

The Evolutionary View of Body Image Perception Across Cultures: A Comparative Analysis Between China and the U.S.

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Abstract: This literature review explores the impact of evolutionary factors on body image perceptions across different cultures, focusing specifically on the comparative analysis between Chinese and American contexts. It examines the debate between evolutionary adaptations and cultural evolution byproducts in shaping body image ideals. Drawing on key studies, the review highlights the role of evolutionary psychology in explaining universal beauty cues, such as waist-to-hip ratio and facial symmetry, and how these traits influence mating preferences across cultures. It also discusses the influence of intrasexual competition on body image concerns, particularly the drive for thinness among women and height competition among men. Additionally, the review addresses the cultural evolution of body image preferences in China and the United States, tracing historical shifts and current trends influenced by media, social norms, and gender roles. Finally, the review identifies gaps in the existing literature, particularly the need for more research on male intrasexual competition and cross-cultural comparisons of body image preferences, and outlines a proposed study to further investigate these dynamics.

Keywords: Evolutionary psychology, body image perceptions, intrasexual competition, cultural evolution.

1. Introduction

The purpose of this review is to explore how evolutionary factors influence body image perceptions in different cultures, with a specific focus on comparative analysis between Chinese and American contexts. Research [1] has found that some specific traits that people prefer are inherited adaptations to solve reproduction problems. However, it can be argued that the preference of different traits can be byproducts that are carried along with adaptations of cultural evolution [2]. This review will examine the evolutionary perspective on both sides of the adaptation versus byproduct debate and

how it interacts with cultural factors to shape body image perceptions in China and America. It will also address the key studies and findings that provide empirical evidence for these dynamics and identify the gaps in current research that warrant further exploration.

2. Inherited Adaptations

Body image could be an adaptation driven by evolutionary processes, particularly in the context of mating preferences. As Prum [3] notes, Darwin's references to aesthetics were "central to every attempt he made to explain this proposed mechanism of evolution", highlighting the importance of aesthetic preferences in sexual selection. Evolutionary psychology has long sought to understand how certain physical traits became attractive due to their association with health, fertility, and good genes, which are advantageous for reproductive success. Historical analysis shows that these preferences have been shaped by natural and sexual selection pressures. The notion that physical traits become attractive due to their association with reproductive success is supported by research of Buss [1], indicating that preferences for attractiveness emerge early in life, independent of cultural exposure. Infants as young as 2 to 3 months old show a preference for more attractive faces, and 12-month-old infants play longer with attractive dolls, suggesting innate standards of beauty. Moreover, evolutionary psychology posits that certain physical traits have evolved as indicators of reproductive fitness and given rise to strong expectations for universal criteria of beauty, influencing mate preferences across cultures [1]. This section will explore the universal cues of beauty as identified by evolutionary psychology, focusing on features such as facial symmetry, skin clarity, and the waist-to-hip ratio (WHR).

For example, the concept of WHR as a measure of attractiveness was first proposed by Singh [4], who suggested that a low WHR (approximately 0.7 in women) signals fertility and health, thus making it a preferred trait in potential mates. This perspective is grounded in the theory of sexual selection, where traits that enhance reproductive success become more prevalent over time. Central to this perspective is the idea that the WHR serves as a reliable cue for reproductive health and fertility. A lower WHR is associated with higher levels of estrogen, optimal fat distribution for childbearing, and reduced risk of chronic diseases, all of which are considered attractive attributes in evolutionary terms. Theories of natural and sexual selection support the notion that individuals who can identify these traits in potential mates are more likely to pass on their genes. A wealth of research supports the evolutionary psychology perspective on WHR as an attractive trait. Singh [4] conducted pioneering studies demonstrating that men across various cultures consistently prefer women with a WHR of around 0.7, correlating this preference with indicators of reproductive capability. Subsequent studies, such as those by Singh and Luis [5] and Marlowe and Wetsman [6], have reinforced these findings, showing that WHR is a more reliable predictor of attractiveness than other body measurements, such as weight or breast size. Research by Furnham et al. [7] further supports this perspective, highlighting cross-cultural preferences for low WHR as a marker of female attractiveness. Their study involved participants from different cultural backgrounds, all of whom demonstrated a consistent preference for figures with lower WHRs. This universality suggests an evolutionary basis for the preference, indicating that WHR is a key factor in mate selection. The body of literature supporting WHR preferences provides robust empirical evidence for the role of evolutionary psychology in shaping body image ideals. These studies contribute to a deeper understanding of human attraction, offering a biological explanation for why certain physical traits are universally valued. The consistency of findings across diverse cultures strengthens the argument for an evolutionary basis for WHR preferences, emphasizing their role in human mating strategies.

Facial symmetry as another trait is widely recognized as a key indicator of physical attractiveness across cultures. Symmetrical faces are perceived as more attractive because they may signal genetic

stability and the absence of developmental disturbances. According to Rhodes [8], facial symmetry is associated with perceived health and genetic quality, making it a desirable trait in potential mates.

Furthermore, skin clarity is also a well-known influence. Clear, smooth skin is another universal cue of attractiveness. Skin condition can signal an individual's overall health and reproductive potential. Flawless skin is often associated with youth and hormonal balance, both of which are crucial for fertility. Fink, Grammer, and Thornhill [9] emphasize that clear skin is an indicator of a robust immune system and good health, which are attractive qualities from an evolutionary perspective.

Body Image perception could also be an adaptation of intrasexual competition (ISC), which is an evolutionary theory proposed by Darwin [10]. He defines ISC as the rivalry among individuals of the same sex for access to mates. This competition is driven by natural and sexual selection, where certain traits enhance an individual's reproductive success and thus become more prevalent over time. According to Puts [11], ISC significantly influences the development of traits in many organisms, including humans. The theory posits that individuals engage in competition to improve their attractiveness to potential mates, often adapting strategies that emphasise desirable traits. For instance, Buss and Schmitt [12] highlighted that ISC can manifest through displays of physical attractiveness, acquisition of resources, and social dominance, all of which are aimed at increasing mating success.

However, this perspective has been mostly overlooked in the mainstream body image research. Based on the findings from Google Scholar, it has accumulated relatively few citations compared to sociocultural theory of body image perception [13].

The desirable traits between male and female intersexual competition are quite different. Female competition across various cultures tend to focus on slender body shapes [14]. This is because in modern societies, where good health is relatively a common trait, youth has emerged as a key factor in determining female mate value [15]. As women age in societies, they face the likelihood of weight gain and a decline in the youthful hourglass figure. And given that thinness is strongly linked with youthfulness, it is argued that in certain cultures, ISC among women primarily manifests through the pursuit of thinness [5]. Hendrickse [16]'s study investigates how Instagram and ISC impact body image concerns within college women. The study found that intrasexual competitiveness is positively related to both appearance-related comparisons and drive for thinness. This means that women who are more concerned with competing for mates are more likely to compare their appearance with others and, consequently, feel a stronger drive to be thin. Moreover, results of a survey involving over 7,000 participants across ten world regions showed that women consistently favoured slimmer figures more compared to men, which further supports the connection between ISC and the drive for thinness [17].

Additionally, the biological basis of female intrasexual competition underlies the drive for thinness, which originally functioned as an adaptive response mechanism in the ancestral environment. A mismatch between this biological root (inherited female adaptations for ISC) and modern environments could lead to both physical and mental health issues. The extreme version of the mismatch is eating disorders, which is a severe mental health issue that could cause death. This pathological phenomenon is developed during adolescent (usually in teenage girls) to runaway from intrasexual competition [14].

Male ISC, on the other hand, has the characteristic of competing height amongst the same sex. Height, being a sexually dimorphic characteristic, influences both intersexual and intrasexual selection. Polo et al. [18] investigated the connection between height and ISC in both adolescent and adult males and females. The study revealed a negative relationship between height and ISC in men, while no distinct correlation was observed in women. Additionally, adolescent males displayed higher levels of ISC compared to adult males. These results imply that height is a crucial factor in male mating competition.

Male ISC in height has also been studied for its connection to physical strength, fighting ability, and aggressiveness [19]. In many species, including humans, body size is linked to an individual's ability to hold resources. Evidence shows that taller men tend to be physically stronger than their shorter counterparts and possess superior fighting abilities, which could be advantageous when competing with same-sex competitors for mating opportunities.

In conclusion, evidence of both intersexual and intrasexual selection theory suggest that the preferable traits of our body are inherited adaptations of the modern environment. This means that both China and the US should prefer similar traits even though they grew up in different cultures.

3. Byproducts of Cultural Evolution

Body shape preferences change over time, and different countries gradually evolve distinct or increasingly similar preferences. China and the United States have different preferences for body imagery, and this physical trait is a byproduct of cultural evolution.

In ancient Chinese times, women pursued long body shapes, slim waists, and light bodies in the Pre-Qin to Wei Jin periods. The shift started in the Tang dynasty when women preferred to be white, plump, and with ample breasts and hips. Women in the Song Dynasty were fond of binding their breasts, and bound feet were popular in the Qing Dynasty [20]. In the near century, during the period of the Republic of China, Chinese preferences were influenced by Western culture, and people started to realize that being neither fat nor thin was the most attractive. Women began to pursue a more curvy figure with chests, buttocks, and a narrow waist and liked to be slightly plump [21].

Moving on to men, in the Wei and Jin periods, men preferred delicate, slender, and fit with slim waists. Then, from the Tang dynasty to the period of the Republic of China, men pursued broad shoulders and round waists, well-proportioned postures instead of being thin and weak. Men in the period of early New China preferred to have sturdy limbs, robust bodies, and dark skin [21].

In the 21st Century, women's preferences shift to seeking to be extremely thin, with a narrow waist, long legs, and fair skin. On China's social media app XiaoHongShu, the most widely displayed figures in posts are women who are slim, tall, height over 165cm, 'A4 waist' (waist narrower than A4 paper), clavicle shoulders so pronounced that you can see the contours directly, hourglass figure [20], delicate small face, bony, 'comic legs' (long thin legs that are unrealistic in comics), fair skin with juvenile look [22].

Nowadays, the preferences of Chinese men are influenced by the Korean wave, slightly returning to the body shape pursued in the Pre-Qin Period, with fair skin, slender arms, and legs, being as delicate as women [21].

The desire for a slimmer physique has become widespread among female high school and college students in China [21], with many young women eager to lose weight to achieve the ideal slender body. Their fixation on thinness and determination to shed pounds stem from the belief that being thin is inherently desirable, regardless of their BMI.

In the trend of influencer appearance, society is losing its multi-dimensional perception of appearance and individual value. Internet influencers create and maintain their own identities by skillfully packaging and retouching photographs of themselves. As the general public watches these frequent performances of 'perfect looks', it is easy for them to feel self-doubt and frustration when comparing themselves to their situations. Women begin to measure their bodies against those of others, creating mental pressure and pressure to change their situations [22].

To think of thinness as beauty in China is spreading endlessly, this phenomenon of female body mimicry has caused internal conflict for more women outside of the vortex, and to 'assimilate' into society, people have begun to manage their image, and one of the habits that come along with this is photoshopping images. They edit their selfies according to the ideal standards of the Internet, which is essentially an act of social performance — an idealization of self-presentation. Through such

performances, Chinese women can ‘socialize’ themselves into conforming to the understanding and expectations of the society in which they live [23].

Compared to other Western countries, China's cultural standards and gender roles are influenced by a long history of male dominance. Women believe that they cannot be larger than men or they will lose attraction to each other, men seek a taller figure because it shows the wealth and power they seek [24]. Additionally, due to women's traditional responsibilities in giving birth and raising children, men favor women with lower WHR, which means a higher likelihood of conception [25]. At the same time, reproduction which is most emphasized in Chinese culture, also leads women to favor taller men because taller stature represents good genes [26].

Historically, post-1949 China was shaped by a communist ideology that resisted individualism, commercialism, and advertising, while also discouraging an excessive focus on appearance and thinness. However, this began to shift in the 1980s as China became more open to Western influences, and concepts of sex and sexual beauty started to play a more prominent role in public culture. Early research on body image predominantly focused on Western societies, where slimness was often equated with beauty, health, self-discipline, and sexual appeal. Now, Chinese females have also internalized slimness as a social preference for female body imagery [24]. For example, the high nose bridge that Chinese women are now promoting follows the aesthetic of Westerners' looks, even if it is a clear departure from their national identity.

Only 10% of Chinese women are reported to be completely satisfied with their body image, and Asian cultures are highly susceptible to body image dissatisfaction and disruption [25]. From a historical perspective, whether it is the slender willow waist, round and smooth pearls, or the hourglass figure that has become fashionable in cyberspace, the standard of the ideal figure for Chinese women has always been a measure of the “ultimate” female body [20].

The history of body image preferences in the United States has been shaped by various social, cultural, and political events. While there exists evidence that suggest the preference of body image in the United States could be a plausible adaption, it is very likely that the body image preference in the states is a byproduct of cultural and political evolution. Here are some significant moments and trends that have influenced people's preferences for body image, including height and body shape.

Socio-cultural activities in the history of United States have served a central role in defining and realigning people's values in concerns to bodies, including height and forms. First, in the prerogative of the women's suffrage at the turn of the late XIX-early XX century with the ratification of the Nineteenth Amendment in 1920 encouragement of women's self-sufficiency and initiative. The latter was marked by the emergence of new fashions, such as a rejection of narrow and tight-corseted waists, and the general slimming of women's figures. The liberation freedom that women experienced during the 1920s in terms of fashion reflected the liberality by having short hair, wanting figures, and less curves as was depicted in the preceding years. Continuing this increasingly more freedom trend was 1960s-1970s, the Sexual Revolution and Second-Wave Feminism. As supported by the research of Borowsky et al. [27], the movements introduced a radical change in culture in terms of sexual liberation and authority over one's own body. Women turned against the rather tight and slender female beauty that was dominant in the past, and women of different forms and sizes appeared more often. The feminist movement also condemned sexual objectification of women, and, hence, paved way for diversification of size acceptance.

Hip- Hop Culture appeared in the beginning of the 1970 and had evolved in the beginning of the 1980- 1990. The put forwarder of Munoz [28] poster also suggests that Hip-Hop has influenced the body image greatly; the ideal figure has curves, and muscle mass, individual looks as opposed to the mainstream culture. The rap songs by artists like Tupac, LL Cool J and later Beyoncé and Nicki Minaj helped in bringing changes in the society and more acceptable views regarding the shape of people and the beauty standards of human body.

Last but not least came digital age. It is mainly negativity, regarding media's representation, impact on society's beauty standards is present, especially the thin female body and the muscular male body. Such representations are related to body dissatisfaction, low SE, and unhealthy behaviours in people who attempt to achieve these images, as the works of Mills et al. [29] established. Social media reiterates different gender influences; women are made to feel that the skinny is attractive whereas men are made to believe the muscular look is desirable. Girls and boys might both experience dissatisfaction with their own bodies, but the nature of the pressure to do so is different. This can lead to negative feelings about one's body, this is especially so with the female gender who is most likely to compare their body shape with those depicted in the media. Thus, says the research by Fardouly et al. [30], such dissatisfactions can result in severe mental health problems, such as eating disorders, depressions, and anxiety.

The experience of War in various settings changes the physical image of people including the soldiers and the civilians is supported by the research of Baker [31]. Soldiers' bodies are supposed to be obedient, regulated, and able to endure and inflict force in manners beneficial to the military. Military practices such as training and conditioning of the soldiers and the impacts of war on the physiologically and psychologically strengthened bodies will shape them from the current body built as weapons of war. Moreover, the depiction of bodies visually and culturally in Military also shapes the views and social construction of people as well as endorsing Military Systems' rhetorics. Military figures and Force are represented in media and popular culture and how this normalises military force. Nonetheless, aesthetics can operate in the opposite manner: as a protest against militaristic discourses, artists and activists offer different types of bodies and wars.

4. Research Gaps and Conclusions

Despite the compelling evidence supporting both inherited adaptations and cultural evolution byproducts, there are still limitations and gaps in the current literature. To begin with, more research might be needed to explore how these cultural influences interact with evolutionary factors to shape body image perceptions and competitive behaviours in both societies. There were previous studies comparing the different body image preference amongst students in the US and in Korea, but not in China [32]. As a result, replications of previous studies could be carried out in China and the U.S. to figure out whether Chinese and Koreans share similar preferences for certain traits. By doing so, it creates the possibility for further research to explore whether people in Asia share similar body image preferences.

Another notable gap is the limited focus on male Waist Hip Ratio preferences and intrasexual competition and how these might differ across cultures. While much research has examined female competition in terms of physical attractiveness, there is less exploration of male competition and how it varies across cultural contexts [33]. Additionally, many studies rely on static images or simplified silhouettes, which may not accurately represent the dynamic nature of real-life attraction.

Also, participants from previous studies have primarily been students (both from high schools and universities). Which might lack generalisability to a larger population. Therefore, this research aims to recruit people from different age groups and occupations to improve reliability.

This brings the discussion to the research question:

How do evolutionary factors influence body image perception across Chinese and American cultures, and are the preferences of similar or different traits inherited adaptations or byproducts?

To test this, the study will recruit 200 participants each from China and the U.S. using convenience sampling. Participants will be drawn from accessible groups, such as university students, employees at local businesses, or individuals from online communities, ensuring a diverse representation across different age groups and occupations. Demographic information will be collected for further analysis to understand any potential patterns or biases in the sample.

The research method will involve a survey in which participants will complete two questionnaires. The first questionnaire consists of multiple-choice questions about their preferred body image, in which participants will view a list of physical traits and will be asked to select those they would prefer to have in their own bodies. The second questionnaire is the Body Area Satisfaction Scale [32]. It will measure participants' satisfaction with their body image using a Likert scale (1 – very dissatisfied, 5 – very satisfied). For example, participants will rate their satisfaction with specific aspects of their own body, such as weight and height. Both questionnaires will be provided in the participants' first language to minimise confusion and ensure clarity. The questionnaires will be anonymous to encourage honest responses, and strict confidentiality will be kept to protect participants' data. Raw data will be collected and analysed separately for the Chinese and U.S. samples, and comparisons will be made to address the research question.

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