*International Research Journal of Social Sciences*_______________________________________ ISSN 2319–3565
Vol. **10(1),** 58-64, January **(2021)** *Int. Res. J. Social Sci.*

Review Paper

Indian food beliefs and health behavior affecting women's health during pregnancy: a cross-cultural review

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Available online at: www.isca.in, www.isca.me
Received 8th August 2020, revised 30th November 2020, accepted 22nd December 2020

Abstract

The increasing burden of Maternal Mortality Rates and Pregnancy-Related Complications in the Indian Sub-continent (which is known for its diversity of culture) could be attributed to several major causes, particularly the socio-cultural behavior of the community and individual per se. This ethno-psychology, which lays its impact on ethno-physiology, in terms of dietary behavior as well as health behavior is the core indulgence of this paper. This paper aims to draw some of the major Indian food beliefs and practices during pregnancy which has direct association with health of expecting mother and the fetus. For this rationale, an adequate number of literatures and databases, in Indian and global contexts were reviewed and analyzed thematically to validate the conceptualization of this paper. The paper summarizes the evidences from major datasets showing the problem and factors from well-renowned literatures such as Ayurveda stating hot-cold theory, eating-down strategy, pica foods etc as some the major beliefs. These variables vary geographically and have evolved over course of time. In addition to it, the health service behavior is seen to have inverse relationship with the indigenous belief systems.

Keywords: Health behavior, food beliefs, food taboos, maternal health, pregnancy.

Introduction

WHO defines Maternal Mortality Ratio (MMR) as "The death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes"[1]. But in cases where the cause of death is unjustifiable, another category called as pregnancy-related complications (PRC) is introduced. It is defined as "the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the cause of death"[1]. The Figure-1 represent declining trends of maternal mortality rates since 1990 till 2015, in a study conducted by WHO, UNICEF, UNPF and the World Bank, across all the countries, primarily due to the improved socio-economic condition since then, and also because of the national and international initiatives looking after the causative factors of increasing mortality rates.

But, in continents like Sub-Saharan Africa and South Asia, the rates have been significant even till today. Essentially because these are the developing nations and have their culture and traditions still embedded in their customary beliefs and practices. Considering the Indian scenario, it has shown a remarkable improvement since the last decade of 20th century, but majority of the Empowered Action Group (EAG) States still underperform as compared to the other states particularly Assam, Uttar Pradesh, Orissa and Gujarat.

Maternal Mortality Ratio has emerged as a global inequity marker, to judge the progress of achieving MDGs, making it a 21st century problem, and therefore also put forward the growing attention to the other socio-economic problems as poverty, education, inequality. While studying the factors responsible for Maternal Mortality Rates, particularly in Sub-Saharan Africa and Southern Asia (Table-1), we find hemorrhage being a robust cause of maternal mortality along with other factors like, abortion, embolism, hypertension, sepsis, obstructs labor and other direct complications during pregnancy. There are other direct factors as well that contribute to the alarming MMR worldwide such as pre-medical conditions, HIV or TB etc. Following table shows the variety of pregnancy–related complications across the world and a comparative analysis across different regions of the globe[3].

According to ICMR Pilot Report (2003), PPH (Post-Partum Hemorrhage) and anemia are the predominant factor leading to the maternal mortality across the two regions of districts of U.P. that is Mathura and Kanpur, whereas Delhi stood firm.

Even though there is a reduction in Maternal Mortality Ratio and other pregnancy- related complications over a period of time, but even today across the globe, the problem is enduring at alarming rates. Countries like, Sub-Saharan Africa, India, other developing nations, as well as the least developed nations show adraining trend. Moreover, unlike developed countries, these

countries are highly richin tradition and cultural values in multiplicity varying with time and space. So, in order to combat with the cumulative burden of the MMR or PRM, we need to start from the core of the society that is the culture, traditions and belief systems of society. It would give an insight into the behavioral practices, knowledge system, lifestyle activities, nutritional intake, dietary pattern, and behavior towards uptake of health care services.

This is a review article based on available literatures from various search engines like Google scholar, Scopus, Jstor etc. The studies were selected on the basis of keywords as "food choices", "pregnancy related complications", "maternal mortality", "food beliefs", "food practices", "traditional practices", "food taboos" etc. Along with the literature, datasets on Maternal Mortality rates, Pregnancy-Related Complications were accessed. After reviewing the literature, analysis was done.

Pregnancy: bodily process or cultural episode

Pregnancy and the child-birth (essentially male-child) has always been a celebrated event particularly in Indian society[7]. Across cultures of different countries, there has been wide range of beliefs and practices that are linked to the food choices made by pregnant women during her pregnancy phase in order to avoid any kind of pregnancy-related complications (PRC) and also to promote a healthy reproductive event with a healthy outcome in form of healthy baby. Several factors stand responsible for such food choices, majority of which comes from the cultural practices of the individual, in this case, the pregnant women and her cultural sphere. Several factors have proved to be responsible in causing the poor nutritional status of women such as poor out-of-pocket expenditure, poor quality of food consumed, discrimination in terms of food and healthcare distribution and the lack of efficient ante-natal care. But one of the confounding factors which is rarely taken into account comes from within the belief system of the society thereby affecting the food choices which is generally referred to as ethno-psychology[8]. As rightly stated by Jordan (1982) the phase which is cherished, personal and complex adjoined with contract which is not just physiological in process, but also cultural in its phenomenon with norms, values, attitudes and interpretations of all sorts coming into existence is the phenomenon of childbirth[7].

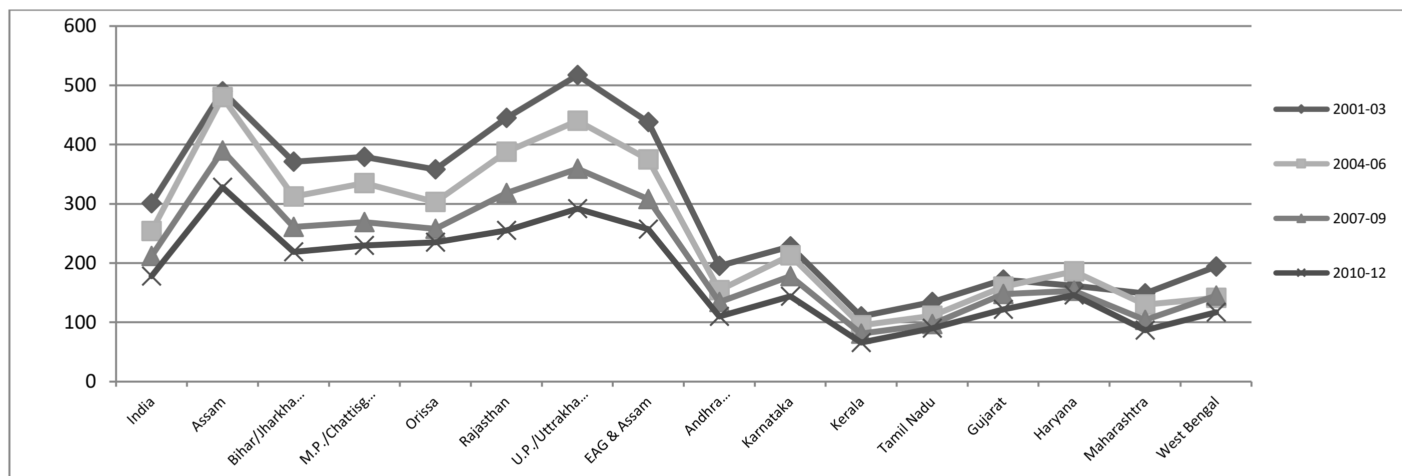

Figure-1: Trends of Maternal Mortality Rates (MMR) in India and its states since 2001-2012[2].

Table-1: Distribution of causes of deaths by MDGs Regions. (*Based on Sub-group analysis of other direct causes of deaths by Millennium Developmental Goal Region[4].

Categories	Abortion	Embolism	Hemorrhage	Hypertension	Sepsis	Obstructed Labor*	Complications of Delivery*
Worldwide	7.9%	3.2%	27.1%	14%	10.7%	2.8%	2.8%
Developed Regions	7.5%	13.8%	16.3%	12.9%	4.7%	0.6%	5.2%
Developing Regions	7.9%	3.1%	27.1%	14%	10.7%	2.9%	2.8%
Latin America and Caribbean	9.9%	3.2%	23.1%	22.1%	8.3%	4.8%	4.8%
Sub-Saharan Africa	9.6%	2.1%	24.5%	16%	10.3%	2.1%	2.1%
Southern Asia	5.9%	2.2%	30.3%	10.3%	13.7%	2.7%	2.7%
South-Eastern Asia	7.4%	12.1%	29.9%	14.5%	5.5%	6.4%	6.4%

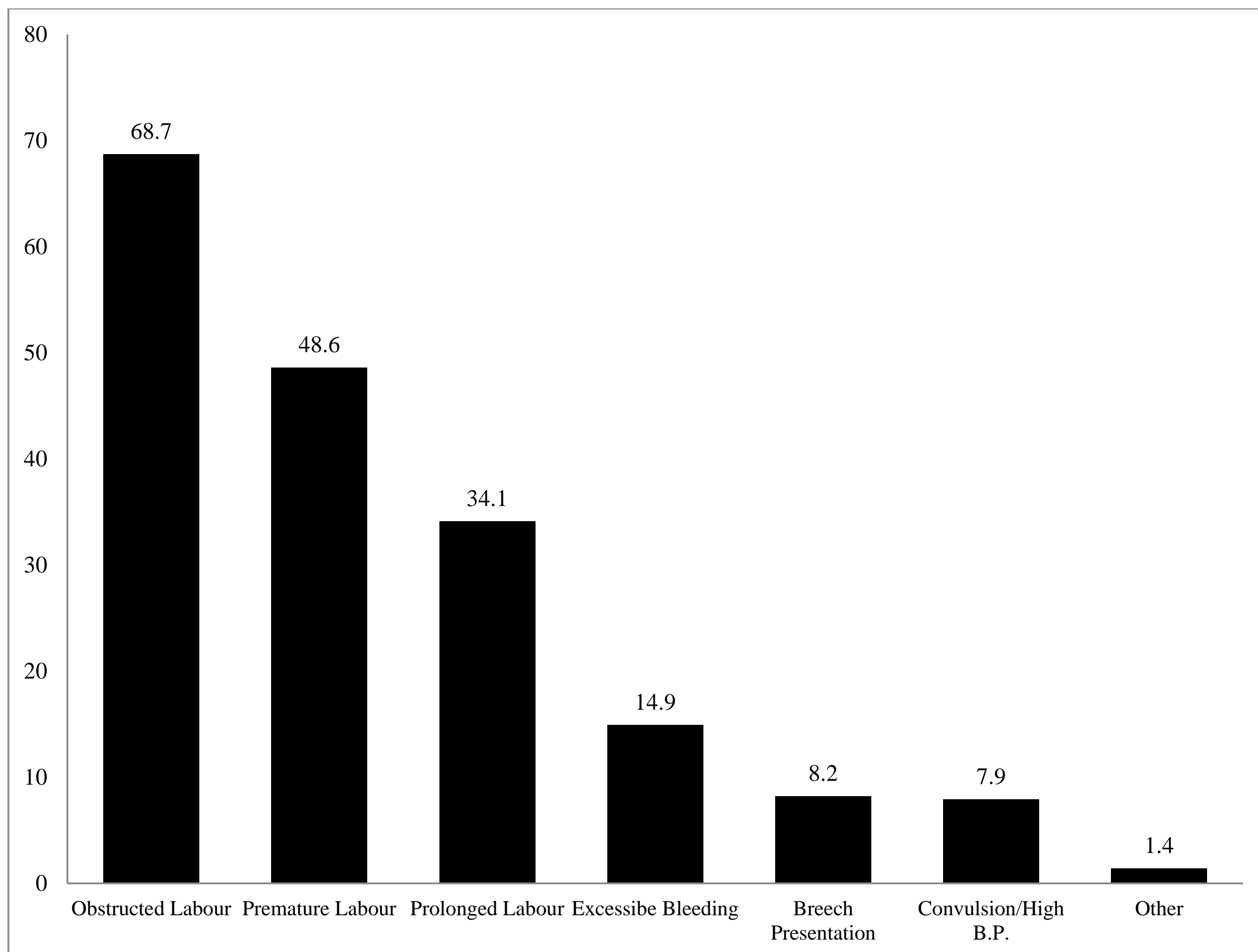

Figure-2: Percentage of women having pregnancy-related complications in India[6].

Indian beliefs in the course of pregnancy

In order to ensure the positive health outcomes during pregnancy, and to provide finest form of health care services, making pregnancy a healthy experience, the role of healthcare provider is imperative. They must identify the community's indigenous knowledge base, belief systems, especially their perceptions and associated practices. In anthropological sense, community is an extended family inclusive of the neighbors, relatives, peers, institutions and the expecting women. There exist set of beliefs and practices that are performed to get the best end product be it in terms of special preferences for male/female child, strength of baby, disease/illness free child, or to avoid complications, whatsoever. So, for this, religion, culture and belief system do come into action, which are drawn from historical cases, elderly involvements or by experiences contained within the community itself. Indian society, has been witnessing these systems of beliefs, tradition, culture, since a very long time. Some of the commonly observed beliefs system practiced across the country are enlisted below.

Special Diet: "Food" is not just a materialist thing to be presented as, but looking from the perspective of society, it has lots of value attached as it proves to be a culture identity marker, a source to converse with the divine and supernatural powers, a matter of choice and definitely a health determinant. So, as a whole, it is a socio-cultural and biological entity that would show the variations with respect to time and space. Gradually, people develop food habits which are drawn either from the staple diet or brought from specific cultural practices of that society. But these food habits and food choices could help in predicting the diet pattern of a given society, community or ethnic group[9]. Following is a list of some of the studies across the country from different zones, showing the list of food items avoided and consumed, and the major reason behind doing so.

Table-2: State wise analysis of patterns and reasons for food consumption and avoidance behavior from research-based evidences.

State of study	Foods avoided	Reasons for avoiding	Foods consumed	Reason for consuming
Karnataka[10]	*Fruit*s: papaya, guava, Banana; Sesame oil seeds; Egg, meat, fish; Brinjal*	Induced abortion; hot foods as egg, fish, brinjal etc; Dark complexion of baby as, guava, sesame, Ragi etc.; and cold foods as curd, watermelon etc.	*Milk products; dry fruits; fenugreek; apple, banana, orange; carrot, beetroot*	Improved memory, IQ, milking; fair skin of baby; blood production etc
Aligarh[11]	*Papaya, fish, Groundnut, Badi Food, Citrus foods, Brinjal and tea*	Abortion, Placental disruption, itching, difficult labor, seizure	-	-
Pondicherry[12]	*Papaya, Mango, Jackfruit, Pineapple, Banana, Grape*	Abortion, Cold foods etc	*Saffron,*	Fairer skin child,
Andhra Pradesh[13]	*Ghee, oil seeds, groundnut, curd, hot foods, Ripe fruits, egg, coconut, fermented rice*	Induce abortion, hairy skin of baby, indigestion, convulsion, edema, PRC, avoid dark complexion baby etc	*Herbal forest produce, meat of wild animals fenugreek seeds, honey, hot water, ginger juice,*	Energy, strength, digestion, controls edema, blood circulation etc.
Bhadrak, Orissa[14]	*Brinjal, Papaya, puffed rice, tea, cold foods, cucumber, sweets*	Indigestion, abortion, naval infection, avoid marks on baby, edema, weakness etc.	*Eggs, pulses, banana, rice, coconut water*	Protein, calories, energy, Vitamins, baby's proper development
Punjab[15]	*Meat, cold milk, guava. Papaya, egg, fish etc*	-	-	-
Sikkim[16]	*Pulses, GLVs, Fruits etc*	Food Taboos, Adverse health outcomes	*Milk products, animal proteins etc*	Energy, Strength, Development

These studies show the similarity in intention behind prescription and proscription of special food items. Indigestion, induced abortion, edema, and the philosophy of hot-cold foods are the underlying factors for avoiding these foods, whereas energy-strength requirement, complexion of baby, nutrition to mother and baby are the underlying factors for consuming special food items. But, again, one need to get acquainted about the major belief systems related to food and health, particularly, hot-cold approach, pica-approach, eating-down approach and adherence to specific food items as mentioned below.

Hot-Cold Approach: It is a more cultural concept with little or no scientific proofs so far but is widely practiced across South Asian countries, not alone India. Basically, certain food items are believed to be or called as "hot" when they are hot in nature and are not beneficial to a pregnant woman and on the other hand, "cold" food are those which are not harmful and have a valuable consequence for women in their pregnancy. It is related to the pregnancy phase, as it is a state where body generates immense heat which could be balanced by consuming "cold-foods" This ethno-physiological aspect depicting a food-body relationship is in fact essential to be followed by most of the society, to avoid any complications during pregnancy. Because of this we get to see a list of proscriptive and prescriptive food items which are apparently practiced for a healthy outcome[8]. For instance, animal foods as eggs, fishes, meat are believed to be hot-food items, particularly in Northern and Western Indian states. The reason behind is not just the nature of food, but also the faith that they would make the baby large and cause further complications. In these states, the cold-foods are, for instance milk, buttermilk etc. as they are believed to increase the blood level and helps in providing strength to fetus and mother. But similar is not the case of South Indian states, where the milk and milk products are allegedly the "hot" food items. Along with the inter-state variation, there is also intra-state variation with perceptions of individuals varying even while belonging to cultural or ethnic group. It primarily depends on the native food or staple crops of that community such as food grains, pulses, cereals, spices, beverages etc. In majority of Indian societies, religious philosophies again categorize the prescriptive and proscriptive food types, for instance animal foods in particular, are prohibited on the basis of "impurity" or "killing and eating" etc.[8]. There is a enormous list of proscriptive food items that an expecting mother is not supposed to eat, but very few can say what to eat during this phase. Generally, women eat the same customary food like any other family member, which often leads digestive troubles. Based on recommendations of her health profession, she then starts consuming nutritional supplements to avoid acidity or other further complications. In cases where people could not afford to go to health

professionals or expertise, they prefer their own cultural knowledge and techniques[9].

Pica Foods: It is not unusual for the pregnant women to have cravings for atypical food items such as mud, clay, ashes from cooking stove, bitter and sweet foods etc. Such food items, which are craved by women and mostly consumed, irrespective of their 'no' nutritious values are referred to as Pica foods. This is not just particular to the cravings of pregnant women, but also among children, and essentially those who are deficient in any fundamental nutrient across all ages and sexes[8]. The question is about why one consumes such foods when it is nutrition-devoid. Indian families are oriented in such a way, that during pregnancy every effort is made to fulfill the needs and desires of a lady in her pregnancy. Cravings are therefore a part of it. There could a scientific reasoning behind the food craving, as deficiency of certain nutrient, for example, the women craves for mud or chalk, might be having deficiency of Calcium in her body, but craving for other non-food items such as, cigarette ashes, toothpaste, ice, soap etc have no justification so far. Thus, these could be harmful to both mother and her baby.

Eating-Down Approach: Some of the bearing of traditional beliefs are associated with reproductive health and pregnancy outcomes. It is a general belief that if one eats less, particularly during pregnancy, the expected baby size tends to be limited, thus avoiding any further complications during delivery. So, this form of traditional belief is entrenched in culturally diverse country like India, thus is predisposed to poor health behavior for nutritional supervision, obstetrics etc. Brems and Berg (1988) have shown that there is a positive association of gaining weight during pregnancy and increasing birth-weight of baby and lesser association with delivery-related complications[8].

Food Taboos: Taboos are specific actions, words, practice or customs that are restricted on socio-cultural and religious grounds and are inappropriate in certain contexts. But, on the other hand, they can also dole out many functions which are beneficiary to human health[17]. Taboos are a part of Indian society, which not necessarily be having any scientific validation, but since has affected at some point of time, these are restricted and strictly prohibited during special phases of human life cycle such as pregnancy, childbirth, menstruation, religious festivities etc. For example, in Hindu religion, The Bhagavad Gita criticizes the consumption of old food which has a scientific reasoning as the food becomes tasteless, sour and therefore unhygienic. While some taboos say that if any of the animal or animal product is consumed by women during her pregnancy she or her baby is believed to re-incarnate in the same form of the animal or product consumed[17]. These taboos and beliefs pertaining to pregnancy vary with respect to time, age, geography and ethnic groups. But sometime, the families avoid certain food item over a period of time, which is then identified as their food habit later on. Varna also has a paradoxical role to play, when talking in terms of food taboos, according to which Hindus should not even bring animal foods to their kitchen. But milk and its products are consumed and reflect on the holiness of cow, which is worshiped as God in every Hindu family[18]. Women are unlikely to consume beef or other animal products, as they are associated with hot-cold theory of belief systems. Now, talking of the South Indian Hindu-followers, animal product consumption is not considered as taboo and is rather believed to be beneficial to human health, as it is more nutritious. In fact, they are also practices on several occasions and festivals[17].

Food behavior and nutritional status

The choice for food made on the basis of traditional and cultural beliefs in practices, may act distanced to the biomedical prescriptions for this particular phase of life to get enhanced or uncomplicated results. As we know by now, this phase needs doubled nourishment, not just because of the mother who has to feed the newborn raised in her womb, but also due to the increased physiological needs of the mother in reproductive phase. From one perspective, we have the cultural values which form the basis of common incidences occurring in our society, but looking from another perspective, we get a health-related problem pictured as the increasing burden of mortality rates, particularly the maternal mortality rates and the child mortality rates[8].

Based on the diet surveys there is the poor status of indicators that would help describe the nutritional status of women during pregnancy. For that matter, many women from poor socio-economic status tend to have normal intake of food during pregnancy due to poor socio-economic status and poor affordability to good food as well as good counselling. Women also do not get sufficient nutrients in their dietary intake. Usually the deficiency is seen in terms of nutrients (both micro- and well and macro- nutrients) such as Iron, Vitamins, Calcium etc. Even the NNAPP (1970) program launched to provide iron and folic acid supplements to pregnant women was found to have little or no impact on the decline of frequency of anemia[8]. While discovering the reason for failure of such programs, and investigating the reason for no improvement, a number of socio-economic factors were identified such as lack of accessibility and affordability, low OPE(out-of-pocket-expenditure), low literacy, etc. Due to lack of affordability, families or communities end up buying low budget food which having insufficiency of nutrients were majority hot category food item because the cold type food were expensive. Moreover, gender discrimination, in having exclusive and special dietary intake is a challenge in a country like India[8]. It is important to note that poorly nourished status along with other pregnancy-related complications, is not always is a consequence of 'eating-down' strategy, but also caused by elevated frequency of consuming unbalanced diet.

Health behavior during pregnancy

Health Behavior is characterized by the kind of health services people adhere to, in taking care of their own health. During

pregnancy, health behavior is understood with respect to general health services, regular check-ups, complication-related visits and other guidance and counselling. Here again, the role of Indian culture predominates in defining the interface of health services with pregnant women. The community and family also partake their responsibilities in determining health behavior. The role of indigenous healing and medical systems, denial to go to modern health care system as government hospitals, and the private clinics and hospitals also occupies their place. In pilot study conducted by ICMR, it was found that, the maximum number of maternal deaths took place when delivery was done at home (46.81%) that too conducted by the untrained dais (44.44%) as compared to institutional deliveries (29.79%)[5]. According to a study, approximately 15% of all reported pregnancy-related complications require a professional or expertise observation. A study showed that there is lesser probability of having PRC, when the women during her pregnancy and delivery and also after delivery frequently consults health care providers. In order to promote this practice, there should be initiatives on the part of health care officials to make the services more affordable, accessible and approachable to them. Moreover, within the family and community, empowering them by giving them the decision-making power at least for herself and her new born, aids a better health-seeking behavior of women during pregnancy[6]. A study observed the decision-making process as very common phenomenon occurring at households in Kerala where the females are the decision makers for food preparation, consumption, etc. Women from poor socio-economic households had poor out-of-pocket expenditure, which remarkably affected the food basket and therefore the nutritional requirement of household and particularly the pregnant woman[19]. Health behavior essentially depends on medical information, and must be carefully monitored using professional advices to deal with nutritional deficiencies[20]. Researches have also shown that food taboos can lead to unavoidable consequences, but very little is known about the effective strategies to lessen food taboos and to use them effectively in conjugation with nutrition related information[21]. Few studies have also evidently proven that the role of fathers could be very effective in promoting healthy food consumption and avoidance behavior amongst pregnant women. A study by Greenhill (2019) showed that because of spouses' healthy and unhealthy behavior, the food choices of pregnant women gets affected, attributing to the underlying construct of social cognitive theory[22].

Conclusion

Indian systems of beliefs and practices have always startled the researchers and health practitioners by its diversity and culture-based orientation. It becomes problematic to justify or generalizes the nutritional approach of these beliefs and practices through scientific corroboration. Therefore, requires an extensive approach into the community, exploring and revising the cultural dimensions of pregnancy. So, this study provides an insight into various beliefs systems, which affects the psychology of community, in turn reflecting upon the physiology of the women during the crucial phase of her lifecycle.

Further suggestion: It becomes clear through these studies that the Indian culture has a definite role in determining the food consumption patterns in the society. But question here remains about whether we need to look over the food choices that these studies have, or do we need to investigate and worry about the food options that they have. The story gets complicated here because, the food options are not defined completely by the Indian culture, and therefore we need to look for the socio-economic dimensions of the food consumption pattern during pregnancy while talking of these prescriptive and proscriptive food items.

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