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Virtual Bodies and Obesity Stigma in AI Technologies: An Exploration Centered on the Stigma Communication Model and the Stigma Coping Model

Pengfei Xu[a*] and Qian'er Yan[b]

[a]*Faculty of Humanities and Arts, Macau University of Science and Technology, China.*

[b]*School of Humanities, Shanwei Institute of Technology, China.*

Abstract

This study examines the intelligent interaction of AI technology, virtual embodiment, and the dissemination and management of obesity stigma, with a particular emphasis on the stigma communication mechanisms within the context of new media. In recent years, obesity has transcended its classification as a metabolic disease to become a socially stigmatized phenomenon, particularly in the era of pervasive AI applications and digital media. Individuals with obesity are increasingly subjected to complex identity constructions and challenges in social recognition. Grounded in the Stigma Management Communication (SMC) Theory, this study investigates the ways in which AI technology influences the propagation of obesity stigma and explores the coping strategies employed by stigmatized individuals. Utilizing a qualitative research approach, this study integrates in-depth interviews, digital ethnography, and social media analysis to examine data collected between October 2023 and January 20, 2024, focusing on the phenomenon of "AI Fat Transformation" on Douyin and other new media platforms. The analysis delves into the lived

CONTACT Pengfei Xu 411706928@qq.com

experiences of individuals with obesity, public perceptions and stereotypes associated with obesity, and the role of AI technology in the dissemination of stigma. The findings reveal that AI-driven transformation technologies facilitate the visual and symbolic representation of obesity stigma, reinforcing societal biases toward idealized body standards through algorithmic curation and social media interactions. Moreover, stigmatized individuals adopt three primary coping strategies: passive avoidance, talent-based compensation, and self-empowerment. Among these, social support networks and counter-narratives have demonstrated the greatest efficacy in mitigating the negative impact of stigma. This study contributes to the academic discourse by extending the application of Stigma Management Communication Theory within the digital media landscape, elucidating the role of AI technologies in shaping and reinforcing body-related stigma, and proposing strategic interventions for addressing obesity stigma in contemporary society. The findings underscore the imperative role of digital media platforms, public education initiatives, and policy interventions in curtailing the dissemination of obesity stigma. Future research should further investigate cross-cultural variations in stigma communication and assess the long-term implications of AI-driven media on societal perceptions of stigmatized identities.

Keywords

AI technology, Virtual embodiment, Obesity stigma, Stigma Management Communication

Rationale of the Study

"Obesity is a disease" — In 1997, the World Health Organization (WHO) officially classified obesity as a disease, identifying it as a metabolic disorder that contributes to a range of associated health conditions (WHO, n.d.). However, in modern society, obesity is often viewed not only as a medical condition but also as a form of deviance from social norms. With the rise of new media, the definition of obesity has expanded beyond physical health to encompass social discrimination and stigma. According to data released at the 10th China Obesity Prevention and Control Science Conference, approximately 19% of Chinese youth aged 6 to 17 and about 10.4% of children under 6 are overweight or obese. Among adults, the ratio of overweight to obese individuals is roughly 2:1 — a figure that surpasses the global average. Obesity has become a growing concern among younger populations. Despite being a global health issue, the stigmatization of obesity remains widespread and deeply rooted. On March 4, 2020, Nature Medicine, a sub-journal of Nature, published a significant international consensus statement calling for an end to obesity stigma (Rubino et al., 2020).

Stigma has existed since ancient times, representing the biases held by the general public toward individuals who are perceived as different, which often leads to the formation of stereotypes that distinguish "normal" individuals from those who are stigmatized. From the perspective of shared interests, whether it concerns all of humanity, an entire nation, a family, or even an individual, we are inherently interconnected and share a common destiny. Even within small communities, there is

a need for a “community of shared future for mankind” mindset. Acts of mutual exclusion or stigmatization cannot exist in isolation and are ultimately detrimental to harmonious coexistence and collective development (Wang,2021). For example, under the influence of new media, the public widely believes that thinness equals beauty. People who are overweight are not only perceived as unattractive but are also seen as representatives of disease, leading to social distancing and discrimination against them through language, expressions, and actions. Since the publication of sociologist Erving Goffman’s seminal work Stigma: Notes on the Management of Spoiled Identity in 1963, psychologists have conducted extensive and in-depth research on stigma in various areas of social life. These studies have explored stigma from multiple perspectives and examined different coping strategies. Stigma is generally categorized into two types: visible (explicit) stigma and invisible (implicit) stigma (Goffma,1963).

Obesity stigma is a form of visible stigma—it is immediately recognizable through physical appearance. Individuals with obesity are often perceived as lazy, gluttonous, lacking willpower, and deficient in self-discipline. As a result, they are particularly vulnerable to humiliation and discrimination in the workplace, educational settings, and healthcare institutions. Among various social contexts, weight-based discrimination is most commonly observed in interpersonal relationships（Li&Liang,2021). With the advancement and widespread application of artificial intelligence (AI) technologies, such phenomena have become increasingly prevalent. For instance, on new media platforms, AI-generated body

transformations—such as artificially simulating weight gain—are sometimes employed to attract attention and increase engagement. It is important to note that individuals living with obesity are often subjected to misrepresentations of their bodies, constructions of their bodies by others, and various forms of discrimination and stigmatization. These conditions significantly hinder their ability to articulate and claim their bodily rights (Wang,2021). Therefore, greater scholarly attention should be directed toward the study of fat stigma. New media platforms, in particular, have become one of the major arenas for the dissemination of fat stigma. Due to the rapid speed of information transmission and the anonymity afforded by these platforms, stigmatizing representations of obesity are increasingly prevalent online. This study explores fat stigma in new media by drawing on intelligent interaction technologies based on AI and virtual embodiment and is grounded in the theoretical framework of stigma and the Model of Stigma Communication (MSC).

The contributions of this study are threefold. First, it is the first to examine public perceptions of stigmatizing phenomena related to AI body-swapping technologies used by content creators on Douyin. This shifts the focus from traditional offline fat stigma to its manifestations in online contexts, thereby breaking new ground in the study of digital stigma. The research fills a gap in the literature concerning how the public responds to fat stigma targeted at self-media users on Douyin. Second, previous studies have seldom distinguished between entertainment and stigmatization. This research is the first to investigate the phenomenon and consequences of fat stigma in relation to AI technologies, while making a clear

distinction between the entertainment-oriented representation of obesity and actual stigmatization. Finally, this study advances the application of the Model of Stigma Communication (MSC). Few scholars have previously applied stigma communication frameworks to studies of obesity on Douyin. This research pioneers the use of MSC as a theoretical framework for analyzing fat stigma in the context of Chinese new media, thus addressing a significant gap and expanding the scope of MSC application.

Literature Review

Embodied Interaction and Intelligent AI Technologies

Technology can easily induce the illusion of having additional limbs or even an entire virtual body (Slater et al., 2010).The development of AI technology has not only enriched users' daily lives but also transformed the human body into a symbolic form of information, enabling its virtualization through technological means. When the body is extended into virtual space, it offers a new interpretation of McLuhan's idea that "the medium is the extension of man." One of the most intuitive experiences brought about by AI-based intelligent interaction is the perception that "the virtual is real." As the once-physical body becomes symbolic and is transmitted through technology, the user's perception of the virtual body becomes more intense, and internal responses of the physical body become more pronounced. In this way, the "virtual" becomes even more real (Yang, 2023). The virtual body and the real body continuously fracture and overlap within technological systems, which may even intensify the alienation of the physical body, resulting in a state of disembodiment (Han & Zhang, 2024). The concept of embodiment has become a central focus in

body theory, referring to “existing in the world in an active, perceptive, and emotional manner” (Ihde, 2002). Although the virtual body is an external projection of the real body in society, it also represents the “otherness” of the real body within another technological world. In the context of AI technologies, the boundary between the virtual and the real body is increasingly blurred. The virtual body may present a new form of embodiment, achieving an integration of cognitive and material dimensions—what Ihde (2012) describes as a bodily experience in which technology is “incorporated into the perceptual fabric of the self” (pp. 112–113). In digital environments, AI-generated virtual bodies manifest in diverse and often fragmented forms, revealing a kind of “plural” corporeality. For instance, once the body is encoded, its symbolic and real meanings diverge significantly. The so-called “code body” refers to a constructed bodily model shaped by data and algorithms within constrained parameters, rather than a perfect replication of the human flesh (Liu, 2023). This kind of partial replication represents a postmodern deconstructivist aesthetic, but at the same time it intensifies how society conceptualizes the body. The body is no longer simply a biological entity. It takes on multiple symbolic forms—such as the muscular body or the obese body—that go beyond physicality and serve as metaphoric signifiers. These metaphorical meanings are likewise embedded within virtual bodies. The most intuitive manifestation of the coded virtual body is seen in AI-driven body-swapping effects on new media platforms such as Douyin. When we understand existence as a bodily perception of the technologically constructed world—a world perceived and built through mathematics and

science—the significance of the body becomes increasingly prominent (Liang & Hou, 2008). For example, the popular Douyin trend of AI-transformed "fat body" effects symbolically virtualizes the body through code. Such virtuality does not represent a complete body but rather a constructed one—precisely the kind of body that intensifies the stigmatization of obesity.

Obesity and Bodily Stigma in Contemporary Media

Stigma refers to socially constructed, derogatory, and demeaning labels applied to certain individuals or groups, which often lead to internalized self-devaluation among the stigmatized and result in discriminatory and unjust treatment by society (Guan, 2007). In contemporary society, topics related to obesity are frequently found across digital networks, news media, and online videos. Studies have shown that 65% of overweight or obese adults and 77% of overweight or obese adolescents are portrayed in negative or even insulting ways. In some cases, individuals with obesity are depicted as unintelligent or irresponsible toward their own bodies (Puhl, Peterson, DePierre, & Luedicke, 2013). Such representations often cause people living with obesity to experience low self-esteem and social withdrawal; in extreme cases, obese adolescents may become targets of bullying at school. On social media, the phenomenon of the "headless fatty" image—where obese bodies are shown without faces—is common, further dehumanizing those individuals. Additionally, some fitness influencers on new media platforms frequently contrast themselves with obese individuals, emphasizing the latter's supposed lack of health and self-discipline to highlight their own fitness. Among young people, those with obesity are generally less

accepted by their peers. Research has found that girls, more than boys, tend to show stronger bias against overweight peers and are less likely to befriend them, with such prejudices increasing over time (Latner & Stunkard, 2003). As a result, obese adolescents are often excluded from peer groups. For adults, fat stigma permeates nearly every corner of society, with its impact especially pronounced in employment contexts, where overweight and obese young adults frequently encounter discrimination and social exclusion.For example, during recruitment processes, young people with obesity are often less likely to be hired compared to individuals of average weight. Although medical understanding and treatment of obesity continue to improve, fat stigma still exerts profound negative effects on individuals' psychological and physiological well-being, sometimes even leading to the onset of depression. While stigmatized individuals may actively attempt to overcome stigma through coping strategies, repeated exposure to stigmatizing environments significantly increases psychological distress.

The frequency of stigma experiences among people with obesity is positively correlated with depression, general psychological symptoms, and poor body image. Furthermore, individuals' negative perceptions of weight-based discrimination are closely linked to the psychological harm they have experienced (Friedman et al., 2005). Some stigmatized individuals become increasingly socially withdrawn and fearful of interaction, while obese youth may experience sharp declines in academic performance, in addition to being subjected to bullying at school.Conversely, reducing or eliminating fat stigma has been shown to improve psychological well-being and

positively influence the lives of people living with obesity. Although new media technologies have brought about transformative changes for users, we are also witnessing a gradual attenuation of stigma facilitated by AI advancements. However, emerging forms of AI-based stigma are simultaneously surfacing.For instance, in the latter half of 2024, a new AI “body-swap” trend emerged online—specifically, “becoming fat” through AI-generated transformations. This trend not only perpetuates the stigmatization of larger bodies but also virtualizes and intensifies the visibility of fat stigma. From Goffman’s perspective, fatness constitutes a “visible stigma,” one that is particularly resistant to dissolution, as those who are stigmatized in this way find it more difficult to conceal their identity. Unlike certain types of stigma—such as those related to mental illness or having a criminal record—which may be managed or mitigated through concealment, fat stigma is inherently visible and thus far more difficult to hide. As a result, individuals living with obesity often experience greater psychological stress compared to both non-stigmatized individuals and those facing concealable stigmas. For people with obesity, stigma has become one of the frequent causes of both psychological and physical harm. Although many strive to resist or cope with stigma, frequent exposure to stigmatizing conditions often leads to heightened emotional distress, increased coping attempts, and, in many cases, subsequent weight gain (Wang, 2021).The internalization of fat stigma manifests through the embodied nature of the physical body and the continual confrontation between bodily visibility and social space. This process occurs as the visibly stigmatized body interacts with others over time. Through prolonged exposure to

negative interactions, the individual's perception of their own body becomes increasingly damaged, ultimately solidifying into a relatively stable and internalized form of fat stigma.

In efforts to remove stigma, individuals may engage in dieting or weight loss attempts. However, because obesity is a medical condition, mechanisms for weight loss must be both scientific and sustainable. When these attempts fail, the stigmatization by others often becomes even more severe, exacerbating the emotional and social burden carried by individuals with obesity.

Stigma Communication Management Theory and the Stigmatization of Obesity

As society evolves, the management of stigma communication has become increasingly refined. Two major communication-based theories of stigma have emerged: Smith's (2007) Model of Stigma Communication (MSC) and Meisenbach's (2010) Stigma Management Communication Theory (SMC). Both frameworks posit that communication plays a central role in the creation, negotiation, and manifestation of social stigma.

Social stigma is defined as the normalization of extremely negative stereotypes about a group and its members (Smith, 2007). The SMC model developed by Meisenbach (2010) focuses on the communicative strategies individuals use to manage stigmatized identities during specific encounters. In contrast, Smith's (2007) MSC model emphasizes how social stigma is formed—transforming private prejudice into collective norms (Rimal & Lapinski, 2015) or even perceived social facts

(Durkheim, 1982). The MSC model's emphasis on the internal features of stigmatizing messages and how they circulate through social systems serves as the primary theoretical foundation for the present study.

According to Smith's (2007) Model of Stigma Communication (MSC), verbal messages convey stigma through four types of cues: marks (cues that distinguish individuals), labels (cues that categorize marked individuals as separate), responsibility (cues that suggest individuals are to blame for their condition), and peril (cues that portray marked individuals as a threat to society) (Rao, Puhl, & Farrar, 2024; Smith, 2007).

Although the MSC model has been applied in prior studies on weight-based stigma, its use has primarily been limited to analyses of verbal communication. It has not yet been extended to examine fat stigma within the context of new media or AI-driven body transformation technologies. This study seeks to apply and expand the MSC model by investigating fat stigma under new media AI technologies in China, specifically through three key content cues: marks, responsibility, and peril. The research aims to identify and analyze how these stigmatizing attributes manifest in AI-generated depictions of obesity on Chinese social media platforms.

According to Smith's (2007) Model of Stigma Communication (MSC), marks are visible distinguishing features that identify an individual as a non-normative person. These marks possess two characteristics: concealability and revulsion (Smith, 2007). However, when it comes to body weight, such marks are difficult—if not

impossible—to conceal. As previously discussed in relation to Goffman's theory, individuals with visible stigmas are more prone to social exclusion. Because a person's body weight is consistently visible, weight-related stigma and stigma communication are prevalent across society (Anderson & Bresnahan, 2013).

Body weight is frequently compared to socially idealized standards, which further defines and separates individuals along body size lines (Anderson & Bresnahan, 2013). This distinction reinforces a normative contrast between people of average weight and those living with obesity. When new media utilize AI technologies to represent bodies that deviate from the "ideal" weight, they often reinforce weight-based stereotypes and perpetuate negative attitudes toward individuals with obesity. This contributes to the broader social foundation for weight stigmatization (Link & Phelan, 2001).Thus, this study poses the research question:

***RQ1*: To what extent are depictions of fat stigma prevalent in new media representations?**

News images frequently portray obese individuals without their heads or faces (Heuer, McClure, & Puhl, 2011; Puhl, Peterson, DePierre, & Luedicke, 2013). Similarly, in the context of Chinese new media, visual representations of obese individuals often omit the head or substitute it with unrelated visuals, such as animal faces or images of hamburgers. While some argue that such substitution protects privacy, other studies suggest that fragmenting the body—into a "headless torso" or "headless stomach"—is dehumanizing (Cooper, 2007; Mayes & Kaldor, 2016).

According to MSC, revulsion is another feature of "marks." Revulsion can be amplified by placing temporary or permanent symbols (such as brands) on a person to fix the mark on the body (Smith, 2007, p. 469). In this context, the omission of the face may be interpreted as an attempt to fixate the stigma by emphasizing body features (such as belly or hip size) that evoke disgust. Furthermore, visual communication theory suggests that face-ism influences perception (Vandenbosch, Fardouly, & Tiggemann, 2022). Given that fat stigma already exists as a social reality, reducing or eliminating facial representation may further intensify the stigma, especially in the era of AI-driven visual content. Therefore, the study proposes a second research question:

***RQ2*: How prevalent is headless or partially obscured depiction of obese individuals in AI-generated content on new media platforms?**

According to the MSC framework, peril is communicated through cues that emphasize the danger posed by stigmatized groups to society at large. In the context of fat stigma, social peril reflects the belief that individuals with excess weight pose a threat to public health and societal well-being (Anderson & Bresnahan, 2013). This belief extends to the idea that being around obese individuals—for example, living with or socializing closely with them—can have negative health consequences, such as increasing one's own risk of developing diabetes.Therefore, the study proposes the following research question:

***RQ3*: To what extent is the perception of social peril associated with obesity prevalent in AI-generated content on new media platforms?**

Another central mechanism of stigma communication, according to MSC, is responsibility, wherein the blame for one's stigmatized condition is assigned to the individual (Smith, 2007). Weight stigma is often grounded in the assumption that body weight is under personal control, thus rendering individuals responsible for their obesity. This assumption fuels societal blame and judgment toward people with obesity (Rao, Puhl, & Farrar, 2024).

However, the World Health Organization (WHO) has long classified obesity as a medical condition, not simply a result of personal choice. Therefore, it should not be seen solely as an individual's responsibility, as it is influenced by broader factors including healthcare systems, societal structures, and media representations. While this study does not focus on medical or institutional responsibilities, it is crucial to question how responsibility attribution is handled in new media contexts.Thus, a second research question is proposed:

***RQ4*: How prevalent is the attribution of personal responsibility in depictions of obesity within AI-generated content on new media?**

Secondly, within the framework of the Model of Stigma Communication (MSC), obesity stigma in the context of Chinese new media is primarily constructed through

communicative mechanisms such as marking, attribution of personal responsibility, and the framing of obesity as a social threat. These dimensions work together to reinforce negative perceptions of individuals with obesity. In response, those who are stigmatized actively resist and push back against such representations, particularly the stigmatized portrayals of "AI-generated overweight bodies" on digital platforms. With regard to stigma coping strategies, Meisenbach's (2010) Stigma Management Communication (SMC) theoryprovides a strong theoretical basis and demonstrates considerable cross-cultural applicability in understanding how individuals respond to stigma. In recent years, scholars have expanded on Meisenbach's model. For example, Brule and Eckstein (2016) applied the theory to the context of parental stigma in cases of adolescent-to-parent abuse, offering valuable insights into the model's broader applicability across different social issues. In the SMC (Stigma Management Communication) model, stigma coping strategies are divided into four categories: accepting public stigma and applying it to oneself; accepting public stigma but not applying it to oneself; challenging public stigma while applying it to oneself; and challenging public stigma while not applying it to oneself. Each category, depending on its framing, involves different persuasive strategies. For example, in Brule & Eckstein's (2016) study on coping with stigma related to domestic abuse, parents tended to adopt confrontational strategies under the category of publicly displaying or challenging stigma that is still considered self-applicable. In the broader context of new media, discursive power is more decentralized. However, the choice of stigma coping strategies (SMC) varies depending on the modes of stigma

communication (MSC).Therefore, the following research question is proposed:Research Question 5 (RQ5): What kinds of stigma coping strategies (SMC) are adopted in response to different modes of stigma communication (i.e., marking, responsibility attribution, and perceived social threat)?

Research Methodology

This study adopts in-depth semi-structured interviews and participant observation as the primary qualitative data collection methods. In addition, digital ethnography serves as the core online research approach, focusing on social media platforms within new media contexts. Data collection took place between October 2023 and January 2024, targeting both users and viewers of the “AI Fat Transformation” feature on various online platforms.

In total, the study conducted 15 interview sessions, including both group interviews and individual interviews. Simultaneously, 60 open social media accounts using the “AI Fat Transformation” feature were observed, and 48 separate in-depth interviews were conducted with individuals who had experienced fat stigma. The overall sample was purposively selected, ensuring diversity in terms of age groups, social class, geographic backgrounds (urban and rural), and educational levels. It is important to note that the 60 observed accounts and the 48 interviewees represented two distinct groups; the observers and the interview participants were not the same individuals.

Participants were divided into two categories. The first group consisted of individuals proficient in using new media technologies and platforms, and who had personally used the AI Fat Transformation feature. The second group consisted of individuals who identified as part of the fat-stigmatized population—those who were overweight or had experienced weight-based shame. Participants were recruited primarily via Xiaohongshu (RED) and Baidu Tieba, using a snowball sampling strategy.

During the focus group interviews, this study reorganized and refined the discussion content based on the themes and content of the group discussions. Each group discussion revolved around four thematic modules, consistent with the research objectives:(1) Obesity stigma under the use of AI technology, for example, key questions included: Do you feel that obesity under AI technology reflects you? Do you feel discriminated against or insulted?(2) Perceptions of individuals with obesity regarding AI-generated stigma, for example, key questions included: Do you think you are labeled with obesity stigma? What kind of labels have you been given? (3) Confusion around AI-based obesity stigma in new media (responsibility), for example, key questions included: Do you feel responsible after being stigmatized? What kind of responsibility do you think you bear? (4) Coping strategies against obesity stigma, for example, key questions included: After being discriminated against or stigmatized for obesity, did you respond actively? What type of coping strategies did you adopt? How effective do you think these strategies were? The average duration of each focus group interview was 90 minutes. The interviewees

were all aged between 25 and 35. The interviews were conducted through online video interviews, supplemented by text-based interviews via social media platforms.

During online observation, this study trained two observers to conduct the observations alongside the primary researcher. This approach ensured consistency in the identification of observation targets, content, and emotional tone of the posts, thereby enhancing the accuracy of the research. The researcher conducted four observation sessions per week, each lasting 2 to 3 hours. The observation focused on AI-generated “fat body” content and included detailed recording of the following variables:the gender, age, and motivation of the content creators, the number of likes, number of comments, the number of likes on the comments, the emotional expression of the creators, and the attitudes of the commenters. These dimensions were observed and recorded simultaneously throughout the data collection period.

Throughout both the interview and online observation processes, all participants and observers were clearly informed of the study’s purpose and research background. To protect their privacy, identifiable information has been anonymized wherever possible, without compromising the integrity of the study. The anonymization method followed a structured coding system: “Online Random ID – Interview/Observation Batch – Sequence Number.”

Research Findings

Embodied Experience in AI Intelligent Interaction

The body was once understood as a purely material entity. However, with the advent of AI technologies, the body has shifted from being a "physical body" to a virtual symbol. Many individuals now use symbolic representations in digital spaces to express their inner thoughts or desires. AI technology, no longer perceived as an elite or distant innovation, has become integrated into mass communication and everyday life. In this process, the symbolic nature of AI has also transformed. Through technological advancement and the influence of posthumanist deconstruction, digital structures have become increasingly unrecognizable and fragmented.

In interviews, participants reflected on their perceptions of AI. One interviewee noted, "I think AI technology is best applied in practical ways. For example, I can use it to write, generate images, or create virtual photos of myself." (Interview Code: xx1-02-01). Many participants expressed the belief that AI should become more widespread, as it has the potential to improve everyday life and reshape their current situations.

However, AI does more than merely improve reality—it also creates the possibility of virtualizing everything. The body is no longer the body, and a video is no longer simply a video. As Baudrillard (1983) argued in his theory of simulacra, "Violence today is like a simulation of violence—it no longer stems from passion or impulse, but from the screen" (p. 146). Although this study does not focus on violence

or media violence per se, the AI-rendered body in visual media similarly originates from a screen-mediated reality.

When we view the AI-modified body through the lens of the screen, it becomes clear that what we are seeing is no longer our own body. In observational data, participants using the “AI Fat Transformation” feature frequently altered their bodily appearance beyond recognition. “The body parts are constantly inflating,” one observation noted, “detaching from their original selfhood.” (Observation Code: xy04-04-12).

For many content creators, these transformations serve strategic purposes, particularly for attracting online traffic. One influencer commented, “I used to get poor engagement, but once I started using these trendy tools, my post views went up significantly.” (Interview Code: xx03-01-11). Another participant had a more personal motive: “I used to be overweight. I wanted to see what I would look like again, so I used the AI transformation. It motivates me to keep sculpting my body.” (Interview Code: xx02-05-01).

Through these illusory representations of the body, many users come to recognize or reconstruct their sense of bodily identity. The virtual body, in this sense, becomes a mediated site of reflection, motivation, and symbolic expression.

Interviewees expressed a wide range of experiences and perceptions regarding their use of AI technologies. This diversity of user experience also reflects and fuels the diversification of AI development. AI technologies are no longer superficial tools;

instead, they form an integrative and immersive virtual state, gradually permeating daily life and embedding themselves in the subject's lived environment.

This deep integration intensifies social stigmatization toward those who are perceived as "different." In this context, fat stigma emerges as a prevalent phenomenon. At the same time, among young people, a symbolic ideal of the "thin body" has gained prominence. This thin body is not merely a physical form but also a representation of contemporary lifestyles and social values. However, it has also contributed to increased psychological anxiety among users.

For example, one interviewee stated, "As long as I'm thin, that's all that matters. I don't care whether it's healthy or not—as long as I'm thin." (Interview Code: xx05-02-01). Another participant remarked, "Thinness is symbolic. Who wants to be fat? Fat people have no friends, they smell—I'd rather be thin or die." (Interview Code: xx02-09-11). These comments reflect a social condition where the body is no longer just biological, but a social symbol—with thinness representing desirability, and fatness representing exclusion.

This symbolic structure reflects diversity, encompassing both the glorification of thinness and the stigmatization of fatness.According to Sun (2018), the subject of media dissemination has shifted from a natural human being mastering tools to a cyborg, a body embedded with technology. Similarly, Walter Benjamin emphasized that technology continuously reshapes and fragments human perception. In the environment of new media, the body has been reconstructed as a virtual symbol,

affecting not only online identity but also offline behavior and self-concept. This evolution compels us to re-examine the construction of diverse bodily identities and how such processes reshape subjectivity and embodied practices in the digital age.

The Impact of AI Technologies: The Virtual Body and Fat Stigma

Stigma has existed since ancient times. As Goffman (1963) noted in his foundational work on stigma, stigmas mark individuals as different from societal norms and emphasize particular traits in order to distinguish them from the "normal." In contemporary contexts, this concept may also be understood through the lens of Byung-Chul Han's philosophical reflections, which suggest that stigma represents a denial of the Other—a refusal to acknowledge difference in a hyper-commercialized society where everything, including AI technologies, becomes commodified and quantified. Within this system, thinness and fatness are categorized, priced, and defined, leading to an explicit division between "normal" and "fat" individuals.

This recognition was echoed throughout the interviews. One participant stated: "When I'm dating, people say they only want someone thin. I feel anxious, especially with the New Year coming. Every time I see 'AI Fat Transformation' on my phone, I get distressed. I feel afraid." (Interview Code: xx06-04-01). This is not an isolated sentiment but rather a widespread experience, highlighting a general social pessimism toward obesity. Many individuals report experiencing body-related anxiety, exacerbated by the emergence of narratives such as "thinness equals beauty" or "thin people have better opportunities," which are commonly found in AI-powered new

media environments.

In these digital spaces, the individuals who create and share “fat transformation” content are often those with conventionally slim or idealized body types. While their stated intention may be to encourage obese individuals to engage in healthier lifestyles, the symbolic mismatch between the denotations and connotations of such content—between intention and societal interpretation—has instead produced new layers of stigma.

Through the researcher’s observation of 60 users employing the “AI Fat Transformation” feature, it was found that nearly all were individuals with proportionally lean body types. These users typically used the technology to illustrate a contrast between “slim and beautiful” versus “fat and undesirable.” The implication was that transformation into a larger body should prompt one to change or take corrective action. However, this interpretation neglects the fact that AI-generated transformations are governed by algorithmic processes, not by users’ intentions or embodied experience. These transformations are not organically responsive but are based on preset computational frameworks.

From the perspective of prior research, the resulting “fat image” produced by these algorithms represents a symbolic performance of stigma, reinforcing negative stereotypes rather than fostering empathy or understanding.

Visual Stigma: Body Image and the Attribution of Responsibility

The widespread use of such AI-powered transformation technologies in new

media has brought with it a powerful visual impact. In today's image- and video-driven communication era, disseminating information through short-form videos has become one of the key "traffic codes" for new media users, especially when aided by digital and AI tools. This is also closely tied to self-presentation strategies in the online space.

Across platforms, the use of "AI fat transformation" often leads to a sudden visual expansion of the body, accompanied by an observable increase in likes and comment volume (Observation Codes: xy01-02-01, xy02-03-01, xy06-11-34). This phenomenon is not restricted to a single platform, but appears consistently across multiple sites.

However, visual stigma manifests not only within the videos themselves, but also—perhaps more intensely—in the comment sections, which often act as accelerators of stigmatization. Although content creators may gain attention, the comments are frequently filled with mockery and judgment: "You're done, you got fat," "You look greasy," "Instant regression to 10 years ago" (Observation Code: xy08-16-30). Such remarks appear in nearly every observed post that utilized the AI transformation filter. These interactions reinforce fat stigma and consolidate the symbolic power of the virtual body as a stigmatized form.

Notably, many slim-bodied influencers who use the AI fat transformation effect avoid showing their real faces or heads in the videos. Instead, they may replace their faces with animal images or abstractions. This is often justified as a way to protect

privacy, but according to interviewees, it is also a deliberate tactic to increase “sexual tension” or mysterious appeal, thus attracting more viewers. One interviewee admitted: “I’m also afraid to show my face. I’m worried about being cyberbullied.” (Interview Code: xx-10-07-01). Another said: “Not showing my face gives it more imagination—it brings more fans and likes. Also, I don’t want others to see me ‘getting fat.’” (Interview Code: xx-04-01).

These behaviors strongly align with the “mark” and “revulsion” cues in Smith’s (2007) Model of Stigma Communication (MSC), in which symbolic concealment and visual emphasis of the body contribute to the construction of social stigma.

In the context of Chinese new media, AI-generated depictions of obese individuals often continue to omit facial features, reinforcing both dehumanization and a lack of responsibility attribution. This stigma, amplified by AI tools, is not limited to the online space—it permeates schools, workplaces, media environments, and public transport.

As one interviewee explained: “Now that so many people are watching the AI fat transformation, I don’t even want to go outside. I wear dark glasses, avoid eye contact—I’m scared someone will say I’m too fat. Even on the subway, I don’t want to squeeze through the crowd. I know I take up space, but I didn’t do anything wrong.” (Interview Code: xx08-02-01).

Such testimony illustrates not only an acute awareness of being stigmatized, but also a deep sense of social responsibility attribution. For many stigmatized individuals,

blame is not internalized alone—it is understood as being imposed by society, media systems, and collective values.

In this context, body weight becomes a quantified standard, a number that determines one's worth in the digital age. For users who apply AI fat transformation filters, the body becomes a hybrid of virtual and real, shaped by algorithmic templates. For observers in the comment sections, the transformed image is a product of physical reality, virtual simulation, and digital discourse all at once.

Saying No to Fat Stigma: Responses and Coping Mechanisms

Drawing upon the framework of Stigma Management Communication (SMC) Theory, this study finds that the theory aligns well with how individuals in the Chinese new media environment respond to fat stigma. Among participants with lived experiences of obesity, the study identifies a tendency toward conservative and avoidant responses to stigmatizing encounters. Many individuals expressed an unwillingness or inability to confront stigma directly. One interviewee remarked, "I don't respond when they call me fat. I just don't want to argue or have any conflicts. I don't want to be isolated again." (Interview Code: xx01-01-03). At this point, the interviewee began to cry. As the interviews progressed, it became clear that this avoidant coping mechanism was not an isolated case but a widespread pattern.

In contrast, some individuals employed more proactive strategies. These participants often possessed specific talents—such as crafting, cooking, or singing—which they used as tools for social acceptance, redirecting attention away

from their bodies and toward their abilities. One interviewee explained, “I use my singing talent to distract people from my body. When they focus on my voice, they won’t notice my size. It works to some extent, but some people still say I’m too fat—even if I sing well, they think it’s worthless.” (Interview Code: xx02-02-03).

Such contradictions reveal a tension between self-presentation and social acceptance. In a society shaped by digital algorithms, media spectacle, and “stranger sociality,” individuals face intensified challenges in managing public impressions. As noted in prior studies, generalized stigma emerges from a breakdown in social trust and the diffusion of value conflicts, which exacerbate the transfer and expansion of stigma across social domains (Zhang & Yang, 2013).

One serious consequence is that society often attributes stigma to internal, personal failings, rather than recognizing external structural causes. This leads individuals to internalize distorted perceptions about their own bodies and identities (Wang, 2021).

Nonetheless, the study also highlights the empowering potential of active stigma resistance. One interviewee noted: “I feel much better when I face people positively. It really works. Some people who used to avoid me are now becoming more friendly. Sometimes we even grab afternoon tea together.” (Interview Code: xx02-02-01). This illustrates that positive engagement can gradually shift social perceptions, reduce alienation, and foster inclusion.

The findings reveal that active coping strategies can effectively alleviate the

social exclusion caused by fat stigma; however, significant challenges remain. Through further interviews and analysis, it was found that in addition to passive avoidance and talent-based compensation, some participants adopted more proactive strategies, including social support, counter-speech, and self-empowerment. These approaches closely align with the Stigma Management Communication (SMC) Theory and demonstrate how individuals with obesity navigate and resist societal stigma in the context of China's new media environment.Social support emerged as a critical factor in the coping process. Several interviewees indicated that when they encountered malicious comments about their body size, encouragement from friends, family, or online communities gave them a sense of belonging and psychological security. One participant shared:"I joined a WeChat group for plus-size women. We share our outfits, workout routines, and even career experiences. It makes me feel like I'm not fighting alone—at least someone understands me." (Interview Code: xx02-01-04). This kind of support helps reduce emotional stress and provides emotional comfort, enabling individuals to better withstand negative societal perceptions.

Another prominent strategy was counter-speech, particularly within social media contexts. Some participants actively posted on platforms such as Douyin, Weibo, or public WeChat accounts to challenge fat stigma through discursive interventions. These responses generally took three forms:1. Humorous reframing – using humor to defuse hostile stereotypes; 2. Educational rebuttal – sharing scientific data to refute misconceptions such as "obese equals lazy" or "obese equals unhealthy";3. Personal

storytelling – narrating one's own life experiences to counteract monolithic views of obese individuals.For instance, one interviewee wrote: "You say fat people are lazy? I work 12 hours a day and take care of my family. Does that sound lazy? Everyone lives differently—you can't judge someone's value by their weight." (Interview Code: xx03-02-01).

Such active expression not only helps participants reclaim their identity, but also influences public opinion and encourages broader reflection on fat stigma.

Self-empowerment also plays a vital role in stigma resistance. This involves enhancing self-awareness, self-confidence, and positive body image to reduce the psychological toll of stigma. Some participants reshaped their self-perception through fitness activities, fashion expression, or increased social engagement. One participant reflected:"I used to have low self-esteem and avoided wearing bright colors. I was afraid of being laughed at. But then I challenged myself and wore a red dress—and people complimented me! That moment made me realize I was the one limiting myself." (Interview Code: xx01-01-05).

Such cognitive shifts encouraged more positive engagement with social interactions and helped reduce internalized stigma.

Despite the benefits of these strategies, the study also reveals the persistent structural nature of stigma. Deep-seated societal ideals surrounding the "perfect body" continue to fuel discrimination in the workplace, bias in healthcare, and prejudice in romantic relationships. While new media platforms enable stigmatized individuals to

speak out, a significant gap remains between online support and real-world discrimination.

As some interviewees noted, although they received encouragement and validation on social media, they still experienced subtle rejection in job interviews or social settings. This contrast highlights that coping with stigma requires more than individual resilience—it also demands systemic reform and broader public awareness.

Discussion

This study explored the relationship between intelligent interaction in AI technologies, virtual embodiment, and fat stigma. Drawing upon Stigma Management Communication (SMC) Theory, the study examined how obesity stigma is propagated and responded to within the context of Chinese new media. The findings indicate that the widespread application of AI technologies on social media platforms has generated new forms of stigma transmission, especially through "AI fat transformation" features. These technologies contribute to the visualization, symbolization, and social dissemination of fat stigma, accelerating both its spread and reinforcement. While AI has introduced novel interactive experiences, it has also unintentionally intensified the reproduction of body-related stigma, particularly toward non-ideal body types.

The research demonstrates that in the new media environment, AI-based transformation tools—such as "AI body-swapping" or "AI fat filters"—serve to symbolize the body and reinforce societal stereotypes of the "ideal figure." On

platforms like Douyin, many users employ the “AI fat” feature to create entertaining content, yet the visualized representation of larger bodies becomes a subject of consumption, mockery, and discrimination. From the perspective of SMC theory, AI technologies facilitate the amplification of stigma, embedding it not only in traditional interpersonal interactions but also deeply into digital media environments, where it is sustained and intensified through algorithmic curation, social engagement, and viral dissemination.

In terms of coping strategies, the study found that individuals with obesity adopt three primary approaches in response to AI-driven fat stigma in the new media landscape:Passive Avoidance – Some individuals choose to avoid relevant discussions on social media altogether, fearing ridicule or isolation due to their body size.Talent-Based Compensation – Others attempt to offset societal bias by showcasing personal skills (e.g., singing, cooking), seeking social acceptance through alternative forms of self-worth. Active Resistance and Self-Empowerment – A growing number of individuals voice their perspectives on social media, participate in online communities, and share personal narratives to challenge prevailing stereotypes and promote positive self-identity.

While these active strategies help enhance self-confidence and social belonging, the study also finds that they are constrained by entrenched structural stigma and rigid societal norms, making it difficult to fully eradicate discrimination.

Furthermore, in the context of stigma management in new media, the study

reveals that the spread of stigma is not merely the result of individual behavior but is also shaped by platform algorithms, user interactions, and media discourse. Recommendation algorithms on social media often prioritize content that aligns with mainstream aesthetic standards, reinforcing the notion that "thin is beautiful." Meanwhile, AI-generated "fat" effects are frequently used for comedic or derogatory purposes, trivializing and humiliating larger bodies.

The anonymity of social media facilitates the rapid diffusion of stigmatizing comments, which often garner high engagement and negatively impact users' social experiences and mental health. Additionally, media discourse continues to propagate harmful stereotypes, such as "obesity equals laziness" or "obesity equals unhealthiness," contributing to the long-standing societal bias against people with obesity.

Therefore, managing the spread of obesity stigma in the digital media era requires multi-level interventions—including platform accountability, public education, and legal frameworks—to reduce discrimination and promote inclusivity.

This study contributes to academic discourse in several key ways. First, it extends the application of SMC theory to the digital media context, filling a theoretical gap regarding the intersection of AI technologies and fat stigma. It reveals how AI tools in new media environments shape and reinforce body-related stigma, providing a new lens for media governance. Second, it analyzes coping strategies among individuals with obesity in the digital age, offering practical insights for

psychological intervention, social support, and policymaking.

Nonetheless, the study is subject to several limitations: Sample limitations: The interviews and observations focused primarily on users from Chinese social media platforms. Future research could expand to include cross-cultural comparative studies in other countries and regions. Technological dynamism: As AI transformation technologies (e.g., “AI fat,” “AI body-swap”) continue to evolve rapidly, future studies should track the ongoing impact of technological development on stigma communication. Limited policy and institutional analysis: This study focuses on individual-level coping mechanisms, and future research should explore how governments, corporations, and platforms can intervene through policy to curb the spread of digital stigma.

Clinical Impact Statement

This study reveals how AI-driven body transformation tools in Chinese digital media reinforce weight stigma and marginalize individuals with obesity. By analyzing the mechanisms of stigmatizing visual content and users’ coping responses, the findings inform digital platform regulation, public communication strategy, and media literacy education aimed at stigma reduction. The research offers practical insights for scholars, policymakers, and tech developers committed to building a more inclusive and respectful online environment.

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