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Body perceptions and satisfaction among adults with excess weight in India: a mixed methods approach

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Abstract

Background The complications of obesity are far beyond just physical health. We assessed body perceptions and satisfaction among adults with excess weight in the Kolkata metropolitan area. Evidence on body perceptions and satisfaction among adults with excess weight in India remains limited.

Methods We adopted a concurrent mixed methods design among adults aged 25–54 years with excess weight in the Kolkata metropolitan area. Quantitative data were collected through surveys from 120 participants using Likert-scale items and the Stunkard Figural Rating Scale. In-depth interviews were conducted with 18 participants. Quantitative and qualitative data were analysed separately and integrated during interpretation.

Results Most participants expressed concern about their body weight, and a substantial proportion had inaccurate perceptions of their weight status. Visual body figures improved the accuracy of body size perception. Female participants demonstrated better awareness of their weight status and preferred slimmer body ideals compared to males. High levels of body dissatisfaction and low self-esteem were commonly reported. Qualitative findings highlighted gender-based body disapproval and the influential role of media in shaping ideals of the 'beautiful body'.

Conclusions Public health efforts should prioritise awareness, media literacy, and educational strategies that emphasise holistic health rather than appearance-focused ideals.

Keywords Body perceptions, Satisfaction, Excess weight, India

Introduction

Body size has different meanings across space [1]. Body ideals differ among societies because obesity is not only a physical state; it has a moral and social meaning [1]. The perspective toward fat bodies as ugly, beautiful, or neutral and the view of obesity as either a regular, non-medical human condition, a disease, or something that deserves no attention are some areas in which culture is relevant to obesity [1]. Western countries have the strongest anti-fat social messages, especially for women [2]. Fat stigma is less distinct in countries like Turkey, Venezuela, and India [1]. Conversely, there are still many societies where big bodies do not have any negative value

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attached to them but rather have positive social meaning [3].

In the contemporary world, body size has been linked with the personality of individuals. In the west, obesity symbolises a lack of self-control or willpower, laziness, ineptitude, or indulgence, whereas slimness is equated with beauty, wealth, discipline, class, grace, intelligence, health, good, and attractiveness [4, 5]. Dietitians, physicians, nurses, medical students, and psychologists have also been found to hold biases toward people with excess weight [6]. On the other hand, among Jamaicans, thinness has a negative significance, marking it as mean and infertile [3]. A study based on nine Puerto Rican migrant women with excess weight has revealed that their community views thinness as feared and reviled [1]. However, thin idealism is finding its way to some historically fat-positive communities through media infiltration [1]. These differences send powerful messages about values attached to body shapes and sizes [7].

Self-perception of body size does not necessarily match up with the clinical definitions of normal weight, overweight, and obesity given by the World Health Organisation [8]. Several studies have been found that used the Stunkard Figure Rating Scale to examine body image perception and satisfaction [8, 9]. Prior studies [8–10] had reported on inaccurate body image assumptions and body dissatisfaction [8, 9, 11]. Women were found more likely than men to be dissatisfied with their bodies [8, 11–13] whereas men tended to have greater weight misperceptions compared to women [10–12]. Further, a study based in the UK by Emslie et al. [14] observed women's concern for their body image. They were more likely to feel heavier than men after controlling for self-esteem, age, occupational grade, and BMI. Women were also more likely to suffer from lower self-esteem and poor psychological well-being than men. Conversely, a study based in the UAE showed a higher prevalence of body image dissatisfaction among men than women [15].

In India, a study by Agrawal et al. [16] reported inconsistency between actual body weight and self-perceived body weight among 235 ever-married women aged 20–45 years in Delhi, with a sizeable proportion of overweight women underestimating their body weight. In another study, Agrawal et al. [17] demonstrated associations between higher body mass index (BMI) and experiences of stigma, discrimination, sexual dissatisfaction, and body image dissatisfaction, highlighting the social and psychological challenges faced by women with a larger body.

Perception of one's own body weight plays an important role in shaping health-related behaviours [18], as misperception of weight status may reduce individuals' awareness of health risks and influence their motivation to engage in dietary modification, physical activity, or weight management efforts. While several studies from Western contexts have examined body weight perception and body satisfaction, evidence from India remains limited, particularly studies that include both female and male participants and integrate quantitative assessment with in-depth qualitative exploration. This gap is notable given the rising prevalence of excess weight in India driven by rapid nutrition and lifestyle transitions. Several urban centres, including Kolkata, have reported particularly high levels of excess weight among adults. According to the National Family Health Survey (NFHS-4, 2015–16) [19], nearly two-fifths of adults in Kolkata had a high body mass index, placing the city among the highest-ranking urban districts in the country for excess weight prevalence. This urban context, characterised by socioeconomic diversity, changing dietary practices, and evolving lifestyle patterns, provides an important setting to examine these issues holistically. Accordingly, the present study explores body perceptions and satisfaction among adults with excess weight in the Kolkata metropolitan area using a mixed methods approach.

Material and methods

Study setting

In 2011, Kolkata had a population of 2.11 million aged 25–54 [20]. We selected Kolkata as the study location because it is the largest urban agglomeration in Eastern India and the country's oldest metropolis [21]. It has about 43 percent of the male and 41 percent of the female population aged 15–49 years with a BMI of 25 or higher, ranking 7th out of 640 districts, the highest among India's five major urban cities [22].

Study design

A concurrent mixed methods design was adopted. We collected and analysed the quantitative (close-ended) and qualitative (open-ended) data separately and then integrated them. We presented the drawing of the convergent mixed methods design in Fig. 1 [23, 24].

We employed purposive and snowball nonprobability sampling for this study's qualitative and quantitative aspects. Following the WHO [25] and the Consensus Guidelines [26] for Asian adults, we chose females and males with a waist circumference of 80 cm and 90 cm or higher and with a BMI of 25 or higher, aged 25–54 years residing in the Kolkata metropolitan area for the last six months as the sampled study population. Participants were contacted through existing professional and social networks, and referrals from earlier participants. No random calling or open social media recruitment was undertaken. Participants were met in person to obtain their prior consent before proceeding with the survey or interview. Interviewees were pre-informed that interviews would be audio recorded. We assigned a

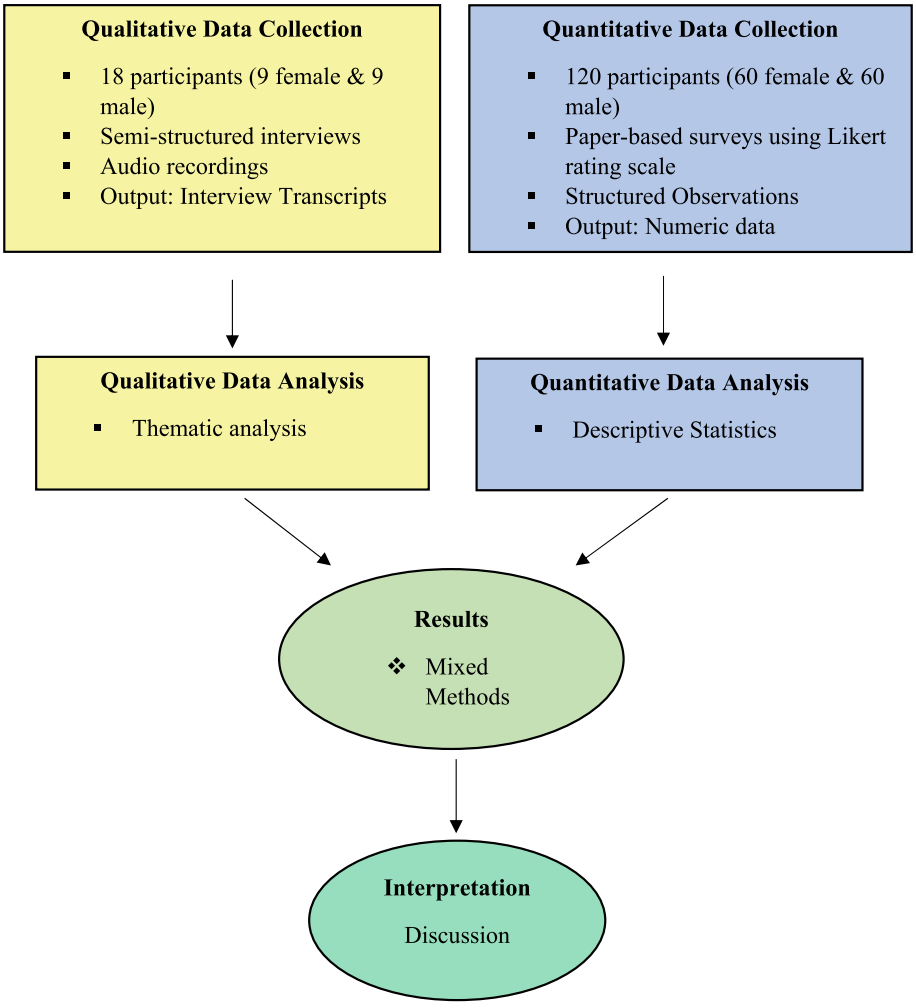

Fig. 1 Diagram of Concurrent Mixed Methods Design (Forman, 2019)

pseudonym for the interview participants. The principal investigator measured each participant's height, weight, and waist circumference. Thereafter, we calculated the BMI from height and weight. The investigator tried her best to be respectful, neutral, harmonious, and non-judgemental while conducting the surveys and the interviews [27]. Pre-approval for the primary data collection was obtained from the Jawaharlal Nehru University Institutional Ethics Review Board (IERB-JNU). Final results have been reported accurately and honestly to maintain the ethics of this study [27].

The Principal Investigator (PI) collected the data between November 2019 and October 2020. Data collection was temporarily interrupted and subsequently resumed during a period when local COVID-19 restrictions had been relaxed. During in-person surveys and interviews, COVID-19 safety protocols (such as maintaining hygiene, distancing) were followed. Due to the COVID-19 pandemic, weight-related stigma among people, and a lack of enthusiasm, time, and incentive, conducting surveys and interviews was challenging. The sample size for the quantitative survey was guided by the prevalence of excess weight in Kolkata. According to the NFHS-4, 2015–16, the prevalence of excess weight (BMI > =25) in Kolkata was 40.83 per cent. Using this prevalence with a 10% margin of error and a 95% confidence level, the minimum sample size was estimated as 93 participants (=$(1.96)^2$ * 0.4083*(1–0.4083)/$(0.10)^2$). To strengthen the quantitative component, the final survey sample was increased to 120 participants.

The study adopted a concurrent mixed methods design, in which quantitative and qualitative data were collected during the same period and analysed in parallel. As the quantitative analysis focused on describing patterns rather than testing a single primary hypothesis, a formal power analysis was not undertaken. In addition, 18 in-depth interviews were conducted to complement and contextualise the survey findings. Furthermore, women who had given birth during the last two months

preceding the data collection and pregnant women were not included.

Data collection

The close-ended quantitative survey questionnaire included a numeric description of the perception of the sampled population [28]. We assessed body satisfaction using the Figural Rating Scale (FRS), a validated nine-figure body image drawing scale developed by Stunkard, Sorensen, and Schulsinger (1983). The scale consists of nine silhouettes representing increasing body size, from very thin (figure 1) to very large (figure 9). Participants were asked to select figures corresponding to their perceived (felt) and ideal body sizes. The FRS figures and its original reference are provided in the Annexure. The quantitative sample consisted of 120 adults with excess weight and included both female and male. Demographic characteristics of the participants are presented in Table 1. Further, 3 items were used to identify the current body shape, size, and preference using the Stunkard, Sorensen, and Schulsinger (1983) Figural Rating Scale, i.e., a nine-figure body image drawing scale (Appendix), and another 1 item used a two-point dichotomous Likert scale to capture participants' perceptions regarding overweight and obesity.

Table 1 Descriptive statistics of the survey participants, Kolkata, 2019–20

Background Characteristics	Frequency (n)	Percentage (%)
Age (in years)		
25–34	44	36.67
35–44	33	27.5
45–54	43	35.83
Level of Education		
Up to Secondary	15	12.5
Up to Graduation	65	54.17
P.G. or Higher	40	33.33
Monthly Family Income		
Up to 40,000	25	20.83
40,001 to 80,000	39	32.5
Above 80,000	37	30.83
Don't Know/Prefer not to answer	19	15.83
Employment Status		
Not employed (Unpaid)	27	22.50
Employed	93	77.50
Household Members		
Up to five members	112	93.33
More than five members	8	6.67
Religious Beliefs		
Hinduism	85	70.83
Islam	5	4.17
Other	30	25
Social Group		
SC/ST	8	6.67
General/OBC	105	87.5
Can't Say/Don't Know	7	5.83
Mother Tongue		
Bengali	109	90.83
Others	11	9.17
Marital Status		
Unmarried	31	25.83
Married	89	74.17
Have Children		
Yes	79	65.83
No	41	34.17
Body Mass Index		
25 or higher	59	49.17
30 or higher	61	50.83
Waist Circumference		
Up to 102 cm	51	42.5
More than 102 cm	69	57.5
Total	120	

Source: Primary Survey, Kolkata, 2019-20

We prepared a semi-structured interview guide consisting of open-ended questions which was developed based on the study objectives, relevant literature, existing survey instruments and refined through pilot discussions to allow an in-depth understanding of the perception of the target population. The guide was also aligned with the quantitative questionnaire to facilitate an in-depth understanding of participants' perceptions. The semi-structured format allowed flexibility for participants to elaborate on issues they considered important. We conducted face-to-face interviews, and we audio-recorded the discussions. Each in-depth interview lasted approximately 20–25 min. In total, there three semi-structured questions with few sub-questions.

1. How would you describe/how do you feel about your weight/size/shape?
2. How satisfied are you with your body? Does your body weight affect your self-image in any way? Please tell me about it.
3. How would you describe a beautiful body? Is it similar for both sexes/women and men? How is the influence of media image on your self-esteem? Please tell me about it. Anything else would you like to share?

Analysis

We used descriptive statistics to summarise participants' demographic characteristics and survey responses, including frequencies and percentages, using Stata version 14.0. We assessed perceived body size using the nine-figure Figural Rating Scale (FRS). We asked participants to select the figure that best represented their current body size ('felt body size'). Each figure corresponds to a specific BMI range for men and women, based on

previously published mapping, which is presented in the Annexure.

We assessed body dissatisfaction using the Feel–Ideal Discrepancy (FID), calculated by subtracting the ideal body figure from the figure selected to represent the participant's perceived (felt) body size. Positive FID values indicated a desire to be thinner, while negative values indicated a desire to be fatter.

Further, we determined actual body size using measured height and weight, from which body mass index (BMI) was calculated. Based on WHO Asian cut-offs, participants were categorised as having obesity class I (BMI ≥ 25 kg/m^2; code 4) or obesity class II (BMI ≥ 30 kg/m^2; code 5).

We assessed weight status perception accuracy using the Feel–Actual Inconsistency (FAI) score. For analysis, we grouped the nine FRS figures into five perceived body size categories: figure 1 (category 1); figures 2-3 (category 2); figure 4 (category 3); Figs. 5–6 (category 4); and Figs. 7–9 (category 5). We calculated the FAI score by subtracting the actual BMI-based weight status code from the perceived body size category. An FAI score of zero indicated accurate perception, negative values indicated underestimation of body weight, and positive values indicated overestimation [13].

As the study sample consisted exclusively of adults with BMI ≥ 25 kg/m^2, corresponding to obesity under Asian-specific criteria, we used only categories representing obesity class I (figures 5-6) and obesity class II (figures 7-9) for actual BMI-based weight status classification. Lower figure categories, corresponding underweight, normal weight, or overweight, were therefore not applicable to this study.

Furthermore, we followed the six steps that Creswell [28] gave for the analysis of qualitative data: a) Transcribing the audio recording and writing up the field notes, b) Re-reading the data to reflect on the overall meaning and credibility of the transcripts, c) Writing a code for the appropriate sections which would be an abbreviation of the given topic, d) Further, codes are developed to form broad themes as a representative of the study findings e) connecting the themes with the narratives f) interpretation of the qualitative data with the literature. The principal investigator transcribed the interviews, which was a laborious process that took roughly 1–2 h per interview. We worked on two broad themes: 1) perception of the body; 2) body satisfaction.

Further, we merged the quantitative descriptive statistics with the qualitative narratives using quotes [28].

Quantitative results

We surveyed 120 participants, comprising 60 females and 60 males (Table 1). Among female participants, the mean BMI was 31.8 (SD = 5.34), and the mean waist circumference was 105 cm (SD = 10.82). Among male participants, the mean BMI was 30.7 (SD = 3.92), and the mean waist circumference was 107.9 cm (SD = 10.44). Table 1 presents the descriptive characteristics of the survey participants [23, 24].

Perception of the body

Around 80 percent of survey participants reported that they perceived a distinction between overweight and obesity. However, inconsistencies were observed in self-classification of weight status. About 32.5 percent of participants agreed or strongly agreed that their BMI fell within both the overweight and obesity categories, while 4.2 percent reported that their BMI fell within both normal and overweight ranges. Overall, very few participants perceived themselves as being of normal weight.

Concern about body weight was high, with 92.5 percent of participants agreeing or strongly agreeing that they were concerned about their weight. Most participants perceived themselves as overweight (Fig. 2). Female participants demonstrated relatively greater awareness of their weight status compared to males, with more females identifying themselves with obesity and more males identifying themselves as overweight.

Use of the visual figural scale appeared to support body size assessment. Female participants reported slimmer body preferences than males and showed a wider discrepancy between their perceived body size, ideal body size, and the body size they considered attractive. Mean Feel–Ideal Discrepancy (FID) values were positive for both sexes, indicating body dissatisfaction (Fig. 3).

Overall, participants tended to have realistic body size perceptions. However, gender differences were observed: females were more likely to underestimate their body size, while males were more likely to overestimate it (Fig. 4).

Body satisfaction

Nearly half of the participants (47.5%) agreed and 16.7 percent strongly agreed that they were dissatisfied with their bodies. Over half of the participants (51.7%) reported feeling ugly because of their weight. Approximately half of the participants perceived slimmer or muscular bodies as beautiful (50%), while 19.2 percent neither agreed nor disagreed.

Although some participants expressed ambivalence, a substantial proportion disagreed that they desired bodies commonly portrayed in media spaces (37.5% disagreed; 25.8% neither agreed nor disagreed). Most participants perceived maintaining an attractive body as requiring considerable effort, with 54.6 percent agreeing and 36.1 percent strongly agreeing with this statement.

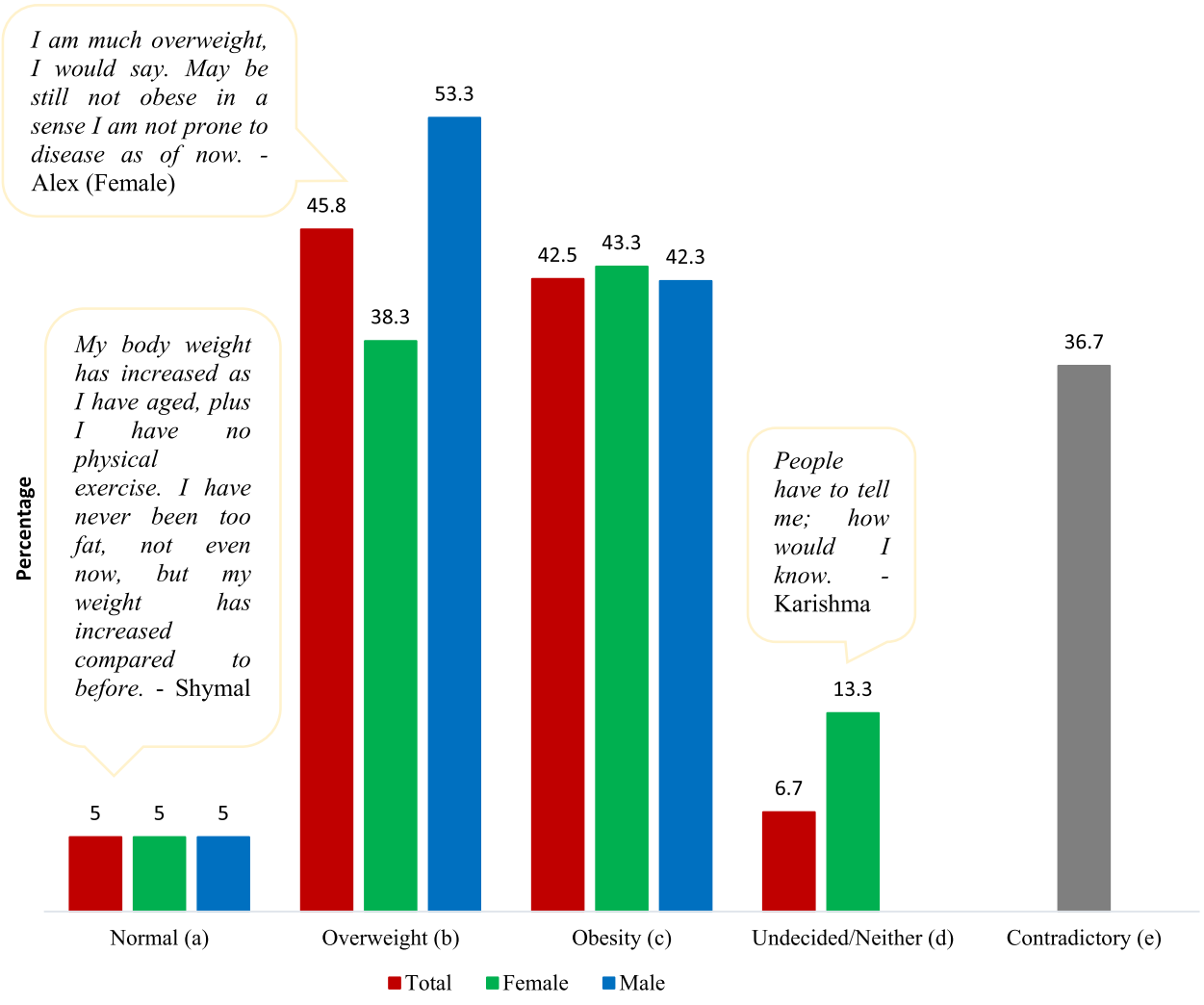

Fig. 2 Juxtaposed findings of quantitative and qualitative findings

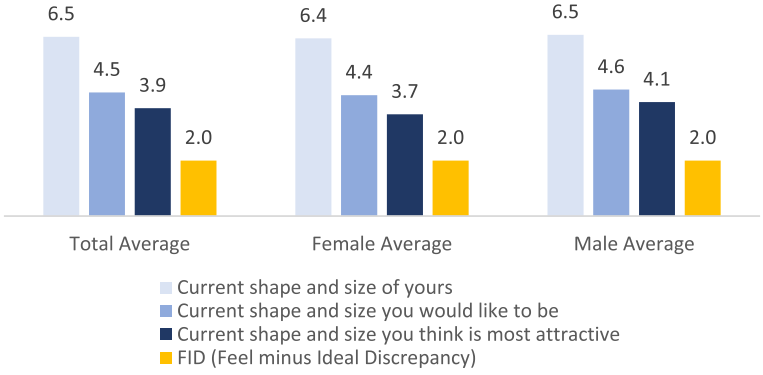

Fig. 3 The Figural Rating Scale: a nine-figure body image drawing scale (Adopted from Stunkard, Sorensen, and Schulsinger 1983)

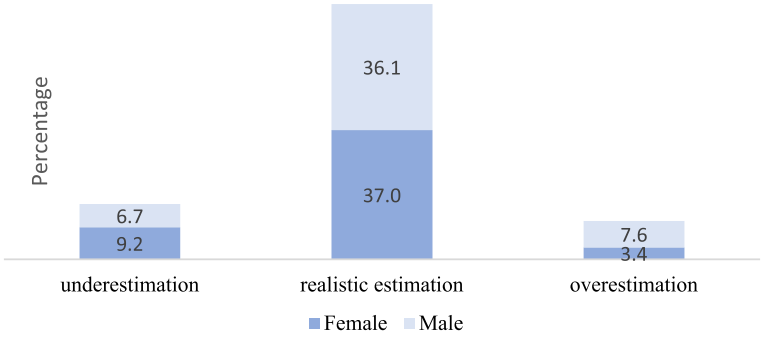

Fig. 4 Feel weight status minus Actual weight status inconsistency

Qualitative findings

We conducted in-depth interviews with 18 participants, comprising 9 females and 9 males (Table 2). The mean age of interview participants was 39 years. Table 2 presents the descriptive characteristics of the interview participants [19, 20].

Perception of the body

Most interview participants expressed limited clarity regarding the distinction between overweight and obesity. Nevertheless, they consistently reported concern about their body weight and generally perceived themselves as belonging to the overweight or obesity categories (Fig. 2).

Participants also articulated a preference for slimmer body ideals. As one female participant stated, *"The weight I have now, I do not like it."* – Nancy (Female). Another female participant expressed a desire to attain a toned body through physical activity, noting, *"Now I literally want to experience those model kind figure, those who are having a flat belly. Now I feel what if I do gym and want to see how I look with a flat belly with much reduced and toned body."* – Urba (Female).

Despite these preferences, most participants demonstrated a realistic understanding of their body size when reflecting on medical definitions. One participant remarked, *"If I go by the textbook, I am an obese person, but whether I feel obese or not, that is completely me."* – *Naomi* (Female), highlighting the distinction between clinical classification and personal perception.

Body satisfaction

Several interview participants expressed dissatisfaction with their bodies, often linking appearance to self-worth and social acceptance. Chetan (Male) noted, *"I am not at all satisfied. It affects me. Your looks matter. How presentable I look, it matters",* adding that social importance is often tied to appearance.

Female participants frequently reflected on long-standing social conditioning related to body image. Alex (Female) stated, "*I wish I could wear better dresses and feel a little good about myself. That feeling good about myself look wise was never there."* She further explained that such perceptions were shaped from childhood through repeated comments about body size and appearance.

Some participants described slim or muscular bodies as desirable. Charlie (Male) responded, "*Slim may also be square or straight, but there is still a beauty. Fat, however, resembles a ball. It looks unpleasant*". While David (Male) reflected on how such ideals are socially produced, noting that *"beauty"* is largely *"culturally constructed"* and strongly shaped by media representations.

Participants expressed differing views on whether standards of the 'beautiful body' were similar for women and men. While some perceived these expectations as gender-specific – *"For men, a good physique, they should be a bit muscular, not too thin, well-built, and for women should be proportionate not too thin."* – Tina (Female), others felt that body-related disorders affected both genders similarly.

Interview participants frequently discussed the role of media in shaping body ideals. Several expressed a desire for body types commonly portrayed in media, while also acknowledging media-driven pressures. Tina (Female) stated, *"Maybe that is how we have been brought up. That is how the commercial has shown us. Maybe that is how they sell products. So beautiful body comes from there only."* Another participant noted that repeated media exposure establishes markers of the "standard body" (David, Male).

At the same time, participants also criticised media portrayals of larger bodies. Some described the media as "rude" or "brutal" in reinforcing negative stereotypes. Tina (Female) highlighted the impact of popular television shows, stating, *"You feel that – fat people are a part of a joke. The 'Kapil Sharma comedian Show' what they do – they joke about fat people."* This reflects how local popular media may normalise body-based humour and reinforce negative perceptions of larger bodies within everyday cultural contexts.

Contrasting perspectives were also evident. One participant suggested that traditional beauty ideals were

Table 2 Descriptive statistics of the interviewees

Participant No	Age (in years)	Sex	Level of Education	Occupation	Monthly family income (INR)	Household members	Religious belief	Caste	Mother tongue	Marital status	Have Children	BMI	WC (in cm)
1	27	Female	Post Graduate	Service	Above 80,000	4	Hinduism	General	Bengali	Unmarried	No	33.5	117.5
2	31	Female	Post Graduate	Service	Above 80,000	4	Hinduism	General	Bengali	Married	Yes	30.3	105
3	33	Female	Graduate	Business	Above 80,000	4	Hinduism	General	Bengali	Married	No	37.3	123
4	37	Female	Graduate	Business	Above 80,000	3	Hinduism	OBC	Hindi/Bhojpuri	Married	Yes	26.6	98
5	38	Female	9th Standard	Homemaker	Don't Know	4	Hinduism	Can't Say/ Don't Know	Bengali	Married	Yes	26.5	93
6	40	Female	Post Graduate	Service	40,001 - 80,000	4	Omnism	General	Bengali	Separated	Yes	35.9	102
7	45	Female	Graduate	Homemaker	Above 80,000	3	Hinduism	General	Bengali	Married	Yes	36.3	112
8	46	Female	Graduate	Freelance Writer	Up to 40,000	3	Hinduism	General	Bengali	Married	Yes	31.6	99.5
9	51	Female	Graduate	Freelance Researcher	Above 80,000	4	Islam	No Caste	Bengali	Married	Yes	41.5	119
10	26	Male	Post Graduate	Private Tutor	40,001–80000	4	Humanism	ST	Bengali	Unmarried	No	33.3	111
11	28	Male	Post Graduate	Research Scholar	Above 80,000	4	Hinduism	General	Bengali	Unmarried	No	33.2	108
12	30	Male	Post Graduate	Private Tutor	40,001–80000	3	Non-believer	General	Bengali	Unmarried	No	27.1	96
13	37	Male	Higher Secondary	Service	Up to 40,000	2	Non-believer	General	Bengali	Unmarried	No	31.6	104
14	41	Male	Graduate	Business	40,001–80000	5	Hinduism	General	Bengali	Married	Yes	31.4	111
15	43	Male	Graduate	Service & Business	Up to 40,000	8	Hinduism	General	Bengali	Married	Yes	34.3	121
16	47	Male	Graduate	Service	40,001 - 80,000	2	Hinduism	General	Bengali	Widowed	Yes	30.8	106
17	50	Male	Higher Secondary	Business	40,001–80000	4	Humanism	General	Bengali	Married	Yes	37.5	127
18	52	Male	Graduate	Service/Author	Above 80,000	2	Non-believer	General	Bengali	Married	Yes	32.9	114

Source: Primary Survey, Kolkata, 2019-20

gradually shifting, noting increased representation of larger bodies in media and advertising aimed at promoting body positivity (Arpita, Female). Others expressed ambivalence toward their bodies, particularly in relation to life events such as pregnancy. One participant shared mixed feelings, stating satisfaction with her weight overall but dissatisfaction with specific body changes following childbirth (Karishma, Female).

Gender-based scrutiny of bodies emerged as a recurring theme. Tina (Female) added, *"People pay more attention to a woman's body compared to a man's. If a woman is fat, it is more problematic than a man because it is a man after all."*, underscoring how gendered social expectations shape experiences of body satisfaction.

Discussion

Overall, the findings indicate high levels of concern about body weight among these sampled adults with excess weight. Despite this concern, many participants demonstrated inconsistencies in their perception of weight status, suggesting that subjective understanding of body weight does not always align with clinical classifications. A strong preference for slimmer body ideals and widespread body dissatisfaction was evident across both quantitative and qualitative findings, with these patterns being more pronounced among female participants.

The present findings align with earlier studies by Agrawal et al., who reported inconsistencies between actual body weight and self-perceived weight status among urban Indian women, along with high levels of body dissatisfaction and stigma associated with excess weight. [16, 17] Similar to their observations, our study found that many participants misclassified their weight status and expressed dissatisfaction with their bodies. However, the current study extends this literature by including both female and male participants, employing a mixed-methods approach, and incorporating visual body perception measures alongside in-depth interviews. This allowed for a more nuanced understanding of how body perceptions, dissatisfaction, and sociocultural influences operate across genders in an urban eastern Indian context. Although behavioural change was not directly assessed in the present study, prior research suggests that inaccurate perceptions of body weight status may influence individuals' motivation to engage in health-related behavioural changes aimed at preventing and managing obesity and its associated complications [16, 22, 29]. Such misperceptions may also contribute to further weight gain over time [16].

Consistent with earlier research from India and other Asian contexts, the present findings suggest that thin idealism exists even in settings where overt fat prejudice may be less pronounced [2]. Prior studies among Asian populations have reported mixed findings, with some indicating greater body satisfaction and others demonstrating heightened weight concern and dissatisfaction [1]. Evidence also links excess weight with body dissatisfaction, stigma, and low self-esteem [17, 30, 31], reinforcing the interconnected nature of physical, psychological, and social dimensions of body image. Low self-esteem, in particular, is widely recognised as being associated with negative body image [32].

Studies suggest that the media tends to show the obesity epidemic in an overly simplified manner with a message of exercising more and eating less and which body type is acceptable and which is not [7]. The west's influence, preference for slimness and its dissemination through media infiltration are evident in the literature [1]. Previously, Greenberg et al. [33] found that heavier characters were highly underrepresented in television series and likely to be presented as humorous objects. As body image is culturally constructed, preferred body types vary across gender, culture, and social context, reflecting broader societal values about which bodies are considered desirable or undesirable [1].

Previous studies have consistently documented a preference for thin body ideals, particularly among women. Research using the Figural Rating Scale has shown that women often desire slimmer bodies than their current size [1]. Likewise, a prior systematic review showed that women were more concerned about obesity, more likely to seek treatment for weight loss [30], and had higher concerns for their body image than men [34]. These patterns highlight the gendered nature of body image experiences. The present findings further underscore the role of gendered social expectations in shaping body image. Women's bodies are more frequently subjected to scrutiny and evaluation, whereas men's bodies are less central to social judgement and are often associated with attributes beyond appearance [35]. This gendered imbalance contributes to greater pressure on females to conform to prevailing beauty ideals and may explain why female participants in this study reported higher levels of dissatisfaction and internalised body scrutiny. Media representations, both global and local, appear to reinforce these norms, as illustrated by participants' reflections on popular television content that normalises body-based humour and criticism.

Taken together, these findings highlight that body perception and satisfaction among adults with excess weight are shaped not only by individual awareness of body size but also by broader sociocultural, gendered, and media-driven influences. Understanding these contextual factors is essential for addressing body image concerns and designing more sensitive and effective public health approaches to obesity in urban Indian settings.

Strengths & limitations

The present study has a few limitations. Recruitment of the participants was challenging with low response rate likely attributable to lack of time, lack of incentive, and stigma associated with excess weight. Since this study resorted to purposive and snowball sampling procedures, it may have resulted in selection bias and hence may not be representative of the population. However, effort was made to recruit participants different city areas. Furthermore, amidst the COVID-19 pandemic and lockdown in the country, conducting surveys and interviews became more challenging and inconvenient, resulting in a low response rate.

Most survey items were subjective and hence could be confounding. In addition, the Feel–Actual Inconsistency (FAI) measure is based on visual figure selection from the Figural Rating Scale and involves approximate mapping of perceived body size to BMI categories. As such, some degree of misclassification and variation in individual interpretation of body silhouettes is possible, which may have influenced estimates of perception accuracy. Further, all the sampled participants included in the study had excess weight and were specific to the urban settings, generally with high income and education; therefore, the responses should not be generalised beyond similar context.

Despite these limitations, this study has several strengths. To our knowledge, no prior study explored body perceptions and body satisfaction among adults with excess weight in the Kolkata metropolitan area using a mixed methods approach. The integration of quantitative and qualitative data provided a comprehensive understanding of participants' perceptions and experiences. In addition, anthropometric measurements, including height, weight, and waist circumference, were directly measured by the principal investigator, ensuring objective assessment of body mass index. All participants had a BMI ≥ 25 kg/m^2, in accordance with WHO Asian guidelines for obesity.

Conclusions

This study examined the body perception and satisfaction among adults with excess weight in the Kolkata metropolitan area, India. Most participants perceived that they belonged to the overweight or obesity range, expressed a preference for slim body, and reported concern about their weight. Experiences of body dissatisfaction and low self-esteem were common, particularly among female participants, highlighting the gendered nature of body image concerns in this context.

Henceforth, emerging from the results and discussion, few statements can be made. These results underscore the need for greater public awareness that obesity is a complex health condition influenced by multiple biological, social, and environmental factors, rather than a simple outcome of overeating or inactivity. Approaches that emphasise internal health and well-being, alongside media literacy and community-level advocacy, may help reduce stigma and promote healthier and more supportive understandings of body weight.

Supplementary Information

The online version contains supplementary material available at https://doi.org/10.1186/s40359-026-04303-0.

Supplementary Material 1.

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Authors' contributions

Principal investigator: SB; Planned and conceptualised the study: SB, NS; Analysed: SB; Interpretation: SB; Wrote the paper: SB, NS. The views and opinions in the research article included within this publication are those of their respective authors and do not necessarily reflect the official policy or position of the United Nations Population Fund.

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Data availability

The datasets generated and/or analysed during the current study are not publicly available since this study is based on a primary survey. A supplementary appendix file has been provided for the survey items.

Declarations

Ethics approval and consent to participate

This mixed methods study involving human participants was conducted in accordance with the Declaration of Helsinki. Ethical approval for this study was obtained from the Institutional Ethics Review Board of Jawaharlal Nehru University (IERB-JNU), New Delhi (IERB Ref. No. 2019/Student/209], Date of approval: [17.10.2019]). Written informed consent was obtained from all participants prior to data collection. Participant data were anonymised and treated confidentially. This study did not involve the use of biological or human tissue samples.

Consent for publication

Written consent for publication of data in a journal was obtained from each participant before the survey and the interview.

Competing interests

The authors declare no competing interests.

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