Research Square

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Food taboos and perceived misconceptions among pregnant women in a Middle Eastern country

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Abstract

Aim

The study examined the food taboos and perceived misconceptions among pregnant women.

Design

A quantitative cross sectional research design was employed.

Methods

The study included 395 pregnant women recruited at 8–12 weeks of gestation. The samples were selected through convenient sampling technique. Data were analysed using SPSS 23 with descriptive statistics for frequencies, proportions, means and standard deviations.

Data sources

The data was collected using demographic data sheet and dietary beliefs questionnaire.

Results

More than half (56.5%) of the participants reported adhering to food taboos, mainly due to health concerns (88.4%), cultural beliefs (88.4%), and taste preferences (61.0%). Most (44.6%) of the participants avoided food due to lack of knowledge and 63.8% of them avoided food due to lack of physical activity. Few women avoided food due to previous bad obstetric history of gestational diabetes (22.8%), anaemia (14.7%), and abortion (12.2%). Cinnamon (100%), Fenugreek seeds (88.60%), papaya (73.4%), and pineapple (70.4%) were avoided due to the fear of miscarriage and hormonal imbalances. Other foods like grapes and honey are avoided with the fear of getting gestational diabetes mellitus. Meat and butter are avoided with the fear of getting hypertension. Multiparty (AOR = 0.588, p = 0.027) and health-related concerns (AOR = 0.372, p = 0.008) reduced the adherence to food taboos, while taste-driven avoidance to food were commonly found among Omani pregnant women (AOR = 1.659, p = 0.023).

Conclusion

The study highlights the urgent need for designing educational interventions aimed at increasing the awareness of harmful dietary practices during pregnancy.

Implication for practice

Addressing cultural beliefs and enhancing nutritional knowledge through community and healthcare-based initiatives can improve maternal and foetal health outcomes.

Impact

What problem did the study address?

The study assessed the food taboos and their related perceived misconceptions among pregnant women.

What were the main findings?

More than half of the participants reported adhering to food taboos, mainly due to health concerns, cultural beliefs, and taste preferences. Most of the participants avoided food due to lack of knowledge, and lack of physical activity. Few women avoided food due to previous bad obstetric history of gestational diabetes, anaemia and abortion. Cinnamon, Fenugreek seeds, papaya, and pineapple were avoided due to the fear of miscarriage and hormonal imbalances. Other foods like grapes and honey are avoided with the fear of getting gestational diabetes mellitus. Meat and butter are avoided with the fear of getting hypertension. Multiparty and health-related concerns reduced the adherence to food taboos, while taste-driven avoidance to food were commonly found among Omani pregnant women.

Where and on whom will the research have an impact?

The findings of the study will have a significant impact on the child bearing women and their new-borns.

Introduction

Nutrition is universally acknowledged as a cornerstone of health, particularly during the transformative period of pregnancy.[1] Adequate maternal nutrition is essential not only for the mother's well-being but also for the optimal development of the foetus.[2] A well-balanced diet during pregnancy can help to prevent a range of health issues, including anemia, gestational diabetes, gestational hypertension, and congenital anomalies . Key nutrients such as folic acid, calcium, iron, and other essential vitamins and micronutrients are crucial for fetal growth, reducing complications, and ensuring healthy birth outcomes.[3]

Despite widespread awareness of the importance of proper nutrition, many pregnant women globally face significant challenges in maintaining optimal diet. These challenges are often influenced by socio-economic factors, inadequate knowledge, and improper advice from the public.[4] Further, these practices are deeply rooted in the culture. [5] In numerous societies such as India, Nigeria, Oman and Mexico, traditional beliefs dictate what foods pregnant women should consume or avoid during pregnancy.[6-

[8] Traditional beliefs govern the dietary choices of pregnant women, often prioritizing generational wisdom over scientific evidence.[9]

Food taboos are dietary restrictions due to misconceptions related to certain food items which consequently results in depletion of essential nutrients.[10] These misconceptions arise in the society due to cultural, religious, social and historical beliefs. These food taboos cause a major burden of micronutrient deficiencies, under nutrition and overeating.[11] Every rural and urban society has their own food taboos followed throughout life. In particular, food taboos are followed in women starting from their birth, through menarche, marriage, child birth, motherhood and widowhood.[12] Food taboos have detrimental effect on the pregnant women and the fetus through prohibition of essential nutrients.[10-11] Due to scarcity of data related to food taboos and their misconceptions in the Middle Eastern region, the investigators of the study assessed the food taboos and their misconceptions among pregnant women in Oman.

Background

Globally, food taboos are considered absolute and should not be violated or ignored, for instance, pregnant women avoid certain foods such as papaya, pineapple, fenugreek, cinnamon, eggs, and honey[13]. Some of these restrictions are based on the belief that these foods could cause miscarriage, negatively affect the baby's health, or even bring bad luck. [14] While some food taboos have originated from practical observations such as avoiding items that could cause allergic reactions or gastrointestinal discomfort, others are rooted in myths or symbolic beliefs that associate certain foods with negative pregnancy outcomes.[14] Regardless of their origin, these prohibitions can have detrimental effects on maternal nutrition and, consequently, pregnancy outcomes[15-16]. Therefore, addressing food taboos through targeted education and awareness campaigns is essential to enhance maternal nutrition and promote better health outcomes for both the mother and child.

In Oman, the prevalence of gestational anemia is 30%, hypertension is 12.5%, gestational diabetes is 9.2% and the abortion rate is 135.3 per 1000 live births. The Ministry of Health (MoH), Oman has embraced numerous strategies to improve the health status of pregnant women including implementation of comprehensive prenatal care programs that provide regular check-ups, screenings, and health education.[17] Key initiatives include promoting adequate nutrition through micronutrient supplementation, such as iron and folic acid, to prevent deficiencies and complications[17]. In addition, public awareness campaigns are designed to empower women with knowledge about the importance of prenatal care and healthy lifestyle choices. [17]

Despite the comprehensive strategies to enhance the health status of pregnant women in Oman, pregnancy-related issues continue to rise due to improper dietary practices. Many pregnant women lack awareness of essential nutritional needs and the importance of consuming a balanced diet rich in vitamins and minerals. [18] Factors such as food taboos, cultural beliefs, and limited access to nutritious

foods further exacerbate these issues, leading to deficiencies that negatively impact maternal and fetal health.[18] Additionally, misconceptions about certain foods can result in inadequate intake of vital nutrients, increasing the risk of complications such as anemia, gestational diabetes, and low birth weight[19]. Addressing these dietary challenges through targeted education and community support is crucial for improving maternal health outcomes and ensuring the well-being of both mothers and their babies.[19]

The study

Hence, this study aimed to assess the food taboos and perceived misconceptions among pregnant women attending antenatal clinics of a public hospital in Oman. The findings will provide relevant information about food taboo practices and their perceived misconceptions among Omani pregnant women and the determinants of food taboos that may affect maternal and fetal health outcomes. This baseline data will be useful to the policy makers to design evidence based interventions to mitigate the food taboos and encourage the pregnant women to follow healthy eating practices.

Methodology

Research design

The study utilized a quantitative cross sectional research design to assess the food taboos and their perceived misconceptions among pregnant women.

Study Setting

The study was conducted at Sultan Qaboos University Hospital (SQUH), a major tertiary care public hospital in Muscat, Oman. This hospital provides comprehensive healthcare services including maternal and child healthcare services. The antenatal outpatient department registers approximately 600 pregnant women monthly, with 300–350 deliveries every month and 10–15 postnatal mothers daily.

Sample, Sample Size and Sampling technique

The study included 395 pregnant Omani women without chronic medical conditions. Sample size was calculated using the standard formula for estimating a population proportion: n=Z2P (1 − P)/d2n = Z^2 P (1 − P)/d^2n=Z2P (1 − P)/d2, assuming a 50% prevalence (P = 0.5), 5% margin of error (d = 0.05), and 95% confidence level (Z = 1.96), yielding a minimum required sample of 385. To account for attrition, an additional 20% was recruited, bringing the total sample size to 395. When the true prevalence is unknown, a prevalence of 50% is commonly assumed as it yields the maximum required sample size. A margin of error of 5% was selected to ensure adequate precision in estimating proportions. Additionally,

a 20% attrition rate was incorporated to account for incomplete responses and potential participant withdrawal. The samples were selected through convenient sampling technique.

Criteria for sample selection

Inclusion Criteria

Participants included pregnant Omani women of any parity, residing in Muscat region, registered at SQUH between 8 to 12 weeks of gestation, and consenting to deliver at the hospital. Early pregnancy (8–12 weeks) is a critical period when women begin to form dietary beliefs and make changes to their eating practices. Assessing food taboos at this stage helps to identify misconceptions early, enabling nutritional guidance and reducing risk of adverse pregnancy outcomes.

Exclusion Criteria

Women with irregular antenatal visits, those who did not consent to participate, and those with pre-existing conditions such as Type 1 diabetes, Glucose-6-phosphate dehydrogenase (G6PD) deficiency, thalassemia, sickle cell disease, and asthma were excluded.

Data collection instruments

It included the following;

Part 1

Demographic data of the study participants

It includes the parity, age in years, education, occupation, family type and social support.

Part 2

Dietary beliefs questionnaire

A culturally appropriate dietary beliefs questionnaire was developed by the investigators of the study. The questionnaire was prepared based on the suggestions from the subject experts, 2009 Omani Dietary Guidelines[20], and local dietary beliefs. Suggestions derived from local dietary beliefs were incorporated into the questionnaire through a systematic and context-sensitive process. Initially, commonly held food

beliefs and taboos during pregnancy were identified through a review of local literature, informal discussions with pregnant women, and consultations with experienced dietitians, maternal health nurses, and midwives familiar with the community. These beliefs were then translated into questionnaire items using culturally appropriate language. The draft questionnaire was reviewed by subject experts to ensure content relevance and clarity, and pilot tested with a small group pregnant women to assess comprehension and cultural acceptability. Feedback from the pilot testing was used to refine the items before final administration. This process ensured methodological transparency and enhanced the transferability of the approach to similar settings. The tool was pilot-tested and the Content Validity Index (CVI) is 0.76, Cronbach's alpha is 0.78.

A food taboo matrix was used to record the perceived reasons for avoidance of specific foods. It is a structured tool used to systematically document and analyse culturally specific food taboos. It was prepared by the investigators of the study. It organizes complex belief-based information in a clear, compatible format, making it particularly useful in maternal nutrition research. Typically, the matrix is arranged in rows and columns, where rows list specific foods or food groups commonly consumed in the local context. Columns capture key attributes such as whether the food is considered taboo, and the perceived reason for avoidance. Participants were given a list of 24 commonly consumed food items and were asked to rate whether the food items were safe to consume during pregnancy. If avoided, they were further asked to select the perceived reasons to avoid certain foods from a predefined list.

Data collection procedure

The data was collected from September 2021 to August 2023. Initial contact was made during the pregnant women's first antenatal visit (8–12 weeks of gestation) and the demographic and dietary beliefs data were collected.

Statistical analysis

Each response was coded numerically, and the data were organized into a matrix with food items as rows and avoidance reasons as columns. The frequency of each reason per food item was then calculated. A separate column represented the number of participants who indicated that the food was safe to consume. This structure enabled the identification of commonly held beliefs associated with each food taboos and allowed further statistical analysis. Data were analyzed using SPSS 23 with descriptive statistics for frequencies, proportions, means and standard deviations.

Ethical considerations

Ethical approval was obtained from the Medical Research and Ethics committee of College of Medicine and Health Sciences, Sultan Qaboos University, Oman (Ref. No: SQU-EC/314/2022–2419). Permission

was obtained from the Medical Director of the data collection setting to collect the data. Written informed consent was obtained from the study participants. The participants were not forced to participate in the study. None of their identifying information was collected. The collected data was stored in a password protected file and was kept under the custody of the principal investigator of the study. All experiments were performed in accordance with the Declaration of Helsinki.

Results

Among 395 Omani pregnant women, majority were multiparous (66.8%) and aged 25–30 years (39.0%). Most of them had a graduate degree (54.7%) and were primarily homemakers (39.5%). A larger proportion lived in joint families (54.9%), and 61.8% received social support during pregnancy (Table-1).

More than half of the participants (56.5%) adhered to food taboos during pregnancy. Most of the participants (51.4%) slept 7–8 hours daily. Regarding physical activity, 42.3% and 43.0% of them exercised daily and as time permitted respectively. Nutritional information was mainly obtained from family members (76.7%). Cultural beliefs and health concerns were the primary reasons for food avoidance (88.4% each), followed by taste preferences (61.0%), lack of physical activity (63.8%), and insufficient nutritional knowledge (55.4%). In terms of avoidance of food due to previous bad obstetric history, 22.8% reported that they avoided certain foods as they had gestational diabetes in the previous pregnancy, followed by anemia (14.7%), abortion (12.2%), hypertension (8.1%), and infertility (8.1%). Less common reported bad obstetric history includes infections (1.5%), bleeding (0.8%), and small-for-gestational-age births (0.8%) (Table 2).

The data regarding perceived misconceptions related to food taboos during pregnancy shows that a significant proportion of women believed papaya (73.4%) and cinnamon (100%) could induce abortion. Similarly, 70.4% of participants associated pineapple with miscarriage. Misconceptions extended to green leafy vegetables, with 15.9% linking them to abortion and 9.1% to allergies. Coffee and tea were considered harmful by few participants, with 6.1% attributing them to adverse fetal outcomes, 2.5% to acidity, and 1.5% to hypertension. Potatoes were believed to be associated with weight gain (8.9%), acidity (10.9%), and hypertension (4.1%). Despite their nutritional value, bananas, meat, fish, butter, ginger, honey, and strawberries were also commonly misconstrued as harmful, with beliefs linking them to allergies, anemia, hormonal imbalance, and excessive weight gain (Table-3).

Multivariate logistic regression identified that being multiparous significantly reduced the likelihood of adhering to food taboos (AOR = 0.588, 95% CI: 0.37–0.92, p = 0.027). Avoiding food due to health concerns also lowered the odds of food taboo adherence (AOR = 0.372, 95% CI: 0.17–0.73, p = 0.008). However, avoiding food based on taste was a significant predictor of following food taboos (AOR = 1.659, 95% CI: 1.05–2.62, p = 0.023) (Table-4).

Discussion

In the present study, most of the pregnant women adhered to food taboos during pregnancy. Consistently, majority (27.5%; 34.22%) of Ethiopian pregnant women followed food taboo practices.[19, 21] Likewise, in Malysia, 70.2% of pregnant women avoided essential food items due to food taboos.[22] In India, 75% of pregnant women avoided certain foods during pregnancy considering that those foods are unsafe to their fetus.[23] In addition, a systematic review conducted in Sub-Sahara Africa revealed that the food taboo practices among pregnant women in the urban area are 40% and 43% in rural areas.[24] Further, 67.4% of pregnant women in Eastern Ethiopia adhered to food taboos.[25] These findings indicates the need to strengthen the nutritional counseling services to pregnant women and the need to reorient them to the evidence based nutritional benefits during pregnancy.

Food taboos are practiced across the world due to various misconceptions related to certain food.[21] In the current study, insufficient nutritional knowledge was the most commonly reported reason for food taboos during pregnancy. Insufficient nutritional knowledge among the participants can be explained by several interrelated factors. First, the heavy reliance on family members as the primary source of nutritional information suggests limited access to, or utilization of, formal nutrition education from healthcare professionals. Family-based advice, while culturally trusted, may be based on traditional beliefs rather than evidence-based guidelines. Second, cultural norms and food taboos may resist open discussion about appropriate dietary practices during pregnancy leading women to follow avoidance behaviors without understanding their nutritional consequences. Third, limited exposure to structured antenatal education counselling-especially in early pregnancy can reduce opportunities to acquire accurate information about balanced diets, nutrient requirements, and the importance of physical activity. Additionally, time constraints, competing household responsibilities, and varying levels of health literacy may further limit women's ability to seek, understand, and apply nutrition related information. Together, these factors contribute to gaps in nutritional knowledge, reinforcing misconceptions and potentially influencing dietary choices during pregnancy. In line with the current study finding, many other studies have found lack of maternal nutrition knowledge as a determinant of food taboos during pregnancy.[20, 21, 22, 23, 24, 25, 26] Insufficient nutritional knowledge is shown to be a key reason for food taboos during pregnancy. Therefore, community based nutritional education campaigns are to be organized to increase the uptake of healthy and essential nutrition during pregnancy.

Perception of wellbeing varies significantly across cultures. Therefore, food taboos during pregnancy should be approached to understand the specific reason in the specific culture to design appropriate culturally relevant nutritional intervention.[27–28] In the current study, cultural beliefs were reported as one of the determinant for food taboos during pregnancy. In corroboration with the present study finding, many other studies across the world reported cultural beliefs as a reason for adherence to food taboos during pregnancy.[16, 17, 18, 19, 24, 25, 29] Further, a systematic review have shown that the women in low and middle income countries engage in various cultural food practices during pregnancy.[30] Thus, culturally appropriate nutrition education is essential to improve the nutritional practices during this crucial period.

Food preferences are linked to food taboos during pregnancy.[27] Understanding the individual food preferences is critical in developing nutritional interventions during pregnancy.[31] Taste preferences were one of the primary reasons for food avoidance in the current study. Similarly, Placek, Madhivanan & Hagen, (2017)[32] reported that the aversion to staple foods are very common during pregnancy due to taste preferences. Aversion to certain foods is believed that they are harmful to the fetus as these foods could cause toxicity early in the pregnancy. As this information is not true, appropriate evidence based nutritional information should be imparted to the community at the large.

Literature originated from Asia and Africa shows food taboos observed during pregnancy leads to detrimental impact on the mother and the fetus.[33] Likewise, limited intake of vegetable and animal protein and micronutrients during pregnancy has long-term consequences on the growth, immunological, and cognitive development of the children and increases the health risk in mothers.[34] In the current study, the pregnant women avoided certain foods such as papaya, cinnamon, pineapple, green leafy vegetables, coffee and tea, potatoes, bananas, meat, fish, butter, honey, ginger, and strawberries. Moreover, the pregnant women believed that these foods could cause abortion, allergy, hypertension, gestational diabetes, anemia, acidity and weight gain. Similar to the current study findings, Ethiopian pregnant women avoided food such as banana, honey, yogurt, and wheat.[19]

Further, Bangladeshi pregnant women avoided fish, twin bananas, duck eggs, pineapple, and coconut with a fear that these foods are harmful during pregnancy.[30] In North West Ethiopia, pregnant women avoided honey, milk, meat, cereals and fruits believing that these food items will make the baby fatty.[11] Additionally, Malaysian women avoided eating pineapple, sugar cane drink, hot foods, carbonated drinks, and cold foods. The reason reported for avoiding these food items includes the fear of abortion, fear of excessive bleeding during labor, difficult labor, vomiting, edema, and the fear of baby born with deformities.[21] In South Africa, pregnant women avoided mango, orange, papaya, peach, eggs, sweets, chili and alcohol.[24] Indian pregnant women avoided food such as banana, papaya, jackfruit, coconut, green leafy vegetables, meat, fish and eggs.[32]

These findings indicate that food taboos during pregnancy are widespread and deeply rooted across diverse cultural settings, although the specific foods avoided vary by region. Despite these differences, the underlying beliefs show striking similarities, particularly fears related to miscarriage, labor complications, excessive bleeding, fetal deformities, or delivering a large baby. This suggests that food avoidance is largely driven by culturally transmitted perceptions of risk rather than by the nutritional properties of the foods themselves. The avoidance of nutrient-dense foods such as fish, eggs, meat, fruits, and green leafy vegetables is especially concerning, as it may compromise maternal and fetal nutritional status. These patterns reflect the strong influence of traditional knowledge systems and intergenerational advice on dietary practices during pregnancy, often outweighing evidence-based nutritional guidance.

Overall, the findings highlight that food taboos are not isolated behaviors but culturally shared practices aimed at protecting the mother and fetus. However, when these beliefs lead to the restriction of essential foods, they may negatively affect pregnancy outcomes. This underscores the need for culturally sensitive and evidence based nutrition educational intervention that acknowledges local beliefs while correcting misconceptions and promoting balanced dietary practices. This will enhance the knowledge of the pregnant women and the community to adopt the best dietary practices, thereby a healthy motherhood and childhood.

Strengths of the study

The study enabled early identification of food taboos and the related misconceptions during pregnancy. This is the first of this kind of study conducted in Oman. This will help the policy makers to design evidence based culturally appropriate interventions to abolish food taboos during pregnancy. A culturally adapted, expert-informed questionnaire aligned with Omani dietary guidelines ensured contextual relevance and demonstrated good reliability and validity. This tool can be used to assess the dietary beliefs among the pregnant women in the Middle Eastern region. A large, statistically justified sample added robustness to the data.

Limitations of the study

Data collection using convenience sampling technique and a single urban hospital setting limits generalizability, especially to rural populations. Pregnant women in rural areas or those accessing other healthcare settings may hold distinct dietary beliefs are not captured in this study. The cross-sectional design limits the ability to assess changes in dietary beliefs and behaviors over time. Longitudinal studies would be more informative for understanding how food taboos evolve and whether educational interventions have lasting effects. Reliance on self-reported data introduces potential recall and social desirability biases. The absence of objective dietary intake data also limits the ability to link reported beliefs with actual nutritional deficiencies or health outcomes. In addition, the lack of qualitative data constrains the depth of cultural understanding. While the quantitative approach provides useful prevalence estimates, qualitative methods such as interviews or focus groups could reveal the cultural, emotional, and symbolic meanings underpinning food taboos, thereby informing the design of culturally sensitive interventions. Finally, while the study identifies determinants such as parity, health concerns, and taste preferences, it does not explore other potentially influential factors such as socioeconomic status, religious beliefs, or exposure to health information through media. Inclusion of these variables would provide a more comprehensive view of dietary decision-making during pregnancy.

Recommendations

Future studies should include diverse settings and populations, especially rural areas, and use qualitative methods to explore the cultural influences on food beliefs. This will provide a broader understanding of food taboos across socio-demographic groups. Culturally sensitive nutrition education should be integrated into antenatal care. Public health campaigns, involving community and religious leaders, can

help reshape traditional nutritional beliefs. Longitudinal follow-up is needed to link evolving dietary beliefs to maternal and neonatal outcomes.

Implications for Practice

The high prevalence of food taboos highlights the need for culturally tailored nutrition counseling in antenatal care. Training healthcare providers to address harmful beliefs early can help prevent nutrient deficiencies and adverse outcomes in the mothers and their newborns. Public health messages should reflect cultural contexts, and community influencers can support myth-busting efforts. Findings support targeted interventions to improve maternal and fetal health outcomes

Declarations

Ethics approval and consent to participate

Ethical approval was obtained from the Medical Research and Ethics committee of College of Medicine and Health Sciences, Sultan Qaboos University, Oman (Ref. No: SQU-EC/314/2022-2419). Permission was obtained from the Medical Director of the data collection setting to collect the data. Written informed consent was obtained from the study participants.

Consent for publication

Not Applicable

Availability of data and materials

The data will be available upon request from the authors. Corresponding author may be contacted to receive the raw data.

Competing interests

The authors declare that they don’t have any conflict of interest in publishing this manuscript.

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The study did not receive any funding from any organizations.

Reporting Method

The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines for reporting observational studies was used.

Patient or Public Contribution

The antenatal women attending to the public hospital in Oman were recruited as study participants. The data were collected from the antenatal women who fulfilled the inclusion criteria.

Authors' contributions

Sophia Cyril VINCENT: Conceptualization, Ideas; formulation or evolution of overarching research goals and aims, Methodology, Writing - Original Draft

Development or design of methodology; creation of models

Judie ARULAPPAN: Conceptualization, Methodology, Writing - Original Draft, Supervision, Writing - Review & Editing

Preeja PRABHAKARAN: Investigation, Conducting a research and investigation process, specifically performing the experiments, or data/evidence collection, Review & Editing

Iman Al HASHMI: Review & Editing

Maha Al-DUGHAISHI: Investigation, Conducting a research and investigation process, specifically performing the experiments, or data/evidence collection, Review & Editing

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Tables

Table 1 to 4 are available in the Supplementary Files section.

Supplementary Files

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