Scope
Volume 13 Number 4 December 2023

Exploring the Enablers and Obstacles of Weight Reduction among Adults with Obesity in Urban Areas of Puducherry-A Qualitative Study

Mrs. Vembu.K [1], Dr. M J. Kumari [2], Dr. Venkatachalam J [3]

Tutor & Ph.D. Scholar, College of Nursing, JIPMER, Puducherry, India[1]
Professor cum Principal (Ag), College of Nursing, JIPMER, Puducherry, India [2]
Additional Professor, Dept. of Preventive & Social Medicine, JIPMER, Puducherry, India [3]

Corresponding Author: **Kumari MJ**

Abstract
Issues: Overweight and obesity are now rapidly expanding in low- and middle-income countries, particularly in urban areas. Designing a successful and comprehensive weight loss strategy necessitates an understanding of the motivators and constraints of weight loss. Through the experiences, emotions, and thoughts shared by obese adults in urban Puducherry. This study investigated the enablers and obstacles to weight management among urban adults with obesity. **Methods:** This study was conducted with urban adults who measure 25 or more body mass index using purposive sampling in urban areas of Puducherry. Using a semi-structured focus group discussion guide, four focus group discussions (FGD) were held with six to eight adult women in each FGD, totalling 27 obese individuals aged 18-50 years. Following the transcribing of the focus group conversation, codes and themes were identified using thematic analysis using a deductive and inductive approach. **Findings:** Subthemes that emerged as enablers include health concerns, free access to community health services, self-interest, adequate family support, and access to facilities, while obstacles include a lack of awareness in food preparation, routine dietary habits, frequency and type of food consumed, emotional factors, physical, personal, psychological, and social barriers. **Conclusion:** The findings indicate that a variety of factors influence lifestyle modification to reduce weight in the obese individuals. The findings help healthcare providers in considering those variables into account when devising scientific and realistic weight loss strategies to prevent non-communicable diseases.
Key-Words: Qualitative study, Focus group discussion, Enablers, Obstacles, Weight reduction, obese adults

1. Introduction

Overweight is defined as having a BMI more than or equal to 25, and obesity as having a BMI larger than or equal to 30.[1]India has over 30 million obese individuals, and the number is growing at an alarming rate. The issue is more pronounced in women than in males. More than 23% of women in urban India are overweight or obese, which is greater than the 20% incidence among males. The causes and co-morbidities of overweight or obesity are widespread and have many characteristics across populations. Although pinpointing the causes of this epidemic is difficult, the most evident variables contributing to overweight or obesity include an abundance of energy-dense foods, a sedentary lifestyle, and a lack of physical activity. The causes and co-morbidities of overweight or obesity are widespread and have many characteristics across populations. Although pinpointing the causes of this epidemic is difficult, the most evident variables contributing to

overweight or obesity include an abundance of energy-dense foods, a sedentary lifestyle, and a lack of physical activity.[2]An increased risk of disease, disability, and death is linked to obesity[3]. Metabolic risk factors can result in cardiovascular disease and causes early death.[4]Obesity and related health disorders and cardiovascular illnesses will account for the majority of the economic loss.[5]The average monthly cost of health was Rs. 143 for obese women, and Rs. 224 for severely obese women[6]. Even a 5% weight loss is expected to result in various health advantages, including improvements in blood pressure, blood cholesterol, blood sugars, physical mobility, and quality of life.[7]

Weight loss is a challenging phenomenon in which physical, environmental, and behavioural variables simultaneously disturb and aid calorie-controlled individuals in their attempt of negative energy balance. The qualitative research of weight management looks to be in its early stages, with profound insights into the weight-management journey beginning to surface in the literature.[8]The qualitative knowledge of weight loss, which precedes the weight-loss journey and can help identify the experiences and behaviours required for sustainable weight control, has received very minimal attention. There were many research has been done worldwide to explore the barriers on weightloss journey.[9] [10]However, only a few studies have been undertaken in this area in India, and in the systematic reviews conducted to address obstacles and facilitators, no articles from India were included, indicating a lack of research to address the qualitative component of the weight loss journey.[11]This qualitative approach helps to enable the modification and execution of the intervention to the clients. The study was to investigate the enablers and obstacles to weight reduction among obese adults in urban regions of Puducherry.

2. Literature Review

This section has reviewed some literatures regarding the impact of obesity and experience of obese people who is undergoing weight reduction. In India, a body mass index of 25 or higher is required for the diagnosis of obesity. It is advised to lose 5 to 10% of current weight over six months to reduce the risk of coronary heart disease and other illnesses. It will also allow adopting new, healthy lifestyle choices.[12] The prevalence of non-communicable diseases has increased from 30% of the total disease burden in 1990 to 55% in 2016 and from 37% of all deaths in 1990 to 61% in 2016.[13]

A study report showed that the majority of participants had strong self-awareness in creating healthy lifestyles as they expressed concern for their health. Before initiating a weight reduction program to practice a healthy lifestyle, especially among women, it is necessary to identify social support from family, friends, and co-workers.[14]

Malaysian study reported comparable physical limits such as knee and leg soreness that limited their involvement in everyday physical activities or workouts. This implies that to conduct proper activities, overweight persons require professional support and direction. A lack of exercise facilities in the neighbourhood, such as parks and play areas, acts as an impediment or a substantial barrier to losing weight.[14] When eating out, family members tempted women with high-energy and savory items but did not encourage them in their healthy food choices.[15]

Many foods served are now refined, sweetened and fat-rich, especially in the low- and middle income communities.[16]The Iranian study highlighted time as a hurdle for women to exercise.[17] Poverty, in other words, reduces an individual's purchasing power and, as a result, narrows one's food pattern. Due to restricted budgets, many people are unable to afford a balanced diet.[18]

2. **Objective of the study:** This study investigated the enablers and obstacles to weight management among urban adults with obesity

4. Methods of the Study

The study was initiated after obtaining approval from the Doctoral Committee No. JIP/CON/Ph.D./.RMC/2020 dated 16.09.2021, Institute Ethical Committee (IEC) for nursing studies No. JIP/IEC/Ph.D./2020/01 dated 20.10.2021. This study was conducted based on the grounded theory approach using constant comparative analysis.

5. Data collection

Obese adults were identified from the obesity list derived out of obesity screening carried out between February 2022 and April 2022. In order to get the data required for the study, the investigator contacted people and chosen only who were able to communicate well and were ready to devote the necessary time to the discussion. The purposive sampling technique was used to select the maximum variation in participants with obesity who were living in urban areas aged 18 and 50 years and conducted four focus group discussions covering all zones (east, west, north, south) of Puducherry from May 2022 to June 2022 at Anganwadi centre located at respective areas. Prior to the discussion, each participant affirmed their readiness to take part. Each participant sent a reminder the day before via phone calls and WhatsApp texts. Focus group discussions (FGDs) were held by the researcher using semi-structured focus group discussions guide at Anganwadi centres situated in respective places with 6–8 persons (separately for women and men) who were obese. Written consent has obtained from each participant before the discussion. The participants were informed that "you have the right to withdraw from the research at any time and for any reason. The information we gather from you will be kept for at least three years. Nobody will get access to your personal information. The study's findings will be disseminated in scholarly forums and journals without exposing your identify."Once everyone was at ease sitting in a circle, the investigator (facilitator) who is trained in community health and also has field experience begun the formal conversation. FGD was carried out in the regional tongue (Tamil). During the discussion, the participants were only referred to by their unique identification numbers.The note taker used two digital audio recorders to capture the conversation along with written notes and observations. The length of each session was 30 to 45 minutes.

The discussion wasusually begun with a general question, for example, 'Could you kindly describe your weight-loss experience?', 'What prevents you from adopting healthy lifestyle habits to lose weight?' and 'What things influence or hinder your weight reduction process?' The probing questions were posed in response to the replies of the participants. Throughout the discussion, every participant had the chance to contribute and express their individual perspectives and thoughts. At the end, the facilitator summarized the discussion with confirmation at the conclusion. In addition, the goal was reviewed, and participants were encouraged to question if anything was missing before saying thanks to everyone. Four FGDs has been carried out until information was saturating among participants. Overall, 27 women participated in the FGD.Tamil dialogue that was verbatim transcribed and translated into English on the same day. Examined all of the data several times, and the note taker's observations and notes were also used in the analysis of the data to confirm its validity. To make sure that the interpretation of the data was accurate and consistent, the transcription was contrasted with the note-notes takers to identify parallels and differences. Codes and themes were discovered using thematic analysis using deductive and inductive methods.[19]The investigators regularly held peer-debriefing meetings throughout the project. The data were analyzed by all authors to increase reliability, lessen the impact of researcher bias, and increase credibility.[20][21]Member checks included adjusting inaccurate statements by phoning participants and clarifying and examining concepts that had been extracted. Then, extracted ideas were analyzed and discussed with participants to increase credibility.Additionally, to improve transferability, the researcher selected participants from a variety of cultural and economic backgrounds. An independent qualitative researcher conducted an audit of the inquiries to improve reliability and conformability.

Patient and Public involvement: From all the participants, obtained written consent after explaining the procedure, benefits and risks involved in the study.

6. Data Analysis

Table no. 1 Demographic detail of the FGD participants n=27			
1	**Age group**	**Total no. of women**	**Percentage**
	18-28	4	14.8
	29-30	12	44.4
	40-50	11	40.7
	Total	27	100.0
2	**Religion**		
	Hindu	26	96.3
	Christian	1	3.7
	Total	27	100.0
3	**Marital status**		
	Unmarried	2	7.4
	Married	24	88.9
	Separated	1	3.7
	Total	27	100.0
4	**Education**		
	Uneducated	3	11.1
	Primary	2	7.4
	High school	8	29.6
	Higher secondary	7	25.9
	Diploma	13	3.7
	Degree	6	22.2
	Total	27	100.0
5	**Occupation**		
	Student	2	7.4
	Unemployed	16	59.3
	House wife	4	14.8
	Semi-skilled	5	18.5
	Total	27	100.0
5	**Family income**		
	≤10000	15	55.6
	10001-20000	10	37.0
	20001-30000	1	3.7
	>30001	1	3.7
	Total	27	100.0

Table no.2 Themes and categories of FGD on exploring enablers andobstacles of healthy eating on weight reduction with obese adults.			
Themes	**Sub themes**	**Codes**	**Quotes examples**
Enablers of healthy eating	Health concern	Known health condition/problems forced healthy eating	"I have diabetes type I. Since birth, I have been receiving insulin shots. I cannot eat what other people consume regularly... Breakfast ragi malt and at ten 'o'clock and fruit juice and buttermilk at eleven 'o'clock. I won't eat if I have to attend a wedding like events. This turned into a habit"- FGD 3 Participant no.4
		Homemade preferences/ choices put into them harmless diet	"I only eat meals that I make myself. Breakfast comprises of dosa, pongal, and idly. Lunch included sambar and kara kulambu, and dinner is also dosa."- FGD 2 Participant no. 2
	Accessible to community health services at free of cost	Receiving Doorstep health services	"Doctors and health workers use to hold meetings in our neighbourhood at Anganwadi centre. They give us meal instructions. We don't have anyone else to individually instruct us besides them"-FGD 1 Participant no.5
	Self interest	Attempt to modify eating	"I tried mam...Rice small amount and vegetables more. For one month and reduced 5 kg of body weight"- FGD 1 Participant no.4 "I am following drinking hot water and honey on empty stomach for 3 months"-FGD 2 Participant no.4
		Visiting medical professionals	I've taken the initiative on this. I used to speak with the medical staff at the government hospital and ask them about this (others having a good laugh). I once questioned how to get fit. They advise me to increase my intake of dal, vegetables, etc. I used to follow that. I started working hard to lose weight five years ago since I had been the focus a lot of... Currently, I am 80 kg"- FGD 1 Participant no.4.
Obstacles in healthy eating	Lack of awareness in food preparation	Inadequate knowledge on healthy foods	"I tried mam...Rice small amount and vegetables more. For one month and reduced 5 kg of body weight"- FGD 1 Participant no.4
		Inadequate knowledge on millets preparation	"If we buy idly batter, prepare quickly. But millets. But millets.... sometimes I make ragi kanji for the kids. But I will not eat since I dislike it"-FGD 4 Participant no.6
	Routine dietary habits	Inappropriate eating	"If I have tea in the morning, then I eat two idly., also our shop is in the 1st floor ... climbing stairs and coming down ... That solve... there is nothing like healthy diet"- FGD 4 Participant no.1
		Religious fasting	On Thursdays, Saturdays, Prathosam, Chankatakara Chaturthi and no moon days, I frequently fast. I usually break my fast after Pooja, from the previous evening's meal to the next day's noon. However, I like to sip tea and coffee. After Pooja, I merely prepare and eat meals". - FGD 2 Participant no.3
		Late dinner and less interval between dinner and sleep	"I have dinner at 10 "o" clock. I'll go to bed after a ten-minute break"- FGD 1 Participant no.7
		Post-lunch nap	"I am not going to job, I tend to sleep after lunch. I will not compromise and will sleep immediately after lunch"- FGD 1 Participant no.5

		Inattentive eating	"Lunch meals only. If available, night tiffin or leftover rice. I will not eat anything and will not prepare anything for myself."- FGD 3 Participant no.5
		Lack of self-attention in food preparation	"Just for Lunch meals. If there is any leftover rice I will have at night. I'm not going to eat anything or make anything for myself" - FGD 4 Participant no.5
	Frequency and type of food taken	Limited use of vegetables	"I have to add one poriyal every day, but only for a small amount. We don't utilize any fruits; only vegetables" - FGD 4 Participant no.5
		Excess use of Non-vegetarian foods	"I used to just eat non-vegetarian food during the week. I'm not including the vegetables" - FGD 3 Participant no.1
		Rare use of Millets	That flavor is not my favorite. Therefore, I would rather not include" - FGD 4 Participant no.6
		Excess use of Caffeinated beverages	"I'll take one large glass of tea from my childhood. That became the routine. I drink tea three times a day, but I can't function without it. Basically, we can't stop drinking tea for anything"- FGD 4 Participant no.2
		Unhealthy method of cooking	"We eat most of the time pan-fried fish not deep fried one"- FGD 3 Participant no.5 "I will eat fry and gravy. I eat chicken 65 and thanthuri more"- FGD 2 Participant no.1
		Having outside food	I occasionally eat chicken noodles, parotta, samosas, and puffs" - FGD 4 Participant no.5
	Emotional factors	Misjudgment about self	"I'll feel giddy if I don't drink tea." - FGD 1 Participant no.5
		Feeling discomfort and sleep after breakfast	"I'm skipping breakfast. I only drink juice. Solely lunchtime meals. Night time meal. I will fall asleep if I eat breakfast. I cannot work... due to this" - FGD 4 Participant no.2
		Lack of effort-indolence	"If we are committed, we can do it, but we are not." - FGD 2 Participant no.4
		Lack of self-interest to try healthy eating	"We have plans to raise our kids, but I have no plans to spend money on myself." - FGD 4 Participant no.6
		Disappointment	"Tried diet everything... But I still didn't lose weight after doing all of those things" - FGD 1 Participant no.6

Table no.3 Themes and categories of FGD on exploring enablers and obstacles of exercise practice on weight reduction with obese adults.

Themes	Sub theme	Codes	Quotes examples
Enablers of exercise practice	Adequate Family support	Spouse concern on health	My husband once said, Why do you always continue lying? Take a walk; if you lose weight, your PCOS will instantly be resolved"- FGD 3 Participant no.2.
	Access to facilities	Public places in neighborhood	We are close to a park. The maintenance is better now than it was before. Therefore, we can walk along that" - FGD 3 Participant no.6
	Self interest	Self-interest on weight reduction	"I have the attitude or the interest to do" - FGD 1 Participant no.2
		Attempt to do exercise	"I tried many exercises at home. But not regularly" - FGD 2 Participant no.2
Obstacles of exercise practice	Physical Barriers	Difficulty of doing	"Stretches I did, but next day I couldn't come out of bed, body pain. So I left. If I do yoga I'm getting hand and leg pain. So I don't"- FGD 3 Participant no.2
		Irregular on exercises due to health condition	My spine had surgery. They suggested exercising. Now I also dropped it… Now I feel that pain as well" – FGD 4Participant no.6
	Personal Barriers	Personal commitments	I am aware that physical activity calms my mind. Yet before getting married, everything was OK. But now that I'm married, I'm too busy caring for a child to do anything else" - FGD 2 Participant no.4
		Lack of time	"I don't want to go walking. Because I am having school going children. With them I spent fully. I don t have time"- FGD 1 Participant no.2
	Psychological Barriers	Lack of interest	"I don t have interest and mind set to do exercises"- FGD 1 Participant no.2
		No companionship	"If somebody wants to go for a walk with me, fine. Otherwise, no…"- FGD 4 Participant no.6
		Disappointment	"I attempted all the exercises, but nothing helped" - FGD 1 Participant no.6
		Not perceived the seriousness/ consequences of overweight	"From beginning of childhood I am like that only. After puberty I am fat. It maintains like that only."- FGD 1 Participant no.6
		Misjudgment about self	"I won't lose weight if I work out as well" -FGD 1 Participant no.2
	Social Barriers	Long sitting work hrs.	"I am a tailor. I sit for about five hours every day" - FGD 1 Participant no.4
		Inadequate facilities. Embarrassing in public place	"There isn't room at my residence. It's quite tiny. The roads in our region are poor. It rises and falls. Additionally, there are differences between walking on flat surfaces and uneven surfaces" - FGD 3 Participant no.2 Bikers used to turn to look at us as we were walking on the road… Some individuals they used to enjoy seeing. We won't encounter these problems if we go on the sidewalk or in a park. However, we don't have anywhere to walk like that. Yes, this is why I used to go for walks after 10 o'clock when nobody would be on the road. On the street, my husband used to sit"- FGD 2 Participant no.3

Results

Description of the study sample

Four FGDs were conducted with a total of 27 participants, all of whom were women. No men were interested in taking part. Twelve of the women were between the ages of 18 and 28, while four were between the ages of 18 and 28 and 26 women were Hindus, 24 were married, 13 women had completed diploma-level education, eight had finished high school, and three had no formal education. Out of the 27 total, 16 of the women has unemployed, while four were housewives and five were semi-skilled workers. A sum of 10 women and 15 women, respectively, were reported to have family incomes of less than Rs. 10000 and between Rs. 10,000–2000, respectively. (Table 1)

Themes

Enablers of healthy eating: Women's narratives revealed how they have gained knowledge on healthy eating and what is their preferences, what kind of attempts they have taken. Several subthemes emerged from this theme**:** Health concern, access to community health services free of cost, self-interest. Participants with known conditions that can be controlled or managed with adequate food restriction make an effort to learn about healthy eating and stick to dietary restrictions. The majority of participants expressed their satisfaction with the homemade preparations. People prefer to eat outside only on rare occasions and only in unavoidable circumstances. Participants are not interested in packaged foods from the outside. The majority of participants learned about weight management from their community health workers, nurses, and physicians during community health education meetings. The majority of participants tried various dietary restrictions rather than dietary modifications and sought medical attention. One participant shared that her weight reduction up to 5kg of body weight in a month with a small amount of rice and more vegetables indicate crash dieting and quick weight loss which seems to be unhealthy and not long-term oriented. One participant switched her entire family's diet from non-vegetarian to vegetarian to lose weight because her children were also obese. Some women drank the water and honey on an empty stomach to lose weight. (Table 2)

Obstacles in healthy eating: Lack of awareness in food preparation, routine dietary habits, frequency and type of food taken and emotional factors were identified sub-themes of Obstacles in healthy eating**.** Many women are unaware of the importance of eating a healthy diet for their personal health; instead, they consume the same like other family members. Other ladies restrict their dietary intake without creating a consistent plan to lose weight. Another woman expressed herself without any verification, weight loss can be accomplished with 90% exercise and 10% diet control. Many of the participants were not like the taste of millet and they don't like to add in a regular meal. Some of the participants were unfamiliar with the various millet-based foods and suitable cooking techniques. Some were aware that millet-based food takes very less time. Healthy eating is essential for living a healthier life. All of the individuals attempted to reduce weight by altering their eating habits. Many women were attempting to lower their carbohydrate intake by decreasing their white rice consumption.

One of the participants expressed that having a liquid diet in the morning makes them hungry and makes them eat heavier later in the form of tiffin. Many women were fasting 1-3 times every week for spiritual reasons. Many participants were Hindu families who do not eat non-vegetarian food on auspicious days. Many people fast by skipping the very first meal of the day, which reflects a natural diet restraint. During fasting days, many women drink caffeinated beverages on an empty stomach, which can produce stomach ulcers.Many participants use to have a habit of eating dinner late at night and falling asleep with timed periods. Many women have a habit of napping for more than an hour after lunch, which can cause them to gain weight again. Most people like to watch entertainment videos on mobile and watch television while eating every day. They also do not eat together because their jobs require them to work at separate times. In comparison to other family members, several participants were not paying attention to themselves when cooking food. Many participants kept eating fewer veggies in their daily lives. One participant revealed that eating non-vegetarian food all the day without veggies. She obtains plant nutrients solely from ingredients such as onion, tomato, ginger, and garlic used in the production of non-vegetarian meals. One of the participants consumes and shares 300g of vegetables per day with four people.One of the participants eats

non-vegetarian foods every day except on Hindu religious days. One of the participants reported that they eat non-vegetarian meals more regularly.Millets were disliked by several attendees. One individual entirely rejects using millets, claiming that it is difficult to acclimate to new tastes. Individuals in the community practice drinking tea or coffee in the morning and evening. Some of them become addicted to it. Some participants become hooked on it after taking it more than three or four times. Some participants take it from their childhood, and they used to drink a large glass of tea and it became a routine to them, and claims they can't stop drinking it. Deep-fried food consumption has been associated with weight gain, particularly in persons with a family history of obesity. Many participants have made little effort to change their dietary habits. Some of the participants have no desire to improve their eating habits.

Enablers of exercise practice: Adequate family support, access to facilities, self-interest. These sub-themes are further detailed below.
All of the participant's family members are encouraging their initiation of weight reduction. Many of the participants were having adequate facilities like public parks, school grounds, and some vacant roads for their walk.(Table 3)

Obstacles of exercise practice: Physical, personal, psychological, and social barriers were identified sub-themes of Obstacles to exercise practice. The majority of participants complain about the difficulty of performing exercises and the fear of negative outcomes such as leg discomfort, joint pain, stomach pain, thigh stiffness, body pain, and hand pain. Due to health issues such as back pain and anemia, the majority of the participants were inconsistent with their exercise regimen. Many of the participants have young school-age children and are committed to taking care of their families, which prevents them from prioritizing their health. Because many of the participants do not have any other aid to care for their family members, they do not devote time to their personal health, particularly exercise. Because of their lethargy, several participants were uninterested in exercising. One of the participants used to go for a walk if she is not getting enough sleep. One participant stated that walking with a companion will be more comfortable.
Some participants stated that workouts make a lot of positive changes in the beginning than later. One of the participants has been obese from infancy, and she accepts herself as such with no or little concern for the seriousness of her danger. The participant was not concerned about their danger and was comparing their eating habit to that of others who were not gaining weight. Many participants sit for long periods at work, resulting in physical inactivity. Some participants stated that walking on the road feels embarrassing in front of others. One participant mentioned not having adequate space at home for a home workout.

Conclusion: Avariety of factors affect effective weight loss. This study revealed that the main enablers were health concerns, free access to community health services, self-interest, adequate family support, and facility access, while the main impediments were a lack of knowledge regarding food preparation, regular dietary habits, frequency and type of food consumed, emotional factors, and physical, personal, psychological, and social barriers. Understanding the environment in which those elements function is essential. Future studies are required to evaluate the viability and efficiency of such interventions. Additionally, more qualitative methodology are required to investigate the elements influencing the success of weight loss initiatives at the community level, particularly from the perspective of Indian health planners.

Conflict of interest
The authors declare that there is no conflict of interest.

Acknowledgement
This study was part of a larger project supported by the Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER) in Puducherry, India. Our research team would like to thank all of the participants. The authors warmly recognise the excellent cooperation of Anganwadi workers and Anganwadi helpers in the research region.

Funding: This study was part of the larger project financially supported by the JIPMER Intramural Research Fund (Ref: JIP/Res/Intramural/Phs-3/2021-22 dated 11.12.21).

Ethics approval: Ethical approval for the study was provided by the Institute Ethical Committee (IEC) for nursing studies, JIPMER No. JIP/IEC/Ph.D./2020/01 dated October 20, 2021. Written informed consent was obtained from all the participants before initiating the discussion.

Author contributions

Mrs. Vembu K conducted focus groups and interviews, examined the information, and wrote the preliminary draft of the paper. **Dr. KumariMJ** worked to design the study, supervised the research, prepared the manuscript, and carefully reviewed it. **Dr. Venkatachalam J** contributed to the conception and design of the study, directed the research, drafted the manuscript, and carefully reviewed it. The article was read and approved by all authors.

References

1. Gouda J, Prusty RK. Overweight and Obesity among Women by Economic Stratum in Urban India. J Health Popul Nutr. 2014 Mar;32(1):79–88.
2. Prospective Studies Collaboration, Whitlock G, Lewington S, Sherliker P, et al. Body-mass index and cause-specific mortality in 900 000 adults: collaborative analyses of 57 prospective studies. Lancet. 2009; 373:1083-96.
3. World Health Organization. Newsroom-non communicable diseases. Geneva: WHO [accessed 2021 April 13].
4. Saliha Nasaline. Obesity hurting your health and pocket here’s how to manage costs and wellbeing. Economic times 21 Nov 2017. ET Bureau. economictimes.indiatimes.com
5. Agrawal P, Agrawal S. Health care expenditure associated with overweight/obesity: a study among urban married women in Delhi, India. Int J Community Med Public Health. 2015; 2:308-17.
6. Avenue 677 Huntington, Boston, Ma 02115. The Nutrition Source; Healthy Weight [accessed 2023 Oct 22]. www.hsph.harvard.edu
7. Rogerson D, Soltani H, Copeland R. The weight-loss experience: a qualitative exploration. BMC Public Health. 2016 May 4;16(1):371.
8. Gupta H. Barriers to and Facilitators of Long Term Weight Loss Maintenance in Adult UK People: A Thematic Analysis. Int J Prev Med. 2014 Dec; 5(12):1512–20.
9. Chambers JA, Swanson V. Stories of weight management: factors associated with successful and unsuccessful weight maintenance. Br J Health Psychol. 2012; 17: 223–43.
10. Tay A, Hoeksema H, Murphy R. Uncovering Barriers and Facilitators of Weight Loss and Weight Loss Maintenance: Insights from Qualitative Research. Nutrients. 2023 Mar 6; 15(5):1297.
11. National health portal. Obesity. India.2016. www.nhp.gov.in
12. Non-communicable diseases (NCD) Health & Family Welfare Department National Health Mission – WB Health. 2021. www.wbhealth.gov.in.
13. Metzgar CJ, Preston AG, Miller DL, et al. Facilitators and barriers to weight loss and weight loss maintenance: a qualitative exploration. J Hum Nutr Diet. 2015; 28:593-603.
14. Wirdah Mohamed, Syaznie Enre, Bee Poh, et al. A qualitative study of motivators and barriers to weight reduction practices among overweight and obese suburban Malay adults. Malaysian Journal of Nutrition. 2020; 26:471-85.
15. Ramachandran A, Snehalatha C, Shetty AS, et al. Trends in prevalence of diabetes in Asian countries. World J Diabetes. 2012; 3:110-7.
16. Sharifi N, Mahdavi R, Ebrahimi-Mameghani M. Perceived Barriers to Weight loss Programs for Overweight or Obese Women. Health Promot Perspect. 2013; 3:11-22.

17. Okop KJ, Ndayi K, Tsolekile L, et al. Low intake of commonly available fruits and vegetables in socio-economically disadvantaged communities of South Africa: influence of affordability and sugary drinks intake. BMC public health. 2019; 19:1–14.
18. Morse J.M. Critical analysis of strategies for determining rigor in qualitative inquiry. Qual. Health Res. 2015; 25: 1212–22.