Cultural determinants and public health implications of food taboos during pregnancy

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Abstract

During pregnancy, food taboos represent a cultural phenomenon seen in many societies and across populations worldwide. Food taboos have traditionally been, and may still be, part of established ways of life rooted in cultural beliefs designed to protect the fetus and mother. For many of these cultural food practices, the restrictions equated to a total absence of any nutritionally critical food or drink, which places a high risk to maternal and fetal well-being. This paper summarizes and integrates existing evidence on food taboos related to pregnancy, as obtained from published case studies from Ethiopia, Papua New Guinea, India, Brazil, and Indonesia. We present an overview of food taboos situated in social culture, history, and psychology, and we incorporate their interrelation to education, infrastructure (care and access), and culturally persistent knowledge systems. The overarching conclusion is that food taboos cut across cultural continuities as significant symbolic acts and functional practices, and they may be applied to the most vulnerable groups, usually lower-income, lower-educated, and restricted access to antenatal care women. In the purview of public health, withholding recognition of food taboos puts services and interventions at risk of inaction. All interventions must also be shown to be culturally appropriate, community-driven, and connected to action. In this study, employing ethnographic sensitivity and public health methodologies, we believe that opening up cultural constructs that enable mothers to engage with feeding and nutrition education during not only antenatal attendance but also antenatal care practice overall is a crucial element of both public health and public health education. The next step in our research agenda could be gaining a deep understanding of the cultural rationale of the food taboos at play in these communities and evaluating the delivery of the interventions and their success, infant and maternal, throughout the community.

Keywords: Food taboos, Pregnancy, Maternal health, Fetal health, Cultural practices, Traditional belief systems, Nutritional deficiency,

Introduction

Food taboos are culturally determined prohibitions associated with a specific food that restrict access to that food in the diet, either for religious, spiritual, or symbolic reasons. Food taboos become more relevant during many life cycle events like pregnancy, particularly for culturally prescribed reasons related to maternal diet and food items having a direct bearing on fetal health and delivery. Some food taboos may have been altruistic in intent, specifically in restricting

foods that presented some risk concerning spoilage or toxic products, while many food taboos have developed from culturally accepted myths, placeholder myths, and moral narratives, and have no evidence to provide credence that any specific food should be prohibited in a diet.

Food taboos which occur in wide-ranging communities, especially in low and middle-income countries, often restrict access to nutrient-dense foods in pregnancy. Meat, eggs, dairy products, fruit, and vegetables are often prohibited, resulting in inadequate maternal nutrition intake, and documented consequences of inadequate maternal nutrition, such as maternal anaemia, low birth weight, and a greater possibility of newborn mortality. Prolongations of beliefs are often made over generations and by significant others (these include elderly family members, traditional healers or medicine persons and family members).

Global public health efforts to improve maternal and child health have made considerable advances. However, much of that advancement is limited by cultural restrictions about dietary behaviours. Moreover, the existence of food taboos should not be underestimated. The persistence of food taboos despite increased access to modern health care shows the disconnect between the regime of biomedical information and the normative cultural practice that women are guided by.

The paper discusses the commonality, predictors and significance of food taboos about pregnancy behaviours across a variety of cultural contexts globally. By pulling together qualitative literature and ethnographic studies from the Global South - Ethiopia, Papua New Guinea, Southeast Asia, etc. - the paper illustrates how food taboos affect maternal nutrition and proposes pathways toward culturally appropriate public health outcomes. To advocate for maternal health equity globally, we need to learn and challenge practices that perpetuate restrictions on maternal health.

Methodology

This study was based on a qualitative synthesis of secondary data from peer-reviewed studies, ethnographic studies, and reports produced by government and international health organizations, which contained food taboos during pregnancy. We purposefully searched the literature to find studies that described the types, prevalence, contributing factors, and health effects of food taboos of women in pregnant. We placed special emphasis on studies that came from a variety of geographical regions, including Sub-Saharan Africa (Ethiopia), South and Southeast Asia (India, Indonesia, Papua New Guinea), and South America (Brazil).

This literature search included academic databases, including PubMed, Science Direct, JSTOR, and Google Scholar. Our search terms included "food taboos", "pregnancy nutrition", "maternal health", "cultural beliefs", and "dietary restrictions". The selection criteria were to find studies published between 2000 to 2024 comprising empirical data on women's dietary behaviours

during pregnancy as well as cultural justifications for food restrictions. We included both qualitative and quantitative studies to develop a comprehensive understanding of the topic.

We screened more than 20 relevant studies; we examined community-based cross-sectional studies, focus group discussions (FGDs) and key informant interviews (KIIs). In our analysis, we used thematic analysis to systematically identify salient themes in the data as they pertained to cultural explanations of food taboos, the nutritional implications of food taboos, and the socio-demographic characteristics of the groups that observed the food taboos.

This paper has an interpretative and comparative methodological orientation. We hope to contribute to cross-cultural understandings of how food taboos are maintained, the consequences of food taboos for maternal health, and the implications for how public health interventions could be designed to better address food taboos while respecting local cultural practices.

Global Patterns of Food Taboos during Pregnancy

A woman's journey, beginning from her birth and continuing through menarche, marriage, childbearing, motherhood, and ultimately widowhood, is influenced by a range of taboos. Food taboos surrounding pregnancy are a cultural phenomenon not unique to any particular region; they are found throughout the world in a variety of forms, both traditionally and in rural settings. Taboos concerning pregnancy can be detrimental not only to a mother's health but also have an impact on the fetus. Food taboos related to pregnancy typically include food deprivations, or the avoidance of certain foods deemed risky for the fetus or the mother. The basis for the taboos may differ across cultures; however, the foods avoided often overlap and are usually rich in important nutrients to assist the fetus's developmental needs. The widely held belief behind such taboo practices is that avoiding them can lead to abortion and deformity among the newborn (Jerzy et al., 2013).

Amare et al. (2022) found in Eastern Ethiopia that almost 48% of all pregnant women avoided eating foods like meat, milk, eggs, and vegetables due to fears of birthing large babies, problems in birth (birth defects), and miscarriages. For other women, the reasons for food avoidance were linked to perceived opportunities for being too large, or for fears perceived from elders and family members, who tend to be the social monitors for a group of friends or family. Abere and Azene (2023) found that in the greater Bahir Dar region of Ethiopia that 27.5% of pregnant women avoided protein-enriched foods because they feared fetal head "plastering", or extremely large babies. Kuzma et al. (2013) reported in the Highlands of Papua New Guinea that women would avoid protein-rich foods (e.g., meat, fish, nuts, or certain fruits) due to interpretations and beliefs that were symbolic and spiritual. For example, pregnant women would abstain from squid or shrimp because they believed eating these foods would cause fetal deformities, as well as potentially delay labour. Moreover, in some cultures, even the animals' eating characteristics could be transferred to the fetus.

In India, the Bhil tribal community of Dhar district of Madhya Pradesh believes that foods such as fish, chilies, and papaya are tabooed socially as these stuffs are considered to be hot and may abort the foetus. Strongly odoured foods are also prohibited as they cause nausea. Sugar dissolved in water is also prohibited. Twinned fruits and tubers are also prohibited with the belief of having twins (Qamra et al., 2006). Tribal women in Andhra Pradesh abstained from eggs, jackfruit, black grapes, and raw papaya-- foods that can cause miscarriage or undesirable characteristics in the baby (Lakshmi, 2013). In Tamil Nadu, a similar referenced interpretation is identified with "hot" and "cold" classifications when referencing food, making certain foods taboo. As in the previous example, nursing women would not consume "hot" foods such as fish and yams due to uterine contraction (Banu et al., 2016). Women from nomadic tribes of North Karnataka avoid the consumption of eggs during pregnancy because of the belief that it may lead to the birth of a bald baby (Naik and Kasturiba, 2018). Pregnant women of West Bengal undergo certain dietary restrictions for the benefit of their baby and to prevent miscarriage, fetal malformations, and to promote easy delivery. The expecting mothers of Amdanga block in North 24 Parganas in West Bengal consider pregnancy as a ‘hot’ state and escape consuming hot foods like papaya, jackfruit, coconut, brinjal, leafy vegetables, meat, fish and eggs to prevent miscarriage, easy delivery and prevent congenital or physical malformation of the newborn (Chakrabarti and Chakrabarti, 2019). Pregnant women of Anantapur district, Andhra Pradesh, observe some beliefs and practices during the antenatal period and avoid Papaya, Pineapple, curd, fused bananas, black grapes and poultry meat classifying them as hot foods and may adversely affect them and the baby (Begum et al., 2022). Among the Sangam tribe of Nagaland, pregnant women avoid eating enjoiñed bananas (büridalasi) due to the belief that they may give birth to conjoined twins. Consumption of the ear (anangku) and nose (anabung) of any slaughtered animal is tabooed for women with the belief that they will cause an itchy and runny nose both the mother and child (Sangtam and Marak, 2024).

Köhler et al. (2019) reviewed 28 Southeast Asian studies and found that animal-based foods presented as systematically restricted while pregnant and lactating (with an exception of fish found in Indonesia and Malaysia in which some seafood presented as odorous or could cause complications at birth); and different stigma surrounded animals with certain features (internal organs, blood) or wild animals led to taboo in Myanmar and Laos, as these food could cause hemorrhage, leprosy and/or complications. Similarly, traditional Amazonian and coastal communities in South America implemented segmental food taboos based on carnivorous fish and wild meat (Begossi et al., 2004). Sectional practice only resembles the idea of "reimoso" or "food that is inflammatory", a dangerous thought during pregnancy and even after. Importantly, all of these examples illustrate the point that food taboos are seen as socially constructed symbolic beliefs, as part of a normative socialization process, along with ecological knowledge, where although with notable differences in food being restricted, and rationality of the restriction, the outcome of reduced food diversity is largely converged and could jeopardize optimal nutrient intake at an important time for both maternal and infant nutrition.

Determinants of Food Taboos

Certain food behaviours were based on strong motivations to behave properly in the presence of elders by conforming to accepted practices in line with cultural expectations.

The socio-cultural, demographic, and contextual influences are not individually stated; these influences can act to reinforce each other to ensure the continuation of women avoiding certain foods during pregnancy. In the aspect of adopting a behaviour theory for this problem, distancing the influence of the socio-cultural structure can be achieved when a person only has to discard the indicators of cultural identity; however, factors related to the demography of a person may add complexity to the issue. One of the determinants of maternal undernutrition during pregnancy, particularly in rural areas, has been identified as food taboos. In a community of a village in Acholi, Northern Uganda, where malnutrition is prevalent, various food prohibitions have been found among the women during gestation such as offals, chicken, wild birds, smoked meat and fish, sugarcane, garden egg ('Tula'), groundnut, bush meat, mushrooms, honey, sour fruits (oranges, mango, passion fruits, lemon, tamarind, 'Malakwang'), goat's meat, 'Lalaa' (the bitter green leafy vegetable), and 'Lamola' (Hyptis spicigera). Cultural norms, personal traits, and social circumstances were the primary factors contributing to the observance of food taboos (Acire et al., 2023).

Religion and spirituality are another sensitive topic. For example, in pregnancy-related contributions from many traditional systems, food is categorized in a humoral way; food is categorized not only by its physical properties, but by its symbolic properties. In South Asia, humoral classification, such as hot/cold categories, influences dietary restrictions when women are pregnant. For instance, fish, papaya, and red meat cannot be eaten as they may be seen as "hot" foods, and will induce miscarriage or premature labour. In the opposite context, food such as curd or bananas is seen as "cold" and may cause, or be blamed for, weakness, colds, etc. (Köhler et al., 2019; Banu et al., 2016). In Cameroon, pregnant women should not consume wild animal meat, lest their children be born with "wild" personalities (Asi et al., 2018).

For certain groups in the Amazon and Southeast Asia, their ecological knowledge of the environment and perceived medicinal properties of food contributed to taboos about food. Women are advised not to eat carnivorous "strong" fish because it may potentially inflame the body or lead to disease - it engages the intersection between the beliefs of the individual and the community as well as a non-formal conservation ethic and environmental consciousness (Begossi et al., 2004; Pezzuti et al., 2010). Among some coastal communities in eastern Indonesia whose subsistence to livelihoods entirely rely on marine resources, nutrition insecurity is prevalent among women and children. Research done by Gibson et al. in 2020 among that population has revealed that more than 50% of mother-child pairs did not achieve the minimum recommended dietary diversity. Focusing on the consumption pattern, it has been noticed that their diet lacks marine foods due to various beliefs and conceptions. Pregnant women are restricted from eating common and long-spine sea urchins for fear that it might lead to uterine

bleeding. Lactating mothers are prohibited from consuming marine foods as they believe that it can upset the stomach of the breastfed child and can cause physical anomalies in the child, like white growth appearing in the infant's mouth. Incorporation of fish into the diets of infants and young children was postponed due to concerns regarding allergies and illnesses.

The misperception of weight gain during pregnancy also leads to prevailing food taboos. A study was conducted by Goswami (2015) among the pregnant Karbi women of Kamrup district in Assam, where it was seen that meat, especially duck and pork, is avoided for fear that it will make delivery difficult, as the Karbi women believe that pork and duck contain high fat. The existence of food restrictions related to social taboos also affects the nutritional status of mothers and children of the Lanjia Saora community of Rayagada district of Odisha (Grahacharjya, 2018). A study on pregnant women was conducted in the Department of Obstetrics and Gynaecology, Voluntary Health Services, Multi-speciality Hospital and Research Institute, Adyar, Chennai has found a very significant association between the maternal calorie intake and birth weight of the baby (Pitale, 2018).

Food taboos will differ for each community depending upon their linear histories and entangled cultural logic. However, they present significant public health issues when they contradict the measured dietary requirements of pregnant women. Taking the time to understand these determinants is critical for understanding how health programs can be developed and implemented in a culturally appropriate manner.

Nutritional and Health Implications

Food taboos have both immediate and long-term nutrition and health consequences related to pregnancy. Taboos affect maternal well-being, fetal development, neonatal outcomes, food choices made by women in pregnancy and postpartum. Much of the taboo food, such as dairy and eggs, meat, vegetables, fruit, and fish, provides the macronutrients and micronutrients that women need to support their increased nutritional demands while pregnant. For example, in many societal contexts such as Ethiopia, mothers who did not eat a diet that included dairy, eggs and vegetables were more likely to have higher incidences of suffering from iron-deficiency anaemia, calcium deficiency, and folate deficiency (Zerfu et al., 2016; Amare et al., 2022). These deficiencies risk maternal fatigue, poor immune response, and general lack of nutrition that could lead to haemorrhage in labour. Folate is essential to protect from neural tube defects. Iron is essential to prevent anaemia and low birth weight. Increased restrictions on high-protein dairy, eggs, meat, fish and legumes would lead to babies that are likely to have impaired nutrition and fetal growth. For example, in Papua New Guinea, mothers avoiding fish and protein were linked with maternal undernutrition and low birth weight (Kuzma et al. 2013). Similar outcomes have been found in tribal communities in India who avoid foods with iron and vitamin-rich foods, such as eggs, papaya, and green leafy vegetables (Lakshmi, 2013).

Another form of intentional undernutrition is when women deliberately restrict their food intake, as one of their concerns surrounding the pregnancy is giving birth to a large baby. While this may be hard to hear, some women associate a large baby and complications during labour and birth with maternal death (Zerfu et al., 2016). This concern may severely restrict a woman's food intake and exacerbate malnutrition and increasing the risk of intrauterine growth restriction (IUGR), low birthweight, preterm birth, and higher perinatal mortality risk. Even with the use of supplementation, compliance and acceptability can be low because of barriers to medical nutrition interventions influenced by misconceptions. Women may refuse to take iron-folic acid tablets because of side effects or misinformation, and may further put their diet in jeopardy (Zerfu et al., 2016).

These taboos, which impact various types of dietary constituents, can impact maternal intake during pregnancy and throughout the postpartum and lactation periods. For example, a systematic review by Köhler et al. (2019) found that in South East Asia, postpartum women avoided meats and seafood because they believed the food would interfere with wound healing or that it would inhibit breast milk production. In Mexico, mothers restricted fruit and vegetable intake because they believed infant colic would develop due to this food consumption. (Santos-Torres & Vásquez-Garibay, 2003).

In summary, food taboos can significantly impact maternal nutrition during a key period when dietary diversity and nutrition adequacy matter for maternal and infant health. The dietary implications of food taboos are a 'silent' threat to maternal and neonatal health. It is crucial to consider food challenges to improve maternal and neonatal health and lessen mothers' and neonates' preventable morbidity.

Interventions and Recommendations

Nutritional taboos during pregnancy warrant particular attention, especially if effective behaviour, informational change strategies and community participatory approaches can be utilized to align traditional knowledge with evidence-based food/nutrition information. The guidelines provided in the food/nutrition evidence often face significant resistance if they contradict their local cultural practices or values. The best behaviour or change strategies involve community, health education, and systems change.

Antenatal care (ANC) visits provide a valuable opportunity for the literate pregnant woman; there have been several studies suggesting that women who access nutrition and ANC services are less likely to adhere to food taboos that are harmful to their health (Amare et al., 2022; Abere & Azene, 2023). Improving access to ANC services and culturally appropriate nutrition education may serve to dispel culturally held beliefs and facilitate a change in eating behaviour. Community-type educational campaigns should also target pregnant women's partners and include other influential people (e.g., husbands, social elders, mothers-in-law, and traditional birth attendants) who have some social authority and often influence particular cultural norms.

Diana et al. (2018) demonstrated that people were often sharing food practices with a family or someone significant to them. Changing the social norms in this context can often have more effect than an intervention with an individual focus. Mass communication and local communication strategies, such as radio programming, folk theatre about maternal health in villages, can help to sensitize and deliver accurate information about nutrition in contextually relevant ways. In cultures that emphasize oral tradition, supporting storytelling and dialogue is reasonable, as storytelling is a key element of behaviour change and social learning.

School curricula are natural methods for delivering nutrition education for girls and creating knowledge and critical thinking about health before their childbearing years. Educated women have been shown to reject harmful taboos and utilize health care in pregnancy more readily (Mengie et al., 2022). At larger levels of policy, integrated approaches across health, education and agriculture are possible. Agricultural extension agents can motivate food producers to grow a diverse range of nutrition and health crops, while health workers and agents can be certain that the messages they provide are consistent with adequate eating and dietary practices during pregnancy.

When we try to promote programs as totally opposing or ridiculing cultural traditions, we will likely get resistance and create distrust toward any intervention model. One way to divert or disrupt this is to frame food taboos as "protectors of their pregnant women" while casually introducing a scientific basis for dietary diversity as a shared goal in the community. For example, commonly in Peru and rather than opposing transmitting the hate of the belief that all forms of papaya cause miscarriage, the educators essentially present good evidence of the safety of papaya in pregnancy and then use their support for healthy eating programs to reveal the many forms of fruits and vegetables for a pregnant mother.

Conclusion

Food taboos during pregnancy present a significant but often overlooked barrier to maternal and fetal health in much of the world. These taboos are often empirically based on cultural, spiritual and social contexts, but they often invoke (often culturally enforced) avoidances of nutritionally necessary foods at a time in pregnancy when a mother’s physiological needs are at their greatest. Food taboos lead to complications of micronutrient deficiencies and anaemia, which can result in maternal and neonatal morbidity and intrauterine growth restriction. The variations in food taboos observed in motherhood demonstrate a need for focused public health interventions.

In various cultural contexts from Ethiopia, Papua New Guinea, to Southeast Asia and the Amazon, it is reported that food taboos are more prevalent among women who are older and with less education, and women who live in communities with limited antenatal care and nutrition information. Food taboos are mainly collective community social norms reinforced by families, traditional health practitioners, and cultural beliefs handed down through generations.

Expectant mothers need antenatal care, including individualized nutritional counselling, while public health awareness/advocacy campaigns should engage traditional leaders to dispel myths without shaming traditions. Education, particularly for adolescent girls and young women, will be an important modality for disrupting an entrenched social norm.

Ultimately, addressing maternal nutrition in the context of food taboos means taking a holistic approach, one that also incorporates a cultural identity, while ensuring access to the nutrition women need to safely bring new life into our world. Bridging both of these positionalities is not only a health concern, but it is about dignity, equity, and justice for mothers and children everywhere.

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