manipulation. Visual wealth exposure manipulation was completely identical to that of Study 2.

Measuring self-objectification. The measurement of participants' self-objectification was identical to that of Study 2.

Measuring career choice. We created an imaginary scenario, in which a women named Lily was looking for a job. Now, she found a job working as a network entertainment-anchor, and participants needed to give their speculation about Lily's job choice. Given that previous research suggests that temporarily accessible constructs are more likely to affect individuals' cognition and decisions in the case of lacking diagnostic information [57], the imaginary scenario was deliberately created without details about the protagonist and social context. The scenario was provided as follows.

This is an imaginary scenario. In a city named Shangyang, a women named Lily is looking for a job. Now, Lily finds a job working as a network entertainment-anchor, whose duties include maintaining online interactions with other users on the platform, and providing some talent shows (if possible).

After reading the imaginary scenario, we told participants that such descriptions were all available information for them. They needed to give their answers on the 7-point scale for the following questions based on their "subjective speculation": 1) to what extent women are suitable for working as a network entertainment-anchor; 2) to what extent the network entertainment-anchor is an appearance-dominated job; 3) to what extent the network entertainment-anchor is a competence-dominated job; 4) to what extent Lily is suitable for engaging in the job; and 5) how likely Lily will work as a network entertainment-anchor. For all items, a higher value indicated a higher agreement for the item.

Measuring demographic information. That was identical to previous two studies.

5.1.3. Procedure of Study 3

As previous two studies, Study 3 was conducted on the Credamo platform. Participants firstly learned about the purpose of the study, and assigned the informed consent if they were willing to participate in the study. After that, participants successively completed the image-rating task (exposure condition manipulation), the assessment of self-objectification, and the career choice task. They provided necessary demographic information at the end of the survey. As return, participants were rewarded 3 RMB. Schematic procedure of Study 3 can be found in **Figure 1**.

5.2. Results of Study 3

5.2.1. Sample characteristics

We conducted all data analyses using SPSS 23.0. In Study 3, no participant was dropped from data analyses due to invalid responses. Thus, all 150 participants were involved in the final data analyses. The average age of participants was 31.53 years old ($SD = 8.37$), with a range from 18.50 to 58.42 years old. Of them, 135 participants were younger than 40 years old. As in previous two studies, most participants lived in the city (132 participants). One hundred and thirty-eight participants were Han nationality, and the other 12 participants belonged to several national minorities, such as Hui, Man, Zhuang and so on. For education background, 153 participants had a college or above degree. The BMI of participants ranged from 16.15 to 29.38, with a mean value 20.54, $SD = 2.52$. Of them, 6 participants' BMI was above 25, and 13 participants' BMI was below 18.

5.2.2. Manipulation effectiveness check for career choice

For the item "do you think to what extent women are suitable for working as a network entertainment-anchor", the mean of participants' responses was 5.43, which is significantly greater than the median 4, $t(149) = 17.45, p < 0.001, d = 1.42$. And an independent-samples T test showed that there were no significant between-conditions differences for this pattern, $t(148) = 1.56, p = 0.12, d = 1.3$. With the scores on the item "do you think to what extent the network entertainment-anchor is an appearance-dominated job" and on the item "to what extent the network entertainment-anchor is a competence-dominated job" as dependent variables, we conducted a paired-samples T test. The results showed that participants commonly evaluated the network entertainment-anchor as more appearance-dominated than competence-dominated ($M_{appearance} = 5.58, M_{competence} = 4.86$), $t(149) = 5.92, p < 0.001, d = 0.67$. To examine this difference would vary with exposure condition, we conducted a 2 (exposure condition: wealth vs. natural scenery) × 2 (job orientation: appearance-dominated vs. competence-dominated) mixed-measurements analysis of variance. The results showed that the main effect of job orientation was significant, $F(1, 148) = 35.90, p < 0.001, \eta^2 = 0.20$, with the network entertainment-anchor job evaluated as more appearance-dominated than competence-dominated. The interaction effect between exposure condition and job orientation was significant, $F(1, 148) = 4.44, p = 0.04, \eta^2 = 0.03$. Simple effect analyses showed that, participants in the both conditions tended to evaluate the job as more appearance-dominated than competence-dominated, but the difference is more significant in the wealth image exposure condition ($p < 0.001$) than in the natural image exposure condition ($p = 0.002$). The check results demonstrated that all participants held that women were suitable for the network entertainment-anchor job, and the job was identified as more appearance-dominated than competence-dominated. Taken together, the developed vignette can be used to assess participants' career choice.

5.2.3. Comparisons for self-objectification and career choice between the two conditions

The scores on the item "do you think what extent Lily is suitable for engaging in the job" and the scores on the item "do you think how likely Lily will work as a network entertainment-anchor" were summed and averaged to generate a preference index for the network entertainment-anchor. A higher score indicated a greater preference of participants for the given job. To examine whether exposure condition affected participants' preference for the network entertainment-anchor, we conducted an independent-samples T test. The results showed that participants in the wealth image exposure condition showed a greater preference for the network entertainment-anchor than participants in the natural scenery image exposure condition ($M_{wealth} = 5.39, M_{scenery} = 4.91$), $t(148) = 2.85, p = 0.005, d = 0.47$, thus providing evidence for H3. Another independent-samples T test showed that, consistent with Study 2, participants in the wealth image exposure condition

reported greater self-objectification than participants in the natural scenery image exposure condition (M_{wealth} = 5.05 and $M_{scenery}$= -4.73), $t(148) = 4.09$, $p < 0.001$, d = 0.67.

5.2.4. The mediating analysis of self-objectification

As in Study 2, exposure condition was coded as a dummy variable (wealth image exposure = 1, natural scenery image exposure = 0). Then, the Macro Process developed by Hayes was used to examine the mediating role of self-objectification between exposure condition and career choice (model 4, bootstrapping 5000 times) [55]. Control variables submitted into the model included age, residence, SSES, OSES, and BMI. The results showed that the indirect effect between exposure condition and career choice was significant, $f = 0.12$, 95% CI [0.05, 0.22]. In contrast, the direct effect between exposure condition and career choice was not significant, $f = 0.10$, 95% CI [-0.06, 0.26]. That is, self-objectification mediated the relationship between exposure condition and career choice, thus providing evidence for H4. Specific coefficients were provided in **Figure 6**.
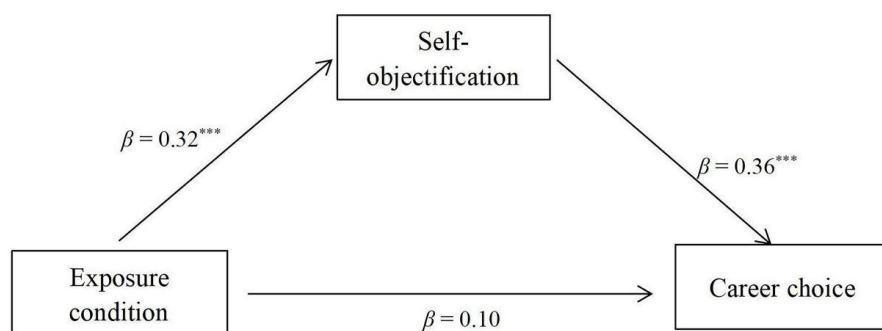
Note. $^{***}p < 0.001$. For a clean presentation, control variables were not presented. Standardized coefficients were reported.

Figure 6. The mediating role of self-objectification between exposure condition and career choice in Study 3.

6. Discussion

Across three studies, we examined how exposure to visual wealth on social media contributed to the self-objectification of women, and the downstream effects of female self-objectification on their career choice. In Study 1, by conducting an online questionnaire survey, we found that participants frequently exposed to visual wealth reported higher self-objectification, and economic inequality perception and competition perception played a chain-mediating role between them, thus providing initial evidence for H1 and H2. An unexpected finding in Study 1 was that visual wealth exposure was related to self-objectification via the simple-mediating role of competition perception. We speculated this finding may be because we assessed the frequency of visual wealth exposure on social media by using a free-recalling way. In this case, those experiences of exposure to visual wealth shared by familiar friends may be more readily to come into participants' mind. The assimilation effect — one posits that he/she should do as well as the reference target — is more likely to generate among similar individuals (e.g., intimate partners or peers), which may explain the close link between visual wealth exposure and competition perception [58].

In Study 2, by randomly assigning participants to the wealth image exposure condition or the natural scenery image exposure condition, we found that participants exposed to wealth images reported higher self-objectification than those exposed to natural scenery images. Again, economic inequality perception and competition perception played a chain-mediating role between exposure condition and self-objectification. By replicating the results of Study 1 via an online experiment, Study 2 provided corroborating evidence for H1 and H2.

In Study 3, we conducted another online experiment to examine whether the self-objectification of women would affect their career choice. The results showed that compared to the participants in the natural scenery image exposure condition, participants in the wealth image exposure condition reported higher self-objectification, and importantly, participants exposed to wealth images were more willing to work as a network entertainment anchor. Further analyses showed that self-objectification played a mediating role between exposure condition and career choice. The present research deepened our understanding of the motivation and function of women's self-objectification, and also helped us clarify the relationship between social media use and the self-objectification of women.

6.1. Implications

The objectification theory has been proposed for more than twenty years since 1997 [1]. In the latest decade, with the prevalence of social media platforms across the world, many societies, including women themselves, tend to elevate the importance of physical appearance in evaluating the worth of women [59]. For this phenomenon, researchers have identified some specific activities related to the self-objectification of women, including but not limited to accessing selfies, fitness images, advertisements featuring idealized bodies and TV shows[5,19,60]. By making appearance salient or highlighting appearance-relevant benefits, some appearance-relevant activities on social media seem to exacerbate the self-objectification of women in a relatively direct way. Extending previous research, the present research firstly elucidated how exposure to visual wealth — a common phenomenon on social media, contributed to the self-objectification of women. According to the findings of Study 1 and 2, exposure to visual wealth on social media amplified participants' economic inequality, which further constructed high-competitive climates aiming to achieve upward social mobility. To increase advantages in social competition, some women may put more emphasis on physical appearance, thus elevating the self-objectification of women [7, 8]. Notably, different from appearance-relevant activities which contributes to the self-objectification by directly guiding women to focus on physical appearance, exposure to visual wealth seems to elevate the self-objectification of women in a more unobtrusive, indirect way. To some extent, the present research accounted for why there was a so close link between social media use and the self-objectification. That is, in addition to those well-known appearance-relevant activities on social media, some other activities (e.g., exposure to visual wealth), which has little connection with the self-objectification of women on the intuitive level, actually contributes to the self-objectification of women in an unobtrusive way.

Over the past two decades, numerous research reveals negative cognitive and behavioral consequences linked to the self-objectification of women [20, 61, 62]. In contrast, little attention has been paid to uncover possibly positive effects of the self-objectification in serving for women's social adaption. From an evolutionary psychology perspective, Davis and Arnocky interpreted the appearance focus of women as a self-promotion strategy, so that they can become more attractive than rivals in the hunt for excellent mates [6]. In line with this proposition, Wang and colleagues found when female undergraduates perceived high intrasexual competition (e.g., there is a serious imbalance in the gender ratio), female participants would put more emphasis on their physical appearance[8]. The subsequent research showed that the pattern between competition and female self-objectification not only can be observed in the mating market, but also in the working environment, indicating that the self-objectification may be a special strategy for women to enhance the rates of winning social competition[7]. Extending previous research, by presenting some images relevant to numerous wealth, the present research activated participants' competition perception in a more unobtrusive way, and importantly, the competition perception was not confined to any specific circumstances. Even so, we still observed a significant correlation between competition perception and female self-objectification in both

Study 1 and 2, thus proving more convincing evidence for the social adaption hypothesis of female self-objectification.

Although the present research did not further explore to what extent the appearance emphasis can help women's social adaption, this issue still deserved our further discussion. Past research indicates that the self-objectification of women seems to function as a double-edged sword. On the one hand, attractive appearance will increase the advantage of women in social competition on the individual level [6, 63]. For example, in a patriarchal society, the top executives in most organizations are men, so women with attractive appearance are more likely to receive attention from their superiors, and are also more likely to have a rapid career advancement [10, 24, 25]. However, on the societal level, overemphasizing the role of physical appearance of women actually can produce a detrimental effect on the social status of women, and aggravate the gender inequality existing in multiple domains [64-66]. Specifically, prior literature in the field of stereotypes shows that people generally hold exactly opposite beliefs about the stereotype content of men and women — men are perceived as positive on the competence dimension, but negative on the warmth dimension, whereas women are perceived as negative on the competence dimension, but positive on the warmth dimension [41, 43]. As a consequence, in some competence-dominated domains, men are preconceived to be more qualified than women, thus results in occupational gender segregation [67]. More importantly, overemphasizing the physical appearance of women will impose a further negative impact on the competence perception of women [65, 68]. For example, Fasoli et al. firstly presented three kinds of images of the female and male models for participants — the Non-Revealing image (undressed), the merely Revealing image (dressed), and the Sexualized Revealing image (undressed and provocative) [65]. Then, on several core indexes, participants needed to give their evaluations for the targets (including competence evaluation). The results showed that female targets portrayed as Non-Revealing were perceived as more competent than were the targets portrayed as Revealing or as Sexualized Revealing. Taken together, on the individual level, attractive appearance may help women win social competition and move upward mobility in the social hierarchy; however, on the societal level, overemphasizing the value of women's physical appearance may make the whole society underestimate the competence of women, thus aggravating gender inequality.

6.2. Limitations and future work

Several limitations existed in the current work. Firstly, in line with previous research [6-8], the key logic underlying the present research was that high-competitive circumstances motivated women to adopt the appearance-dominated competition strategy. While this reasoning received well supports in the present research, we did not further explore whether and to what extent attractive appearance of women could serve for their social competition in specific circumstances. In future research, we can attempt to resolve this issue by creating a specific situation (e.g., hosting an interview) and asking participants to give their evaluations for female targets with different appearance attractiveness (keeping constant in other respects). Secondly, considering that picture-based social media platforms are more popular than text-based platforms across the world [69], we exclusively presented wealth-related pictures for participants. As a consequence, we cannot determine whether the effect of wealth exposure on the self-objectification of women will vary with specific types of stimuli. For example, if we present wealthy pictures paired with corresponding text descriptions, it may help viewers learn about the information behind the picture (e.g., the process of accumulating wealth). In this case, women may realize that upward social mobility is a long and complicated process, which is subject to a variety of factors, such as competence, physical appearance, health, family background, and even fortune. So, placing the hope of upward social mobility solely on attractive appearance obviously is not the best choice. Thirdly, the present research did not explore possible individual differences about the effect of visual wealth exposure on the self-objectification of women. In other words, some personality variables may moderate the

effect of visual wealth on the self-objectification of women, such as appearance-contingent self-worth. Appearance-contingent self-worth refers to the degree to which an individual determines their worth and value based on their physical appearance[70,71]. Compared to low appearance-contingent individuals, high appearance-contingent individuals are more willing to believe that personal value is rooted in their physical appearance. So, we have reasons to speculate that, even exposure to the same wealthy stimuli on social media, women with high appearance-contingent self-worth are more likely to regard their physical attractiveness as a competitive strategy, thus displaying higher self-objectification.

7. Conclusions

By conducting three studies (a questionnaire survey and two online experiments), the present research investigated how exposure to visual wealth on social media elevated the self-objectification of women, and how the self-objectification of women in turn affected their personal career choices. The results showed that wealth exposure on social media amplified women's economic inequality perception, which further created a high-competitive circumstance. To increase their advantages in social competition, women tended to adopt the appearance-oriented competition strategy, thus displaying higher self-objectification. The present research firstly demonstrated that visual wealth exposure on social media contributed to the self-objectification of women, which provided a more comprehensive understanding of the relationship between social media use and the self-objectification of women. Practically, the present research suggested that high-competitive circumstance in modern society can make women more willing to take on appearance-dominated jobs, which will make the existing gender inequality in employment become more salient. Given that, policy makers should pay enough attention to this phenomenon and take necessary measures to balance the status between men and women in employment.

Author contributions

ML and FY both contributed to the research design. FY collected all data in the present research. ML wrote and revised the manuscript. FY provided key revision suggestions for the manuscript. They both contributed to the article and approved the submitted version

Conflict of interest

The authors declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Ethics statement

The studies involving human participants were reviewed and approved by the Ethics Committee of Taishan University. The participants provided their written informed consent to participate in this study.

Data availability statement

The data involved in the present research was available at the website https://kdocs.cn/l/cvW3ZtA4W2Ho.

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