### Traditional Knowledge Systems: Cross-Culturally Exploring the Medical Anthropology of Diet Wellness

Arya Doshi

Pine View School

### ABSTRACT

Traditional Knowledge Systems (TKS) in Indigenous communities worldwide shape lifestyle and eating habits, with a focus on the thermostatic properties of food and balance in the body. Traditional Chinese Medicine (TCM) and Ayurveda are examples of TKS that emphasize individualized diets based on factors such as age, season, and constitution. In Indigenous communities, cultural beliefs about food during pregnancy influence dietary choices. Villagers in South India consider pregnancy a "hot" condition and restrict the consumption of "hot" foods to prevent excessive heat in the body. Additionally, climate change impacts food security in Indigenous communities, affecting the nutritional status of pregnant women. In Uganda, the Batwa community experienced a loss of traditional food sources due to eviction from their lands, exacerbating food insecurity during pregnancy. Climate change also affects food accessibility and the gender disparities in agriculture contribute to food insecurity. Furthermore, gender differences play a role in the relationship between interpersonal stress and shape and weight concerns, with girls showing stronger correlations in these areas. In this review, we uncover the intricacies associated with creating a diet and emphasize the wide range of cultural influences that shape these choices on an individual and communal scale.

### Introduction

Anthropology is the study of human societies, cultures, and their development. Culture combines beliefs, practices, and symbols that are learned and shared.<sup>1</sup> Together, they form an all-encompassing, integrated whole that shapes people's worldviews, lifestyles, and growth. All human beings share certain needs and tendencies, but culture channels these commonalities differently. Cultural practices that follow can then influence the biology, growth, and development of an individual.<sup>1</sup> The experience of wellness and illness is influenced by the environmental, social, and cultural conditions surrounding an individual. A key point of Anthropology is the idea of cultural relativism, where to understand another person's beliefs and practices, an individual should view it from the perspective of their culture.<sup>1</sup> Comparisons between cultures allow anthropologists to understand various answers to different contexts and problems. Specifically, medical anthropologists take a holistic approach to their exploration of human societies by exploring the various aspects of culture which directly contribute to the health and wellness of an individual in a community.<sup>1</sup>

Culture profoundly influences diet and lifestyle choices surrounding it. This review covers several different aspects of culture: traditional knowledge systems, pregnancy, gender differences, climate change in food insecurity, and eating disorders. Traditional knowledge systems are practiced in many indigenous communities as their prominent measure of medicine.<sup>1</sup> Practitioners of these systems are instilled with cultural notions that play a role in what they consume and how they consume it.<sup>1</sup> Conception and pregnancy are uniquely viewed by each traditional knowledge system, leading to changes in an individual's diet while experiencing one of these biological processes. In addition to culture, climate change and environmental attributes also impact diet choices in a given community. These factors create discrepancies in gender accessibility and food insecurity, adversely affecting certain groups within a community and the community as a whole.<sup>6</sup> Even deeper, individual relationships with food are composed of cultural values and social norms, giving rise to disordered eating and body image concerns. Viewing the relationship between welfare and



diet through the lens of Medical Anthropology allows us to understand important cultural factors that contribute significantly to an individual's health, wellness, and self-image.

#### Traditional Knowledge Systems and Their Role in Sustaining Health

In Indigenous communities worldwide, Traditional Knowledge Systems (TKS) shape each member of society's lifestyle and eating habits. A TKS can be defined as a body of evolving practical knowledge based on observations and interactions of indigenous members of a community over an extensive period.<sup>2</sup> TKS are alternatives to Western Medicine, as it is practiced today, and have been observed in many indigenous populations for thousands of years. In many cultures, food is identified through its thermostatic properties; therefore, certain foods are deemed "hot" and others "cold."<sup>3</sup> These medicinal concepts are comparable to Unani, Persian, and Iranian medicine, which is based upon the Greek physician Hippocrates's concept of "humoral pathology."<sup>3</sup> Humoral medicine creates temperaments, mainly hot, cold, wet, and dry.<sup>3</sup> Shared among different cultural knowledge systems is the idea that excessive consumption or an imbalance of either "hot" or "cold" foods can cause resulting disorders. For instance, balanced consumption of foods opposite in nature is thought to slow down the aging process.<sup>3</sup> These food choices can influence a person's health in several ways. Individuals are considered "healthy" if they consume a proper balance of food based on their thermostatic qualities, constitution, season, susceptibilities, and more.<sup>3</sup>

To understand the role these classifications play in optimizing health and disease in Indigenous communities utilizing TKS, Ormsby uses Google Scholar to conduct an extensive literature review into the "hot" and "cold" classifications of food in non-Western societies.<sup>3</sup> Originating in East Asia, one widely practiced TKS is that of Traditional Chinese Medicine (TCM). TCM is a traditional knowledge system that aims to strike a balance, in this case, between "yin" and "yang."<sup>3</sup> The culinary art of "zhi wei," blends the "five sapors" (acrid, sweet, salt, sour, and bitter) to mix yin and yang. TCM uses the five sapors, which are respectively compatible with certain parts of the body, to treat individuals.<sup>3</sup> Along with the concept of "opposites," in TCM, spicy and sweet foods are "warming," while bitter and sour foods are "cooling." The science of good taste, where the "sapor" and "thermostatic" quality of food is associated with a therapeutic effect, can orient a person's body with a change in the seasons. Food availability is attributed to using foods opposite in thermostatic conditions to a season.<sup>3</sup> Furthermore, these ideas are closely connected to age, gender, constitution, and locality to complete the "inner self".<sup>3</sup> There are also sex/gendered specific ideas in TCM, such as the well-known belief that women should eat "warming" foods after childbirth, which is considered a "cold" condition.<sup>3</sup> Additionally, illnesses should be treated with "susceptibilities," such as weak digestion, in mind. In TCM, these susceptibilities are referred to as "constitutional differences."<sup>3</sup>

Ayurveda, an ancient Indian medical system, was founded upon pre-Aryan Hindu teachings. <sup>3</sup> It relies on a natural approach to physical and mental health through balance in bodily systems. In Ayurvedic medicine, good health and well-being are influenced by a balance between the three "doshas," known as "Vata," Pitta," and "Kapha," which exist in harmony with an individual's diet and lifestyle. <sup>3</sup> Doshas in Ayurveda are comparable to "constitutional differences" in TCM. In Ayurveda, the physiological effects of food after consumption, or "virya," is associated with the coding of food as "heating" or "cooling," and is affected by environmental factors such as the season, freshness, and location at which the food grows. <sup>3</sup> Like TCM, there are also gender-specific ideas associated with hot and cold foods in Ayurveda. For example, men who have a "hotter" nature will take more time to develop a "cold" condition after being exposed to a "cold" environment or overconsuming "cold" foods. <sup>3</sup> Ormsby found that traditional systems generally connected foods that had "heating" qualities, like meats, oils, and alcohols, to metabolism and sympathetic nervous system enhancement through greater amounts of caffeine, carbohydrates, protein, fat, and calories. Alternatively, foods with "cooling" properties, like most foods of plant origin, were thought of as anti-inflammatory and detoxifying, with higher amounts of water fiber, alkalinity, and aliphatic compounds. <sup>3</sup> Other factors such as vibrance, length, method of cooking, and moistening and drying effects of food also affect its thermostatic properties. Raw foods are considered "cooling" and harder to digest than cooked foods.<sup>3</sup>



Traditional Knowledge Systems (TKS) are varied from community to community around the world, serving as a source of non-Western medicine that places emphasis on unfamiliar ideas, such as the thermostatic properties of food and its relation to balance in one's body. TCM and Ayurveda are two prevalent examples of these types of systems, both taking particular care to recognize that each person's diet is unique. Illnesses arise from imbalances in an individual, which are characterized by improper diet according to a number of factors, including age, season, and susceptibilities.<sup>3</sup> Dietary prescriptions change throughout the year in accordance with what is culturally appropriate for a particular context, rather than what is appealing or available on a given budget. An appropriate diet does not stay stagnant throughout an individual's lifetime; it changes comparatively with their constitution and condition at a given time.

### Traditional Medicine and the Role of Food in Sustaining Health During Pregnancy

Pregnancy is among the stages of life history in which beliefs about diet also create dietary restrictions and impact meal planning prescribed by culturally-specific traditional medical knowledge. Villagers in South India consider pregnancy a time of increased body heat, analogous to fruit during the ripening process.<sup>4</sup> Special cases like abortions and premature deliveries are commonly attributed to overheating in the body. The consumption of "hot" foods, like papaya and pumpkin, is restricted to prevent the woman's body from becoming excessively hot.<sup>4</sup> Toxic foods, such as jackfruit and vine spinach, are prohibited during pregnancy.<sup>4</sup> Certain signs on a born baby, such as the appearance of vernix, indicate that the mother did not follow the proper diet while she was pregnant.<sup>4</sup> Dietary needs during pregnancy are altered according to the traditional knowledge followed by the villagers.

Nichter presents a rare case study into the cultural perceptions of fertility in South India and Southwest Sri Lanka.<sup>5</sup> It was found that both areas link fertility to menstruation. In the Sri Lankan context, attention was additionally paid to how health ideology affects family planning behavior.<sup>5</sup> A pronounced decrease in the use of family planning methods comes from the belief that contraception is "heating" and "drying," eventually rendering a woman incapable of conception.<sup>5</sup> According to Sri Lankan folk physiology, conception is not likely to occur during the period of 14 days preceding menstruation.<sup>5</sup> Of 95 women interviewed, a majority used the safe period as a primary means of birth control (65%). However, a majority of those women also reported an unexpected pregnancy (56%).<sup>5</sup> Menstrual irregularity and the range of factors from diet to physical activity and stress impact the frequency and duration of a woman's cycle, contributing to confusion over a woman's fertility.<sup>5</sup>

Nichter introduces another illuminating study that reveals the role of cultural practices and beliefs in constructing a diet during pregnancy.<sup>4</sup> In that study, the author examines the relationship between perceptions of pathophysiology and folk dietetics during pregnancy in the rural areas of Karnataka State in South India. The authors used a community diagnosis survey on the perceived relationship between baby size and food consumption in the North and South Kanara districts to collect dietary patterns and preferences data. Overall, there was a preference for smaller babies and a tendency to consume less food among pregnant women, with the preference being strongest in North Kanara.<sup>4</sup> Informants from both regions believed it advisable to eat less food rather than increase food intake.<sup>4</sup> Most respondents in each region also associated eating less with having a large baby.<sup>4</sup> Most of the very poor thought it better to restrict food intake during pregnancy (83%). The fetus is thought to grow in a space occupied by food, gas, and in some cases, excretion. A baby has less space to grow if that space is occupied by other substances.<sup>4</sup> A pregnant woman's poor appetite and limited digestive capacity engendered by long-term malnutrition were also considered constitutional attributes related to food needs. Morning sickness additionally limits the amount of food a pregnant woman consumes.<sup>4</sup> Malnutrition among pregnant women contributes significantly to high pregnancy wastage, maternal mortality, low birth weight babies, infant mortality, and low nutrient stores in infants and mothers during lactation.<sup>4</sup> A tablet, considered difficult to digest, shares the same body space as a fetus. However, Ayurvedic tonics are viewed as beneficial.4

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Contrary to the preference for a smaller baby, a notion exists that a baby should have enough space to grow to develop properly, which leads to the avoidance of the consumption of gaseous (*Vayu*) foods while pregnant.<sup>4</sup> The informants used decoctions to increase the frequency of urination to remove liquid from the woman's stomach. The liquid gives stillborn babies their "bloated" look.<sup>4</sup> Women often bind their stomachs after delivery as they believe the baby has left an empty space requiring much rice to fill.<sup>4</sup> A baby's body is ideal when it is a muscular (*Pushti*) body. The body should have a high capacity for hard work, though a large body is not necessarily correlated to strength.<sup>4</sup> Digestive power is correlated with body activity, where an active child needs more food and water than a sedentary one.<sup>4</sup> These beliefs about child development prompt specific eating habits for a pregnant mother and a baby.

Diet construction during pregnancy involves planning and the restriction of certain foods based on cultural notions of health. Villagers in South India believe pregnancy to be a "hot" condition, which leads to the prohibition of most "hot" foods for expecting women. There is an overall preference for a smaller baby size, which centers around the concept that pregnant women should eat less in order to give birth to a healthy child. The fetus is thought to grow in a space shared by other contents of the stomach, such as foods, gases, and liquids. While a smaller baby is more favorable, the baby should still have an appropriate amount of space in the stomach to ensure proper growth. For this reason, gaseous foods are also avoided, and urination is induced. Pregnant women's low food consumption is also associated with long-term malnutrition, possibly due to their inability to meet food needs. Cultural and environmental factors play key roles in an individual's diet.

### Climate Change, Food Accessibility, and the Role of Gender in Diet Construction

In addition to traditional beliefs about food's thermostatic properties and the role of nutrition during pregnancy, environmental considerations also shape indigenous communities' dietary choices and access to food. Seasonality and climate change are critical modulators of food security that influence what type of dietary practices and constraints develop in a community at a given time. Due to climate change, Indigenous communities experience more negative health outcomes than urban populations.<sup>6</sup> Both the Batwa and Bakiga Indigenous groups from Uganda are examples of groups endangered by climate change.<sup>6</sup> The Batwa community faced a loss of traditional nutritious food sources after their eviction from their traditional lands, which Bryson *et al.* speculate could disproportionately challenge the community in dealing with instability in local agriculture.<sup>6</sup>

Bryson *et al.* explored the pathways through which climate change influences food security during pregnancy among the Indigenous Batwa ethnic group and non-Indigenous Bakiga ethnic group women in the Kanungu District of southwest Uganda.<sup>6</sup> The women in the study ranged from adulthood to old age, all with at least one pregnancy. Women from each community expressed that climate change has worsened food insecurity. The women frequently attested that access to food during pregnancy impacted an infant's health.<sup>6</sup> Maternal malnutrition influences child undernutrition, which accounts for 35% of child mortality in children under five.<sup>6</sup> Indigenous identity influences food insecurity severity, and adaptive capacity.<sup>6</sup> Unlike the Batwa women, the Bakiga women pointed out ways to adjust to the severe dry periods. The Batwa believe that regaining access to their traditional lands will improve food insecurity, but Batwa women who work in tourism can afford more food while pregnant.<sup>6</sup> Climate exposure-sensitivity was identified as a mediator of maternal health and food security.<sup>6</sup> Accessibility remains a barrier to food and non-traditional resources.

The gender disparities women experience in agriculture also plays a role in food insecurity.<sup>6</sup> Women in Bakiga and Batwa communities are the main food providers in a household. Since harvesting is a labor-intensive job generally done by women in Bakiga and Batwa communities, they often have difficulty accessing food.<sup>6</sup> In indigenous communities within South Asia, external factors aside from traditional beliefs that possibly affect pregnancy are preferential treatment toward males in the allocation of food, economic difficulty, food insecurity, and the view that non-traditional medication is harmful.<sup>4,5</sup>

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Gender differences begin in an individual's childhood and then evolve in adulthood. Dougherty et al. investigate the gender differences in the relationship between interpersonal stress and momentary shape and weight concerns in forty overweight youth ranging from ages 8 to 14. Half the participants were female (53%), and no participants were taking medications that could affect their weight, were involved in a weight loss treatment, and had current diagnoses of Anorexia Nervosa or Bulimia Nervosa.<sup>7</sup> Results showed a strong correlation between interpersonal stress and shape and weight concerns in girls, but little that for boys.<sup>7</sup> For girls, interpersonal stress caused higher shape and weight concerns at the trait level, which is a level that implies a general pattern of thinking across situations, but it lowered concerns at the state level, which is a level that is characteristic of patterns of thinking in a concrete situation at a specific moment in time. Feelings of social rejection, loneliness, and a desire for more friends increased the ratings to shape and weight concerns for between-person effects and decreased the rating for the within-person effect.<sup>7</sup> Other studies have pointed out that girls often value social belonging and connectedness more than boys. Relationships generally play a more integral role in a girl's self-image, rather than a boy's, who are more concerned with muscularity.<sup>7</sup> Body dissatisfaction and weight status have been linked in numerous studies of ethnically and racially diverse youth.<sup>7</sup> As greater reports of body dissatisfaction in overweight youth are linked to a higher risk of them developing an eating disorder, lowering interpersonal stress among girls could potentially lower that risk.<sup>7</sup> In this case study, it was found that young girls were more concerned with the social elements of their life and boys were more concerned with masculinity-defining traits when experiencing self-image concerns, both of which can potentially influence diet construction on an individual level.

Climate change and seasonality can limit food availability in a community. Indigenous groups, such as the Batwa and Bakiga communities, are more prone to variations in climate than an urban population because local food availability is determined by the time of the year and the community's view on health. Instability in local agriculture has worsened food insecurity, specifically for women, and even more specifically for pregnant women and their infants. Women's access to food is limited not only by food insecurity but also by the gender disparities in agriculture that Batwa and Bakiga indigenous groups face. Gender differences additionally seem to shape body dissatisfaction and weight concerns in ethnically and racially diverse girls and boys. Interpersonal stress and the emphasis placed on both social belonging and connectedness are correlated to higher shape and weight concerns in girls, while boys tend to place less importance on those factors. Self-image, along with food accessibility, are important components of eating habits in a community.

# Social Factors, Self-Perception, and Healthy Eating Discourse in Diet Construction

Social factors, self-perception, and individual relationships with food are key factors to consider when understanding food choices and diet construction in any culture. Exposure to media, whether traditional or social, contributes to the habit of social comparison, which influences self-perception. Social comparison theory propounds that people use other people's bodies as a comparison point to their own.<sup>8</sup> Individuals appear to couple their experiences with cultural values to craft their diet. Social factors affect the way an individual perceives themselves, and thus body image concerns are also influential in determining diet. Lim and van Dam explore the connections between attitudes and beliefs regarding food and their connection with socio-demographic variables and healthy eating intentions in a multi-Asian population in Singapore.<sup>9</sup> It was found that about half of the participants additionally worried about their diet's impact on their appearance (49.8%). A majority of the participants considered the effects of their diet on their health (73.8%), with most agreeing that the consumption of "natural" foods is important for health (89.1%).<sup>9</sup> Alternatively, a majority also valued eating pleasure (84.9%), and about half of the participants considered the consumption of a traditional diet eaten by earlier generations as significant (49.8%).<sup>9</sup> The authors found that participants of higher age were more concerned with the health effects of food on themselves and family and friends rather than the pleasure of consuming food.<sup>9</sup> Participants of younger age agreed that food is one of "the most important pleasures in life" and often chose

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the latter when presented with a health-oriented and pleasure-oriented option.<sup>9</sup> Age is an important factor to consider when understanding the food choices an individual makes. Generally, older individuals in these communities were more conscious of the health effects of food.

Similar to Lim and van Dam, Ristovski-Slijepcevic et al. explore the combined influence of culture and Western society on eating habits with a study into "healthy eating discourses" among adult African Nova Scotians, Punjabi British Columbians, and Canadian-born European Nova Scotians and British Columbians in Halifax and Vancouver, two cities on opposite sides of Canada.<sup>10</sup> Three general discourses, or "ways of knowing," about healthy eating were observed: cultural/traditional, mainstream, and complimentary/ethical.<sup>10</sup> The first discourse drew on traditional foods that each ethnocultural group deemed healthy. Knowledge about healthy eating was gained from family or community members and home-cooked meals were considered healthier.<sup>10</sup> Participants agreed some new knowledge was gained from scientific expertise. Common-sense notions, observations on how food is promoted, lifestyles, and habitual eating practices are also influential.<sup>10</sup> The second discourse involved participants' viewpoints on healthy eating based on official nutritional guidelines, which were incorporated into daily eating by all groups of participants. The authors point out that the themes in this discourse were viewed in a more "controlling way," such as the "hazards" of having French fries, rather than a positive way similar to the first discourse.<sup>10</sup> Participants also paid attention to changing health messages as they get their information from easily accessible sources.<sup>10</sup> The third discourse intertwined food with health, moral, and ethical values. These participants were mostly European BC women, with some European NS observations, who considered the source, politics, and trust of the food.<sup>10</sup> Health professionals and food guidelines, which are influenced by the food industry, are less trusted. Personalized nutrition and self-reliance for knowledge of health are much more emphasized.<sup>10</sup> For the Punjabi BC, cultural foods were often modified by mainstream notions of healthy eating. Cultural ways of eating were critiqued, while mainstream ways were not.<sup>10</sup> This shows that cultural notions of healthy eating are impacted by mainstream notions of healthy eating, but a combination of the two is generally deemed optimal.<sup>10</sup> The disconnect between healthy eating messages and the eating practices of people may result from people's conceptualization of food.<sup>10</sup> Both traditional and acculturated participants implemented ethnocultural views on healthy eating, which highlights the importance of culture on food.

As more modern influences factor into health, individuals combine cultural values with mainstream notions that they may choose to incorporate when constructing their diet. Social factors, including new forms of media, can change the way an individual views themself, making it another facet of eating habits. Age plays another role, where younger persons tend to value the pleasure derived from eating, while older persons take special consideration of the health effects of food when eating. The idea of "health" is viewed distinctively in each culture. An individual seeking knowledge about healthy eating can obtain it from another member of their culture, leading to the conclusion that traditional foods are healthier. Mainstream sources, such as official nutritional guidelines, are also regarded when shaping diet and creating changes in eating patterns. The environment surrounding foods is especially considered by some groups, who esteem self-reliance for knowledge over food guidelines, due to the influence of the food industry in the health sector. Accordingly, social factors, self-perception, individual relationships with food, and notions of healthy eating are most apparent in diet construction.

### Conclusion

Traditional knowledge systems classify foods through their thermostatic properties, plant derivatives, seasonal abundance, and constitution. These classifications change how a community eats, uses, and views food and diet construction. This review reveals how incredibly influential these knowledge systems are in constructing the diet of a pregnant woman, where her cultural values regulate the type and amount of food she eats. Furthermore, limited accessibility also plays a role in the diet, creating a barrier between food and non-traditional resources in indigenous communities. Climate change is especially detrimental as it has the capacity to alter agriculture patterns and bring about the loss of traditional food sources. An individual's perception and relationship with food are influenced not only by traditional knowledge from their culture but also by modern-day society. Body image concerns are important to consider when



evaluating diet because they can affect what types of foods an individual chooses to eat and the quantity they consume. Among young people especially, social situations provide multiple contexts for self-comparison with their peers, which this review show to have a direct effect on how they view their bodies. While the field of Anthropology encapsulates all aspects of what it means to be a human, Medical Anthropology specifically draws upon these cultural, environmental, and social variables to better understand those factors which influence health. Culture shapes dietary construction, and many facets of an individual's identity play a role in this process. The factors mentioned in this review are a smaller part of the whole of factors that actively influence choices in food and wellness. It is important to embrace cultural relativism to understand traditional knowledge systems; holistically viewing an individual's food choices helps illuminate factors that would otherwise not be considered to play a role. Since indigenous communities place their traditional knowledge, beliefs, and traditions above other "ways of knowing," educating them about diet construction and healthcare practices should involve a clear understanding of the population's interpretation of the topic at hand. Addressing their health concerns and ideas about ethnophysiology may prove more effective in incorporating modern methods of diagnosis, treatment, and overall healthcare practices when evaluating the health of non-Western cultures. Future research into diet construction and health should always emphasize an understanding of the culturally-defined determinants of health and well-being. This approach is exemplified by the theoretical framework provided by the field of Medical Anthropology. This literature review reveals the complexities involved in diet construction and highlights the breadth of cultural factors that contribute to these decisions at the personal and community level.

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