

Exploring the Causes and Management Barriers of Maternal Obesity in Iran: A Qualitative Study

Elnaz Kalantari; Ph.D.¹, Maryam Tajvar; Ph.D.¹, Shohreh Naderimagham; Ph.D.^{2,3}, Amirhossein Takian; M.D.- Ph.D.^{1,4,5}

1 Department of Health Management, Policy, and Economics, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran

2 Elderly Health Research Center, Endocrinology and Metabolism Population Sciences Institute, Tehran University of Medical Sciences, Tehran, Iran

3 Endocrinology and Metabolism Research Center, Endocrinology and Metabolism Clinical Sciences Institute, Tehran University of Medical Sciences, Tehran, Iran

4 Center of Excellence for Global Health, Department of Global Health, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran

5 Health Equity Research Center, Tehran University of Medical Sciences, Tehran, Iran

Received October 2025; Revised and accepted March 2026

Abstract

Objective: Obesity is a global health threat, especially among women of reproductive age, and it adversely affects the health of both mothers and their children. This study aimed to identify and analyze the causes and management challenges of maternal obesity in Iran from the perspectives of key informants.

Materials and methods: This is a qualitative study. We conducted semi-structured, in-depth interviews with 20 experts, from September to December 2023. We analyzed data using Leichter's (1979) framework through an inductive-deductive approach, facilitated with MAXQDA 2020 software.

Results: We identified challenges in managing maternal obesity and categorized them into 10 main categories and 21 sub-categories, grouped within five constructs according to Leichter's framework: Situational factors (climate changes and international sanctions), Structural factors (high prevalence of overweight and obesity among women and unfavorable economic conditions), Socio-cultural factors (misconceptions and misuse of traditional Iranian medicine), Environmental or International factors (social norms and values, and the limited influence of international organizations), and Governance and Executive factors (weak governance by the Ministry of Health and Medical Education (MoHME) and poor inter-sectoral cooperation).

Conclusion: Addressing maternal obesity is essential to achieve Sustainable Development Goals (SDGs), particularly in low- and middle-income countries (LMICs). Current challenges such as food insecurity, economic decline, and insufficient maternal awareness threaten maternal health in relation to obesity. Tackling these issues requires a coordinated, multi-sectoral approach involving healthcare system strengthening, public awareness campaigns, and empowerment of women and families. Prioritizing maternal obesity within national health agendas is critical for an effective response. Further research on maternal obesity in Iran is recommended to uncover root causes and develop effective interventions, providing policymakers with the evidence needed for informed decision-making.

Keywords: Policy Analysis; Maternal Obesity; Causes and Challenges; Qualitative Study

Introduction

Correspondence:

Dr. Amirhossein Takian

Email: takian@tums.ac.ir

Obesity is a major global health threat, particularly among women of reproductive age (1), and represents a pressing concern in Iran, where over one-third of adult women are classified as obese—well above the



Copyright © 2026 Tehran University of Medical Sciences. Published by Tehran University of Medical Sciences.

This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International license (<https://creativecommons.org/licenses/by-nc/4.0/>).

Noncommercial uses of the work are permitted, provided the original work is properly cited.

regional average (2). Approximately half of these women experience preconception overweight or obesity, excessive gestational weight gain, and postpartum weight retention (3). Maternal obesity, defined as a body mass index (BMI) above recommended thresholds during pregnancy, is associated with adverse outcomes for both mothers and children, including childhood obesity and long-term cardiometabolic risks (4, 5). Effective management relies on healthy dietary habits, regular physical activity, and lifestyle interventions before and during pregnancy (6-8).

Lifestyle factors such as poor diet quality, physical inactivity, and overweight status are major contributors to maternal obesity (9). Evidence from Iran indicates that individual-level interventions—including lifestyle modification, motivational interviewing, and educational programs—combined with community-level strategies, effectively support maternal weight management (10-15). However, challenges persist due to socioeconomic constraints, cultural norms, and limited coordination among stakeholders (16, 17).

Most research in Iran and globally has focused on specific groups such as mothers or service providers (17-21). Insights from other key stakeholders, including policymakers, NGOs, and community organizations, remain limited but are essential for designing sustainable, multi-sectoral interventions. To address this gap, the present study explores perspectives from diverse community sectors to identify barriers and facilitators to the effective implementation of maternal obesity programs from the prenatal period up to two years postpartum.

Materials and methods

Data collection: We conducted 20 semi-structured, in-depth interviews in Tehran, Iran, from September to December 2023, using a flexible interview guide informed by Leichter's framework (22). The sample size was determined iteratively alongside data collection and concurrent analysis. As we reached data saturation by 20 interviews, this number was considered sufficient, in line with established qualitative research criteria for heterogeneous samples. We used maximum variation sampling to ensure participants' diversity and to enhance the credibility, confirmability, and transferability of the findings. Methodological evidence suggests that thematic and meaning saturation is typically reached within 15–24 interviews in studies involving diverse participant groups (23, 24). 15 interviews were held

at the participants' workplaces, while five were conducted virtually via Google Meet, each lasting between 40 and 90 minutes.

Sampling method: We used purposive sampling with maximum variation to select interviewees, considering factors such as scientific background, domain of activity, employment status, gender, and executive experience. Although some stakeholder categories were represented by a limited number of participants (2-4 per group), we ensured maximum variation at the overall sample level by purposively selecting individuals from different institutional affiliations and levels of decision-making authority. This approach facilitated cross-category comparison and triangulation of perspectives, which is consistent with qualitative research standards for heterogeneous, policy-oriented samples (23, 24). Snowball sampling was also used to identify additional participants.

We categorized interviewees into five groups: policymakers (PM), managers (M), academics and researchers (Aca), NGO representatives (NGOR), and service providers (SP) from various organizations related to maternal health, including the Ministry of Health and Medical Education (MoHME), Ministry of Education, municipalities, Health Network (Islamic Republic of Iran Broadcasting (IRIB))

, Scientific Association of Nutrition, universities, and research centers. Eligibility criteria included: (1) research experience in maternal obesity within governmental or non-governmental sectors, or (2) holding a position related to women's or maternal affairs in fields such as nutrition, physical activity, NCDs, or obesity within governmental or non-governmental sectors at the time of the study (Table 1).

Data analysis: We developed a generic interview guide based on a review of literature on maternal obesity, which was informed by Leichter's framework to capture policy, organizational, and societal contexts. Data analysis followed a hybrid inductive–deductive approach. Deductive coding was guided by Leichter's framework, while we also carried out inductive coding to identify emergent themes not captured by the predefined categories.

All interviews were transcribed verbatim and analyzed line by line. Open codes were iteratively generated, compared, and refined (25).

To enhance analytic rigor, we conducted coding through an iterative and reflexive process, involving repeated engagement with the data, constant comparison, and systematic refinement of codes and themes in relation to the original transcripts (26).

Table 1: Characteristics of Interviewees

Informant	Interviewee ID	Age	Gender	Level	Sector
Secretariat of Health and Food Safety (MoHME)	Aca 1	40-50	Female	National	Governmental
Non-Communicable Disease Management Office (MoHME)	M1	> 50	Male	National	Governmental
Community Nutrition Improvement Office (MoHME)	SP1	30-40	Female	National	Governmental
	SP2	30-40	Female	National	Governmental
	M2	> 50	Female	National	Governmental
Maternal Health Department (MoHME)	PM1	40-50	Female	National	Governmental
Food and Drug Organization (MoHME)	SP3	40-50	Female	National	Governmental
Iranian and Complementary Medicine Office (MoHME)	PM2	40-50	Male	National	Governmental
Food and Nutrition Policy Research Group (Institute of Nutritional Research and Food Industries)	Aca2	40-50	Female	National	Professional
Women's Health Group (Academy of Medical Science)	Aca3	> 50	Female	National	Governmental
Faculty of Nutrition Science and Food Industry (Shahid Beheshti University of Medical Sciences (SBMU))	Aca4	> 50	Male	Local	Professional
Children's Growth and Development Research Center (Iran University of Medical Sciences (IUMS))	Aca5	> 50	Female	Local	Professional
Community Nutrition Improvement Office (Tehran University of Medical Sciences (TUMS))	M3	30-40	Female	Local	Governmental
Department of Maternal Health (TUMS)	SP4	40-50	Female	Local	Governmental
Faculty of Nutrition and Dietetics (TUMS)	SP5	> 50	Male	Local	Professional
General Department of Health, Safety and Environment (HSE) (MoHME)	M4	> 50	Female	Local	Non-Governmental
Health network (in Islamic Republic of Iran Broadcasting (IRIB))	PM3	> 50	Male	National	Governmental
Health Office of the Ministry of Education	SP6	40-50	Female	National	Governmental
Dairy Products Industry	SP7	40-50	Male	Local	Non-Governmental
Scientific Association of Nutrition	NGOR1	> 50	Male	Local	NGO

We used MAXQDA 2020 software to facilitate data management and analysis.

Ethical considerations: We obtained ethical approval from the relevant institutional review board. We sought informed consent from all participants (written or documented verbally, depending on feasibility). Confidentiality and anonymity were ensured through de-identification of transcripts, and all audio recordings and transcripts were securely stored on password-protected devices accessible only to the research team.

Prior to the interviews, participants received information about the study and its objectives, and their verbally informed consent was obtained. Confidentiality was assured, and data were analyzed anonymously. The study was approved by the Ethical Committee of Tehran University of Medical Sciences (IR.TUMS.SPH.REC.1401.253).

Results

The contextual challenges influencing maternal obesity policy in Iran are presented according to Leichter's (1979) framework, encompassing situational, structural, socio-cultural, environmental (international), and Governance and Executive factors. These challenges were classified into ten main themes and 21 sub-themes, with a total of 63 codes reflecting how contextual conditions shape both the formulation and implementation of maternal obesity policies (Table 2). Detailed coding structures and additional quotations are provided in Supplement 1.

Situational Factors: Environmental and situational conditions emerged as immediate constraints on healthy behaviors. Climate change and air pollution were identified as significant barriers to physical

activity, particularly for pregnant women, by limiting safe outdoor exercise opportunities. Participants emphasized that such environmental conditions disproportionately affect vulnerable groups and reduce the feasibility of lifestyle-based interventions.

Economic sanctions were also perceived as a critical situational constraint, indirectly influencing maternal obesity through rising food prices and declining household purchasing power. Participants consistently linked sanctions to reduced food security and lower access to healthy diets, thereby undermining preventive nutrition strategies.

Structural Factors: At the structural level, participants highlighted the increasing prevalence of overweight and obesity among women of reproductive age as a major public health concern. This trend was attributed to nutritional transition, urbanization, sedentary lifestyles, and increased consumption of energy-dense foods. Structural economic pressures, particularly inflation and poverty, further constrain dietary choices, leading many mothers to prioritize calorie-dense foods over nutritionally diverse options.

Socio-cultural Factors: Socio-cultural norms and misconceptions were identified as key barriers to effective maternal weight management.

Persistent beliefs such as “eating for two” during pregnancy and misinterpretations of traditional health advice were reported to normalize excessive weight gain.

In addition, limited trust in public health services and fragmented use of public and private care pathways contributed to inconsistent adherence to standardized weight-management protocols: “Any mother can be effectively managed through our system, but some lack trust in the public system.” (PM1)

Table 2: Causes and Management Challenges of Maternal Obesity in the Study Based on Leichter's Framework

Main Theme	Sub-themes	Representative Codes (Primary) ¹
1. Situational Factors	1.1 Climate Changes 1.2 Sanctions	Limited physical activity due to air pollution; Increased food prices due to sanctions
2. Structural Factors	2.1 Prevalence of Overweight & Obesity 2.2 Economic Constraints	Urbanization-driven lifestyle changes increasing maternal obesity risk; Limited access to affordable healthy foods driving high-calorie dietary choices among mothers
3. Socio-cultural Factors	3.1 Misconceptions 3.2 Misuse of Traditional Medicine	Misunderstanding of healthy eating during pregnancy; Commercial exploitation of traditional medicine undermining healthy lifestyle promotion
4. External & International Factors	4.1 Social Norms & Values 4.2 Weak Influence of International Organizations	Cultural beliefs and practices promoting unhealthy maternal and child nutrition; Limited adaptation and support of international programs for addressing maternal obesity in Iran
5. Governance & Executive Factors	5.1 Weak Governance 5.2 Poor Inter-sectoral Coordination	Inadequate public sector coverage; Fragmented inter-sectoral programs

¹Full coding lists (all 63 codes) are provided in Supplement 1.

Supplement 1: Causes and Management Challenges of Maternal Obesity in the Study Based on Leichter's Framework

Construct	Themes	Sub-Themes	Codes
Situational Factors	Climate changes	Air Pollution	The Impossibility of exercising and walking outdoors Closure and restriction of sports facilities Increased incidence of drought Decrease in agricultural production (fruits, vegetables, wheat) Increase in food prices
		Decrease in Rainfall	Increase in the final price of food products Reducing purchasing power for healthy food Increased urbanization
Structural Factors	Prevalence of Overweight and Obesity among Women	Sanctions	Increase in exchange rate Imported agri supplies price hike Reducing purchasing power for healthy food
		Insufficient Physical Activity	Lack of exercise-friendly environments for mothers, especially during pregnancy Low motivation among mothers for physical activity Increased technology and consumption of ready-to-eat foods Irrigation of fruits and vegetables with untreated wastewater Pesticide residues in fruits and vegetables
	Unfavorable Economic Circumstances	Eating An Unhealthy Diet	Subsidies for rice, oil, and sugar contributing to obesity among women in low-income areas Increase in healthy food costs Shifts in dietary habits by income levels Limited access to healthy food leads mothers to choose cheaper, and high-calorie options Increase in gym membership fees
		Inflation	Shortage of funds for optimal food baskets by relief committees Reduced sports per capita and limited safe spaces Inefficient media revenue system due to budget deficits
Socio-Cultural Factors	Misconceptions	Decline in Economic Growth	
		Confidentiality Concerns about Girls' Health	Weak collaboration between the Ministry of Education and the MoHME on student obesity Ineffective implementation of the Iran Eco (Koch) plan Lack of mandatory weight monitoring for girls in educational centers Some mothers miss prenatal care for weight management Failure to continue prenatal care by the public sector High intake of fatty, and calorie-dense foods in deprived areas Eating double portions during pregnancy Inactivity and complete rest during pregnancy Selling medicine, not promoting a healthy lifestyle
External and International Factors	Misuse of Iranian medicine teachings	Negative Perceptions of Public Sector Pregnancy Care Misunderstandings of Traditional Nutrition Advice during Pregnancy Illicit Medicinal Practices in Herbal Shops	
	Social Norms and Values	Positive Attitudes towards Obesity	Improper food preparation (focus on salt, sugar, and fat) Preference for a fat child over a healthy-weight child during pregnancy Targeting programs for undernourished mothers with low BMI World Food Program's focus on food insecurity in low-income countries Neglect of maternal obesity
	Weak Power and Influence of International Organizations	Focusing International Programs on Low-Income Countries' Health Issues The Focus on International Programs (WHO and UNICEF) on Reducing Birth Rates	Lack of a successful global model to reduce maternal obesity Lack of support from international organizations for the country's population growth Policies Negative attitudes towards international programs Failure to follow guidelines

Supplement 1: Causes and Management Challenges of Maternal Obesity in the Study Based on Leichter's Framework (continue)

Construct	Themes	Sub-Themes	Codes
Governance and Executive Factors	Weak Governance of MoHME	No Integrated Info System for Women's Health	Private sector does not register mothers' BMI in the SIB system Lack of accurate statistics on obese women pre-pregnancy and postpartum Absence of a serious program to manage maternal obesity Insufficient network efforts in informing and educating Failure to screen overweight mothers before pregnancy
		Inadequate Coverage of Reproductive Services in PHC	Lack of access of mothers to nutrition education programs Limited access to nutrition experts due to their scarcity and high workload Inadequate follow-up on diet adherence
		Health Workforce Challenges	Inaccurate recommendations on physical activity during pregnancy Lack of motivation among midwives in managing maternal weight Poor skills of healthcare providers in dealing with obese women Weak psychological support for obese mothers
		Insufficient Reliable Evidence on the Consequences of Maternal Obesity	Maternal obesity is not prioritized over other metabolic diseases Only one maternal and child obesity research center in the country
		Inefficiency in Teamwork	Weak evidence on effective interventions for managing maternal obesity
	Weak Inter-Sectoral Cooperation		Isolated measures Lack of oversight structure for stakeholder activities and performance Promotion of unhealthy food products in mass media No health-oriented approach in processed food production
			Insufficient focus on sports infrastructure for mothers in urban planning
			Independent health initiatives by municipalities
			Charity organizations distributing powdered milk
		Parallel Efforts	

1. Situational Factors**1.1 Climate Change**

Climate change, including air pollution, significantly restricts physical activity. One interviewee stated: *“Exercising in polluted air increases the risk of inhaling harmful pollutants, especially during outdoor activities such as running, cycling, and walking. High-risk groups include children, the elderly, and pregnant women. To reduce harm, these groups must avoid outdoor exercise near busy roads and ensure adequate ventilation when exercising indoors”* (M4).

1.2 Sanctions

Sanctions have led to increased exchange rates, resulting in a decline in the country's food security. An interviewee noted: *“Sanctions affect exchange rates and increase import costs, which raises domestic product prices. Reduced incomes lower purchasing power, leading to higher living costs and less ability to afford healthy foods, thereby deteriorating diet quality”* (M2)

2. Structural Factors**2.1 Prevalence of Overweight and Obesity among Women**

Maternal Obesity in Iran

Overweight and obesity are increasing across all age and sex groups, particularly among women of childbearing age. One participant said: *“The primary causes of increasing obesity rates in Iran, like many developing countries, are unhealthy diets, overeating, and physical inactivity. Over the past two decades, average daily calorie intake in Iranians has risen from 2,000 to 3,000 calories, while 90% fail to engage in sufficient physical activity. Women are particularly more sedentary than men. This alarming trend of physical inactivity has also increased significantly in rural areas”* (M1). Due to lifestyle changes, modernization, and urbanization, a nutritional transition has occurred. Consumption of fatty and carbohydrate-rich foods combined with physical inactivity has made obesity a major public health problem in both developed and developing countries. One interviewee explained: *“Mothers nowadays tend to consume ready-to-eat foods. Years ago, we reduced mothers’ workload by increasing fast-food consumption, driven by factors such as urbanization, changes in family dynamics, higher education levels among women, and women’s employment outside the home”* (SP4).

2.2 Unfavorable Economic Circumstances

Rising inflation has pushed more mothers into lower socioeconomic status, forcing them to prioritize satiety through high-calorie foods such as carbohydrates and fats. An interviewee stated: *“In a society where over 60% of the population lives below the poverty line, people tend to satisfy hunger with carbohydrates and fats rather than fresh fruits and vegetables. High prices of fruits and vegetables, especially in urban areas, reduce their consumption. Since obesity mainly affects the lower-middle class, interventions and educational programs should primarily target this group”* (Aca4).

3. Socio-Cultural Factors

3.1 Misconceptions

The Ministry of Health and Medical Education (MoHME) and the Ministry of Education planned to collaborate to manage obesity among girls (future mothers), but confidentiality concerns hindered this partnership. One interviewee remarked: *“The nutrition of girls of reproductive age is critical. A few years ago, the ‘Koch’ program, designed by MoHME to screen overweight girls, refer them to health centers, and provide services, failed to gain cooperation from the Ministry of Education due to confidentiality issues”* (M3). Experts also noted that although public sector protocols exist to manage mothers’ weight before pregnancy, many mothers miss out on these benefits due to misconceptions about public services. Some mothers seek services intermittently from both public and private sectors. Another participant stated: *“Any mother can be effectively managed through our system, but some lack trust in the public system. Currently, mothers may visit both public and private clinics, which may not follow consistent protocols. The key task is to establish a nationwide unified prevention and treatment program”* (PM1). Additionally, some mothers misunderstand traditional advice on healthy eating and physical activity during pregnancy. One informant observed: *“In less privileged areas, misconceptions persist, such as the belief that consuming fatty parts and eating double portions is necessary for health during pregnancy”* (M3).

3.2 Misuse of Iranian Medicine Teachings

Misuse of traditional medicine is a concern. A policymaker described: *“Some traditional medicine practitioners prescribe treatments without properly understanding the potential dangers. These issues arise from exploiting religious and cultural interests to sell products rather than genuinely improving lifestyles”* (PM2).

4. External and International Factors

4.1 Social Norms and Values

While promoting a healthy lifestyle, including balanced diet and regular physical activity, remains a priority, a permissive attitude toward obesity persists in the country. One interviewee stated: *“Cultural attitudes toward obesity are still problematic. Historically, obesity was viewed positively, with lean individuals seen as weak. A chubby child is praised, reinforcing the belief that a woman’s value lies in preparing delicious food for her family”* (SP5).

4.2 Weak Power and Influence of International Organizations

The country generally holds a negative view of international programs due to their focus on birth rate reduction and issues relevant to very poor or high-income countries, which do not align with national cultural contexts. An interviewee remarked: *“UNICEF and WHO focus on malnutrition in poorer countries, while we face*

both malnutrition and obesity. Their emphasis on reducing birth rates is unacceptable here” (Aca2). Additionally, “The World Food Program primarily addresses food insecurity in low-income countries, targeting vulnerable groups such as children, pregnant mothers, and people with HIV. Recently, it has also addressed various forms of malnutrition, including vitamin and mineral deficiencies, obesity, and food shortages” (Aca4).

5. Governance and Executive Factors

5.1 Weak Governance of the MoHME

Integrating MoHME’s NCD programs into the Integrated Electronic Health System Records site (SIB) is a significant advance in health data recording in Iran. However, the private sector does not record maternal BMI data on this platform, impeding effective management of maternal obesity. One participant explained: “Pregnant mothers’ weight and weight trends are routinely measured and recorded in health centers. However, the private health sector does not register this data, leading to gaps in tracking overweight and obesity” (PM1). Another issue is inadequate public sector coverage of maternal services. An interviewee said: “At most, approximately 50% of pregnant women utilize government healthcare services. Over 65–70% of mothers in major cities rarely visit these centers. This low utilization likely results from inefficiencies in the healthcare network and inadequate outreach” (SP2).

Healthcare workers, midwives, and nutrition experts play a vital role by providing accurate advice on nutrition, physical activity, and healthy lifestyles. One interviewee noted: “Healthcare providers often give inaccurate or impractical advice on physical activity; staff are not well-trained in exercise specifics. Moreover, midwives’ authority has been undermined, and now they are employed as general healthcare workers in health centers” (SP4). This shift from midwifery services to other roles, such as elderly care, causes demotivation. “Policymakers should address this issue, as midwives are crucial for effective maternal weight management” (Aca1).

In Australia, clinical guidelines for maternal obesity emphasize psychological support from healthcare providers to help mothers manage weight, including training providers in effective, non-judgmental communication. Similar training is needed in Iran. One interviewee said: “Our country mandates respecting pregnant mothers without discrimination based on culture, ethnicity, or race. While general psychological support is emphasized, there is insufficient focus on obesity” (SP4).

Currently, a research center focuses on maternal and child obesity. The head of the West Azerbaijan Maternal and Child Obesity Research Center suggested that, due to regional cultural and nutritional differences, similar centers should be established in every province to address local issues: “The current focus is more on general care than on managing maternal weight. To prioritize maternal weight, research is needed to investigate relationships between inappropriate weight gain and pregnancy outcomes” (PM1).

5.2 Weak Inter-Sectoral Cooperation

Effective obesity management requires strong cooperation among sectors; however, fragmented actions and poor oversight hinder progress. One interviewee stated: “The main issue is not just the lack of plans but also poor implementation. Several approved programs remain unimplemented due to inadequate coordination and teamwork among sectors such as the Ministry of Education, MoHME, and municipalities” (Aca4, SP5).

Mass media contribute to obesity by promoting unhealthy foods despite regulations against such advertising. An interviewee noted: “Broadcast media often promote harmful products despite laws prohibiting these advertisements. The companies funding these ads typically sell unhealthy goods” (PM3).

Municipalities oversee urban health but operate parallel to the health system with inconsistent quality. Ensuring compliance requires strong inter-departmental cooperation. One participant said: “Municipalities independently establish health houses that are technically weak. More authority and capability are needed to improve their services” (M4).

Scientific evidence supports breastfeeding as beneficial for maternal and child health and obesity management. However, despite laws requiring milk powder distribution only through pharmacies, charities undermine breastfeeding by distributing powdered milk themselves. An interviewee explained: “Charities often replace breastfeeding with milk powder distribution due to limited health literacy, highlighting the need for better oversight” (Aca5).

Participants also raised concerns about the misuse of Iranian traditional medicine teachings, particularly when applied without scientific oversight.

External and International Factors: At the international level, participants noted a limited alignment between global health initiatives and Iran's national priorities. While international organizations increasingly address obesity, their programs were perceived as insufficiently adapted to Iran's dual burden of malnutrition and obesity. Cultural resistance to externally driven agendas further weakened the influence of international actors on national maternal obesity policies.

Governance and Executive Factors: Governance-related challenges were described as central to the ineffective management of maternal obesity. Weak inter-sectoral coordination, incomplete data integration between public and private healthcare systems, and limited coverage of maternal health services constrained policy implementation: *"Pregnant mothers' weight and weight trends are routinely measured and recorded in health centers. However, the private health sector does not register this data, leading to gaps in tracking overweight and obesity."* (PM1)

Participants emphasized that insufficient training of healthcare providers, particularly midwives, reduced the quality and consistency of counseling on nutrition and physical activity during pregnancy.

Fragmented responsibilities across ministries, municipalities, media organizations, and charitable institutions further undermined coordinated action. Inconsistent regulation of food advertising and inadequate oversight of breastfeeding promotion were identified as examples of governance gaps that indirectly contribute to maternal obesity.

Discussion

Using Leichter's framework, this study demonstrates that maternal obesity in Iran is the result of interacting situational, structural, socio-cultural, governance, and international determinants rather than individual lifestyle choices alone. This finding is consistent with previous Iranian qualitative studies that emphasize the multi-layered nature of obesity and the limited effectiveness of purely behavior-focused interventions (27, 28).

At the situational level, climate change, air pollution, and drought were identified as indirect but influential constraints on physical activity and food availability. Iranian studies have similarly reported

environmental barriers—particularly air pollution and unsafe urban spaces—as major obstacles to physical activity among women, including during pregnancy (29, 30). Our findings extend this literature by linking climate-related agricultural decline to increased food prices and reduced dietary quality.

At the structural level, as conceptualized within Leichter's framework (1979), rising food costs, subsidy policies favoring energy-dense foods, and urban lifestyle changes are key drivers of maternal obesity in Iran. Economic pressures and food insecurity disproportionately influence women's dietary choices, leading to increased consumption of cheap, high-calorie foods and limited access to nutrient-rich options (31, 32). Nearly 50% of pregnant women now have a BMI over 25 kg/m², reflecting the combined impact of dietary transitions, reduced physical activity, and urbanization (33, 34). Inadequate subsidies for healthy foods and insufficient investment in physical activity infrastructure further exacerbate these risks, with over 87% of urban households failing to meet recommended fruit and vegetable intake (35-37).

These structural determinants underscore the need for multisectoral policy interventions—including revised subsidy schemes, fiscal measures targeting unhealthy foods, and strengthened support for women's physical activity—to mitigate maternal obesity and improve population-level maternal health outcomes.

Socio-cultural factors, including misconceptions such as "eating for two" and avoidance of physical activity during pregnancy, have been widely documented in Iranian maternal health studies (38, 39). Importantly, this study shows that such beliefs are reinforced by fragmented health education and weak coordination between the Ministry of Health and the education system, suggesting that cultural barriers are institutionally sustained.

At the governance level, weaknesses in the Ministry of Health and Medical Education—such as limited provider training, inadequate follow-up, and stigmatizing communication—were identified as central barriers. Similar concerns have been reported in Iranian qualitative studies examining prenatal care quality and women's trust in public health services (40, 41). These governance failures interact with socio-cultural stigma, reducing service utilization and continuity of care.

Finally, international and external factors, including economic sanctions and limited contextual

adaptation of global programs, further constrain maternal obesity policy implementation. Previous studies have documented how sanctions exacerbate food insecurity and reduce household purchasing power, indirectly increasing reliance on unhealthy diets in Iran (42). Participants emphasized that many international health initiatives are insufficiently aligned with Iran's complex nutritional context, where undernutrition, overweight, and obesity coexist. While global programs have historically been shaped by international population policies—particularly those emerging from major conferences on population control and reproductive health between 1945 and 1994 (43)—their primary focus on fertility reduction may limit their responsiveness to contemporary challenges such as maternal obesity. Although these policies contributed to the global decline in fertility rates (44), the findings of this study suggest that without contextual adaptation to Iran's dual burden of malnutrition and obesity, international initiatives are unlikely to achieve meaningful or sustainable impacts on maternal nutrition outcomes.

Our findings underscore the need for a coordinated, multi-sectoral policy response to maternal obesity in Iran. Policymakers should move beyond individual-level education and prioritize structural reforms (45, 46), including revising food subsidy policies to promote access to healthy foods, strengthening inter-sectoral collaboration between the MoHME, municipalities, and media organizations, and integrating maternal obesity management into national Non-Communicable Disease (NCD) strategies (47, 48). Evidence from other healthcare contexts, including asynchronous telemedicine, shows that user satisfaction depends on service design and provider communication (49). Improving provider training in non-stigmatizing communication, expanding access to nutrition and physical activity counseling, and establishing regional maternal obesity research and intervention centers could enhance program effectiveness (50, 51). At the international level, adapting global guidelines to Iran's socio-economic and cultural context is essential to ensure policy relevance and sustainability (52).

To the best of our knowledge, this is the first qualitative study in Iran to examine maternal obesity from a multi-sectoral, policy-level perspective using Leichter's framework, providing critical insights into its determinants and informing strategies to mitigate related public health consequences, particularly in

Upper Middle-Income Countries (UMIC) with contexts like Iran.

Despite the valuable insights generated, several important limitations should be acknowledged. The absence of precise national statistics constrained our ability to provide a quantitative description of the maternal obesity situation in Iran. Moreover, although the sample included 20 stakeholders, the small sample size limits the generalizability of the findings. Nevertheless, data saturation was achieved based on established qualitative research criteria, and the use of maximum variation sampling contributed to enhancing the credibility and transferability of the findings.

Maternal obesity significantly impacts all stages of Maternal and Child Health (MCH), from pre-pregnancy to postpartum (53), and presents various obstetric challenges (54). Addressing maternal obesity is essential for achieving Sustainable Development Goals (SDGs), particularly in Low- and Middle-Income Countries (LMICs) (55). This study provides crucial insights for designing targeted interventions to manage maternal obesity effectively, emphasizing that successful strategies must tackle multiple factors rather than focus solely on individual aspects. Challenges to behavior change can arise from family characteristics, community interactions, immediate environments, and broader social, environmental, and political contexts (3).

Further research recommendations

- Conduct additional studies on maternal obesity in Iran to better identify causes, consequences, and preventive interventions, especially in regions with higher obesity rates among women.
- Build a robust evidence base and translate findings into actionable insights for policymakers to develop informed and effective policies.
- Explore the impact of cultural beliefs and practices on maternal obesity and develop culturally sensitive interventions.
- Analyze the influence of social media and digital technologies on maternal dietary and lifestyle choices.
- Assess the effectiveness of existing interventions and programs aimed at maternal obesity management.

Conclusion

Given the current challenges in Iran—such as food insecurity, lifestyle changes, economic downturns, instability, cultural shortcomings, insufficient maternal awareness, and governance problems—

maternal health may be increasingly compromised. Addressing these challenges requires coordinated, multi-sectoral efforts. Key actions include strengthening the healthcare system, reforming subsidy policies to support access to healthy foods, increasing women's involvement in urban planning, enhancing public awareness, and empowering families. Furthermore, prioritizing maternal obesity within non-communicable disease prevention programs and national nutrition initiatives, alongside reinforcing cultural, social, and governance frameworks, is essential.

Conflict of Interests

Authors declare no conflict of interests.

Acknowledgments

This work is a part of PhD thesis for the degree of PhD policy, funded by Tehran University of Medical Science (TUMS).

References

1. Khoramabadi M, Dolatian M, Hajian S, Zamanian M, Taheripana R, Sheikhan Z, et al. Effects of Education Based on Health Belief Model on Dietary Behaviors of Iranian Pregnant Women. *GJHS*. 2015;8(2):p230.
2. Global Nutrition Report, Country Nutrition Profiles: Iran (Islamic Republic of). <https://globalnutritionreport.org/resources/nutrition-profiles/asia/southern-asia/iran-islamic-republic>.
3. Briony Hill. Expanding our understanding and use of the ecological systems theory model for the prevention of maternal obesity: A new socioecological framework. *Obesity Reviews*. 2020;22(3).
4. Heslehurst N, Newham J, Maniopoulos G, Fleetwood C, Robalino S, Rankin J. Implementation of pregnancy weight management and obesity guidelines: a meta-synthesis of healthcare professionals' barriers and facilitators using the Theoretical Domains Framework. *Obes Rev*. 2014;15(6):462–86.
5. Awoke MA, Skouteris H, Makama M, Harrison CL, Wycherley TP, Moran LJ. The Relationship of Diet and Physical Activity with Weight Gain and Weight Gain Prevention in Women of Reproductive Age. *J Clin Med*. 2021;10(11):2485.
6. McAuliffe FM, Killeen SL, Jacob CM, Hanson MA, Hadar E, McIntyre HD, et al. Management of prepregnancy, pregnancy, and postpartum obesity from the FIGO Pregnancy and Non-Communicable Diseases Committee: A FIGO (International Federation of Gynecology and Obstetrics) guideline. *Int J Gynecol Obstet*. 2020;151(S1):16–36.
7. OECD, The Heavy Burden of Obesity: The Economics of Prevention. https://www.oecd-ilibrary.org/social-issues-migration-health/the-heavy-burden-of-obesity_67450d67-en.
8. Ku CW, Leow SH, Ong LS, Erwin C, Ong I, Ng XW, et al. Developing a lifestyle intervention program for overweight or obese preconception, pregnant and postpartum women using qualitative methods. *Scientific Reports*. 2022;12(1):2511.
9. Spencer L, Rollo M, Hauck Y, MacDonald-Wicks L, Wood L, Hutchesson M, et al. The effect of weight management interventions that include a diet component on weight-related outcomes in pregnant and postpartum women: a systematic review protocol. *JBI Database System Rev Implement Rep*. 2015;13(1):88–98.
10. Farajzadegan Z, Pozveh ZA. The design of maternal centered life-style modification program for weight gain management during pregnancy - a study protocol. *J Res Med Sci*. 2013;18(8):683–7.
11. Saffari M, Pakpour AH, Mohammadi-Zeidi I, Samadi M, Chen H. Long-Term Effect of Motivational Interviewing on Dietary Intake and Weight Loss in Iranian Obese/Overweight Women. *Health Promot Perspect*. 2014;4(2):206–13.
12. Nourizadeh R, Azami S, Farshbaf-Khalili A, Mehrabi E. The Effect of Motivational Interviewing on Women with Overweight and Obesity Before Conception. *J Nutr Educ Behav*. 2020;52(9):859–66.
13. Kiani Asiabar A, Amin Shokravi F, Hajifaraji M, Zayeri F. The effect of an educational intervention in early pregnancy with spouse's participation on optimal gestational weight gain in pregnancy: a randomized controlled trial. *Health Educ Res*. 2018;33(6):535–47.
14. E E, S MAC, A FK, M AJ, M M. The effect of a lifestyle training package on physical activity and nutritional status in obese and overweight pregnant women: A randomized controlled clinical trial. *International journal of nursing practice*. 2022;28(6).
15. Rassam F, Khedmat L, Khatami F. Effects of Community-Based Interventions in Reducing the Obesity and Overweight Rate among Iranian Women Using Urban Health Equity Assessment and Response Tool. *International Journal of Travel Medicine and Global Health*. 2019;7(3):99–104.
16. Bonakdar SA, Dorosty Motlagh AR, Bagherniya M, Ranjbar G, Daryabeygi-Khotbehsara R, Mohajeri SAR, et al. Pre-pregnancy Body Mass Index and Maternal Nutrition in Relation to Infant Birth Size. *Clin Nutr Res*. 2019;8(2):129.

17. Mehrabi F, Ahmaripour N, Jalali-Farahani S, Amiri P. Barriers to weight management in pregnant mothers with obesity: a qualitative study on mothers with low socioeconomic background. *BMC Pregnancy Childbirth*. 2021;21(1):779.
18. Flannery C, McHugh S, Anaba AE, Clifford E, O'Riordan M, Kenny LC, et al. Enablers and barriers to physical activity in overweight and obese pregnant women: an analysis informed by the theoretical domains framework and COM-B model. *BMC Pregnancy Childbirth*. 2018;18(1):178.
19. Baheiraei A, Mirghafourvand M, Charandabi SMA, Mohammadi E. Facilitators and Inhibitors of Health-promoting Behaviors: The Experience of Iranian Women of Reproductive Age. *Int J Prev Med*. 2013;4(8):929–39.
20. Kaloiya GS, Kaur T, Ranjan P, Chopra S, Sarkar S, Kumari A, et al. Counselling and Behaviour Modification Techniques for the Management of Obesity in Postpartum and Midlife Women: A Practical Guide for Clinicians. *J Obstet Gynaecol India*. 2022;72(2):134–40.
21. Madden SK, Blewitt C, Hill B, O'Connor A, Meechan D, Skouteris H. "It's just the nature of the work": Barriers and enablers to the health and well-being of preconception, pregnant and postpartum working women in a community service organisation. *Health Soc Care Community*. 2022;30(6):e6475–86.
22. Leichter HM. *A Comparative Approach to Policy Analysis: Health Care Policy in Four Nations*. 1st ed. New York: Cambridge University Press, 1979.
23. Guest G, Namey E, Chen M. A simple method to assess and report thematic saturation in qualitative research. *PLoS One*. 2020;15(5):e0232076.
24. Hennink MM, Kaiser BN, Marconi VC. Code Saturation Versus Meaning Saturation: How Many Interviews Are Enough?. *Qual Health Res*. 2017;27(4):591–608.
25. Fereday J, Muir-Cochrane E. Demonstrating Rigor Using Thematic Analysis: A Hybrid Approach of Inductive and Deductive Coding and Theme Development. *International Journal of Qualitative Methods*. 2006;5(1):80–92.
26. Braun V, Clarke V. Reflecting on reflexive thematic analysis. *Qualitative Research in Sport, Exercise and Health*. 2019;11(4):589–597.
27. Borazjani M, Amini M, Faghih S. Perceived Barriers to Weight Loss: A Qualitative Study of the Lived Experiences of Women with Obesity in Shiraz. *Journal of Nutrition and Food Security*. 2022;7(1):60–8.
28. May LE, Moss SJ, Szumilewicz A, Santos-Rocha R, Shojaeian NA. Barriers and Facilitators of Physical Activity in Pregnancy and Postpartum Among Iranian Women: A Scoping Review. *Healthcare (Basel)*. 2024;12(23):2416.
29. Mirzania M, Yunesian M, Gharibzadeh F, Firooz MH, Sanei AZ, Moeini P. Barriers to active transport modes in Tehran, Iran: a qualitative study from the citizens' perspective. *BMC Public Health*. 2025;25(1):2015.
30. Mahdavian B, Soleimani Z, Selk-Ghaffari M, Pourgharib shahi MH, Masoumi S, Kordi R. Barriers to physical activity in the Iranian population: findings from the STEPwise surveillance 2021. *BMC Public Health*. 2024;24:2610.
31. Alimoradi Z, Kazemi F, Estaki T, Mirmiran P. Household food security in Iran: systematic review of Iranian articles. *Advances in Nursing & Midwifery*. 2015;24(87):63–76.
32. Hejazi J, Emamgholipour S. The Effects of the Re-imposition of US Sanctions on Food Security in Iran. *Int J Health Policy Manag*. 2020;11(5):651–7.
33. Langley-Evans SC, Pearce J, Ellis S. Overweight, obesity and excessive weight gain in pregnancy as risk factors for adverse pregnancy outcomes: A narrative review. *J Hum Nutr Diet*. 2022;35(2):250–64.
34. Wadden TA, Tronieri JS, Butryn ML. Lifestyle Modification Approaches for the Treatment of Obesity in Adults. *Am Psychol*. 2020;75(2):235–51.
35. Loloei S, Pouraram H, Majdzadeh R, Takian A, Goshtaei M, Djazayeri A. Policy analysis of salt reduction in bread in Iran. *AIMS Public Health*. 2019;6(4):534.
36. Esteghamati A, Noshad S, Nazeri A, Khalilzadeh O, Khalili M, Nakhjavani M. Patterns of fruit and vegetable consumption among Iranian adults: a SuRFNCD-2007 study. *Br J Nutr*. 2012;108(1):177–81.
37. Shariati JAD, Khosromanesh R, Asadolahi A. Challenges of Physical Activity of Iranian Women in Different Stages of Life. *Sport Management Journal*. 2022;14(4):116–133.
38. May LE, Moss SJ, Szumilewicz A, Santos-Rocha R, Shojaeian NA. Barriers and Facilitators of Physical Activity in Pregnancy and Postpartum Among Iranian Women: A Scoping Review. *Healthcare (Basel)*. 2024;12(23):2416.
39. Mazloomymahmoodabad SS, Sadeghi S, Khodayarian M, Nadjarzadeh A, Fallahzadeh H. Exploring the nutritional beliefs of pregnant women in Yazd city. *J Prev Med Hyg*. 2020;61(4):E545–52.
40. Gheibizadeh M, Abedi HA, Mohammadi E, Abedi P. Iranian women and care providers' perceptions of equitable prenatal care: A qualitative study. *Nurs*

- Ethics. 2016;23(4):465–77.
41. Mehrabi F, Ahmaripour N, Jalali-Farahani S, Amiri P. Barriers to weight management in pregnant mothers with obesity: a qualitative study on mothers with low socioeconomic background. *BMC Pregnancy Childbirth*. 2021;21:779.
 42. Mohammadi-Nasrabadi F, Ghodsi D, Haghighian-Roudsari A, Esfarjani F, Khoshfetrat MR, Houshialsadat Z, et al. Economic Sanctions Affecting Household Food and Nutrition Security and Policies to Cope With Them: A Systematic Review. *Int J Health Policy Manag*. 2023;12:7362.
 43. May JF. The Role of Population Policies. *Études*. 2012;417(11):441–52.
 44. de Silva T, Tenreyro S. Population Control Policies and Fertility Convergence. *J Econ Perspect*. 2017;31(4):205–28.
 45. World Health Organization, Report of the commission on ending childhood obesity. <https://www.who.int/publications/i/item/9789241510066/>, 2016.
 46. World Health Organization, Governance for health in the 21st century. <https://iris.who.int/items/4040d940-3058-4674-99f3-e534cf9ad810/>, 2012.
 47. Food and Agriculture Organization, The State of Food Security and Nutrition in the World. <https://www.fao.org/publications/fao-flagship-publications/the-state-of-food-security-and-nutrition-in-the-world/en/>, 2025.
 48. World Health Organization, Implementation roadmap 2023-2030 for the Global action plan. <https://www.who.int/teams/noncommunicable-diseases/governance/roadmap>.
 49. Fayaz-Bakhsh A, Goodarzi Z. Critical look at the user satisfaction with asynchronous telemedicine. *Telemed J E Health*. 2013;19(7):568.
 50. Institute of Medicine (US) and National Research Council (US) Committee to Reexamine IOM Pregnancy Weight Guidelines. *Weight Gain During Pregnancy: Reexamining the Guidelines*. Rasmussen KM, Yaktine AL, editors. Washington (DC): National Academies Press (US); 2009.
 51. Puhl RM, Himmelstein MS, Pearl RL. Weight stigma as a psychosocial contributor to obesity. *Am Psychol*. 2020;75(2):274–89.
 52. World Health Organization, implementing effective actions for improving adolescent nutrition. <https://www.who.int/publications/i/item/9789241513708/>, 2018.
 53. Heslehurst N, Simpson H, Ells LJ, Rankin J, Wilkinson J, Lang R, et al. The impact of maternal BMI status on pregnancy outcomes with immediate short-term obstetric resource implications: a meta-analysis. *Obes Rev*. 2008;9(6):635–83.
 54. Opray N, Grivell RM, Deussen AR, Dodd JM. Directed preconception health programs and interventions for improving pregnancy outcomes for women who are overweight or obese. *Cochrane Database Syst Rev*. 2015;2015(7):CD010932.
 55. Jacob CM, Killeen SL, McAuliffe FM, Stephenson J, Hod M, Diaz Yamal I, et al. Prevention of noncommunicable diseases by interventions in the preconception period: A FIGO position paper for action by healthcare practitioners. *International Journal of Gynecology & Obstetrics*. 2020;151(S1):6–15.

Citation: Kalantari E, Tajvar M, Naderimagham S, Takian A. **Exploring the Causes and Management Barriers of Maternal Obesity in Iran: A Qualitative Study.** *J Family Reprod Health* 2026; 20(1): 19-31.