Title: Understanding socio-cultural influences on food intake in relation to overweight and obesity in a rural indigenous community of Fiji Islands

Abstract

Issue addressed: Obesity and non-communicable diseases (NCDs) are largely preventable by understanding the connection between socio-cultural knowledge, yet intervention effectiveness may be hindered changes in lifestyles and behaviours in Indigenous health. This study performed to understand the social and cultural components, which contribute to obesity in rural areas of the Indigenous Fijian.

Methods: This study is a Community Based Participatory Research (CBPR) project, which engaged community members from a rural iTaukei village in the Fiji Islands. Data collection was carried out through community consultation, and semi-structured interviews. The data was analysed using descriptive thematic analysis.

Results: Food intake was associated with socio-cultural, economic, political and physical environmental factors. Participants reveal previous health promotion programs did not incorporate the cultural values, cultural competence beliefs and traditional ways of rural Indigenous Fijian community.

Conclusion: The healthcare providers and policymakers need to be involved in recognising iTaukei community culture and appreciate traditional methods to promote equitable community participation in decision-making for health promotion.

So what? Community-wide lifestyle interventions, conceptual approaches based on communal perceptions of the problem at hand can also be the basis for future research on identifying socio-cultural factors, for example, the community and family support that can help shape behaviours.

Keywords: Health promotion, food intake, overweight and obesity, culture, Indigenous, Community-Based Participatory Research, cultural competence.

1. Introduction

Obesity is a non-communicable disease (NCD) associated with mortality and morbidity including cancer, cardiovascular disease, diabetes mellitus, mental illness, hypertension, osteoarthritis, and stroke. Obesity is a growing epidemic with increased

economic, social, political, and socio-cultural challenges [1]. Overweight in adults is defined by a body mass index (BMI) of 25 kg/m^2 to 29 kg/m^2, and obesity defined as a BMI of greater than 30 kg/m^2 [2, 3]. By the year 2030, 38% of adults worldwide will be overweight, and 20% will be obese [4, 5].

Over the past four decades, a number of NCD research have been conducted in Fiji. Each study used a different definition of overweight and obesity and adopted different methodology, which impede an accurate estimation of period trends [6]. In 2002, the World Health Organisation (WHO) utilised the STEPS survey to report that 18% of the adult Fijian population was obese[6, 7]. In 2013, using the same study, the prevalence of obesity was reported to be 30.6% [8]. The staple food of Indigenous Fijian people (known as iTaukei) has been influenced by global food transition, the adoption of a western lifestyle, which contributed to the epidemic of overweight and obesity. Over the last three decades, the diet of Indigenous Fijians has shifted from traditional food, high in complex carbohydrates and low in fat to less nutritious westernised food high in refined sugars and fats. A study conducted in 2008 reported a 62% increase in fat intake between 1963 and 2000 [9]. Since then, cheap imported food has become easily accessible there has been increase in demand in many Pacific Island nations, including Fiji [10].

This research aimed to understand the socio-cultural influence on overweight and obesity among rural indigenous people in Fiji. Participants were asked to describe their perceptions regarding food intake and health eating.

2. Methods

2.1 Study design

This study adopted community based participatory research (CBPR) approach, which engaged community members from a rural iTaukei village on Viti Levu, Fiji Islands. CBPR is a collaborative approach which involves all partners or stakeholders equally partner in the process and recognises the unique strengths each brings. CBPR begins with a topic relevant to the community and aims to combine knowledge with action and achieve social change [11]. CBPR has been successfully implemented with

Indigenous populations in developing countries and informed culturally safe health promotion programs and interventions on a global scale [12, 13].

The first stage of this project involved community consultation in negotiating the purpose and process of this research. A Health Research Team (HRT) was established during the second stage, which consisted of principal researcher, local village health worker, community health nurse, primary health medical practitioner, dietitian, community diabetic nurse, and sub-divisional community health charge nurse. The third stage- included data collection, data analysis and dissemination of findings and community feedback and further input from the community to confirm the findings.

2.2 Recruitment and participants

There were three inclusion criterions for participants - 1) rural Indigenous iTaukei, 2) aged 18 years and over, and 3) individuals who have a BMI higher than or equal to 25kg/m^2 (i.e., overweight or obese) [5]. Thus, a convenience purposeful sample for this current study was undertaken [14]. These inclusion criteria ensured a broad range of iTaukei cultural perceptions, which could be explored. Of the 26 overweight and obese iTaukei invited to participate in the study, four overweight and ten obese participants agreed to be interviewed. Twelve [12] people declined to be interviewed or were not contactable.

2.3 Data collection

The HRT collected the data, which the principal researcher was part of the team. The principal researcher was born in Fiji, from an iTaukei mother and a Fijian-born, Indian-descent father. Semi-structured interviews were conducted and community feedback about the qualitative findings were made available. A semi-structured interview guide was developed based on the literature review, project objectives, and the researcher's emic perspective. All interviews were conducted in English language at the participant's home, audio recorded with permission and ranged from 20 - 45 minutes. The interview guide included questions about (1) availability of local food; (2) what 'healthy foods' means and its relevance for healthy eating (the benefits, barriers and

influences) and resources locally available; (3) information available in the community regarding healthy food; (4) culture and body image and (5) healthy eating interventions in the village and the improvements which could be made. Prompts were used to ensure deep and rich information of perceptions and experiences gathered from participants. All participation was voluntary and confidential. Data saturation was achieved after 14 interviews whereby no new concepts or ideas emerged and confirmed with two community consultation and feedback process using the CBPR approach.

2.4 Data analysis

Data analysis was undertaken using descriptive thematic analysis [15]. Data analysis involved the following steps: familiarisation, coding, interpreting and exploring the underlying socio-cultural, physical, economic and political environment linked to obesity [16, 17]. The transcripts were manually analysed and noted for recurrent themes. For example, the key phrases were systematically examined to identify explanatory accounts, and preliminary typologies were developed [18].

Researcher's reflexively is vital to ensure rigor. Researchers should reflexively examine their research, which the researcher to ensure the decisions are transparent during the research process[19]. This is crucial in developing quality in research. For the research design and analysis phases of this study, there were three processes implemented to ensure soundness and trustworthiness. The first process was a discussion guide used to ensure a similar range of questions was covered with each participant. The second process was co-judge concordance undertaken by two others researchers in the research team. Co- judges read three transcripts and agreed on the coding framework. Thirdly, the tentative findings were presented to the community to receive feedback.

3. Results

The findings from the data analysis using descriptive thematic analysis are categorised under (1) socio-cultural, (2) physical, (3) economic, and (4) political environment factors about food intake in the rural community environment (Figure 1). Direct quotes

from participants provided as evidence of the themes. Participant codes included their initials, age and if they were overweight (BMI 25-30 kg/m2) or obese (BMI over 30 kg/m2).

3.1 Socio-cultural Environment

3.1.1 Our ways in the village

The participants often highlighted traditional food intake, which mainly consisted of food high in minerals, vitamins and fiber, a symbol of strength. However, participants mentioned a change in food intake patterns because of ethnic pluralism due to multicultural societies affecting the intake of traditional Indigenous Fijians food and eating habits. The following comment was typical:

> *'Healthy food is … you know the good food that gives you good health—fruits, fish. Don't eat too much meat. We Fijians don't care what they are…' (Age 51, obese, MT).*

Participants stressed iTaukei community do not pay attention to their health issues unless they became sick and described how being healthy is seen very differently in the socio-cultural context of the iTaukei community. iTaukei community perception of being healthy is about eating large portions of food and having multiple servings during mealtimes to gain strength. The village elders often described the iTaukei culture is structured both reflects and perpetuates the notion of large meals and big people as this shows the relative rank and status of individuals within the community.

3.1.2 Gender Roles

Female participants spoke about the gender distribution of food where male members of iTaukei families receive high-status food and greater quantities than females. The study participants described people in the village believe working in the farm is hard work requiring much energy, which compels males to eat more. Majority of participants understood the influence of healthy eating practices and believed they could be role models for the families for healthy eating. Therefore, men and boys are encouraged

to eat healthy food to help them in physically demanding tasks. Females are eating leftover food, which encouraged binge eating habits. One of the participants stated:

> *'Normally that's culture. That is the Fijian culture. Men used to eat first and then the women will eat later but normally eating later that means everything that's left they are going to have it….' (Age 24. Obese, BT)*

The study participants discussed specific gender roles, which include men in the iTaukei communities were responsible for feeding their families through farming jobs, while women restricted themselves to look after the house and to perform domestic duties. Study participants discussed traditional iTaukei family whereby typical cultural practices remain prevalent when it came to gender roles.

3.1.3 Big Bites

The participants feel food plays a central role in the social life of iTaukei. They emphasise sharing meals during feast (called Mangitilevu in iTaukei) in the village, which is an essential element of their social life. A participant commented:

> *'Because here we normally eat roro and bele (green leafy vegetables). When they go there, they have a feast, everything in the Mangitilevu. So that's why people you know eat more there than at home…' (Age 54, obese, PM)*

While participants perceived mangitilevu as vital in the celebration of the key event and during mangitilevu, they eat large portions of food from a variety of dishes, which considered to be a traditional social gathering.

3.2 Physical Environment

3.2.1 Awareness of good (healthy) food

Participants had a wide range of perceptions about eating good food. Some participants described how they always consume locally grown green vegetables and seasonal fruits. Others argued people had to rely on processed foods in more substantial amounts instead of eating fresh vegetables and fruits because the farming lands are situated far from the village, people had to rely on processed foods in more

substantial amounts instead of eating fresh vegetables and fruits. One participant explained:

> *'Our farm is far from the village, and sometimes we are too lazy to go farm to get our vegetables instead we buy tin fish and noodles for our meals.' (Age 28, obese, BT)*

A range of perceived benefits of healthy eating was good for families' wellbeing, as it keeps the body, mind, and soul healthy. All participants were relatively aware of healthy eating practices but what extent they follow these healthy eating practices has been an area of much speculation by the participants.

3.2.2 Access to easy (unhealthy) food

Despite widespread knowledge about food, several participants described the iTaukei people are turning away from traditional staple diets to more processed foods. This is because families and individuals are making choices based on taste rather than for health. The following comment from one of the participants:

> *'I have to make mix vegetables, but usually, we do not have that. I just put noodles, only noodles, and potatoes because it is available from the local store.' (Age 33, obese, SC)*

The participants indicated home prepared food was difficult compared with the availability and taste preferences associated with food which is fast to cook even though it contains large amounts of fats and sugar. Most participants agreed 'junk' food consumption had successfully penetrated the lives of the Indigenous Fijian community, owing to compelling media advertising the paints it in a favorable light.

3.3 Economic Environment

3.3.1 Family support

The participants were aware families no longer involved in farming due to changes in the lifestyle of villagers. Participants felt people are more reliant on processed food in recent times, along with planting cash crops, which leads to more profits. This means families can afford even more calorie rich foods. The following comment is from one of the participants:

'Yeah still mostly using of the time. In the village, they are not using time planting and go to the farm and do something better than nothing. They are lazy. I have noticed ladies sit in groups' whole day and yarn….' (Age 56, Obese, AT)

While participants were aware of, and broadly endorsed people in the village are not doing enough farming to feed their families. Participants fee this is because they are increasingly either inactive or too idle to engage in physically demanding jobs.

3.3.2 Cost of food

The participants explained they have less income than people living in urban areas, which prevents them from buying good quality and healthy food products. As a result, they buy cheap options available at supermarkets and takeaways in the city or from local mini-store in the village. The following comment was typical

'…Most of us in the village until now do not use local food nearly every day. There is daily transport from the village to city. So they just go to the city, sell our fresh vegetables and buy tin fish, cook it, boil, open it, eat without vegetables that's why we eat mostly to tell you the truth. That's why plenty of sicknesses comes from the type of food we eat every day….' (Age 34, Obese, TW)

Although study participants felt subsistence farming was an integral and dominant feature of iTaukei communities, they are generally self-employed and dependent on local agriculture to feed the family. They take their crops to city markets to generate income for their children, pay their school fees, and meet other expenses.

3.4 Political Environment

3.4.1 Food literacy and healthy food campaign

The participants spoke about the benefits of healthy eating, saying there was a lack of knowledge and understanding of healthy eating by most people in the village. Participants believed they lacked knowledge on healthy eating and its benefits for the entire family. A participant highlighted the importance of healthy food by stating:

"We can have sort of an idea when people like you come to the village and explain to us importance of these things ... like this when sitting in the hall, we want you to explain to us and those people they do not want to come so you remember that think of a way that attracts us to come when you stay in the village' (Age 42, obese, VN).

Although participants perceived health professionals had an obligation to deliver advice and support regarding the benefits and linking the community to resources and services available. The community generally perceived lack of general community engagement, education, health promotion, or any communication targeted at the community, were the leading causes of low health literacy, which posed as the main barrier to accessing the health system.

3.4.2 Government support for local produce

While study participants lacked government support when it came to growing local produce, they often felt left out from other communities who have easy access to roads and transportation. Participants highlighted how they felt planting local produce such as healthy fruits, vegetables, and other seasonal crops received no government funding. A response from a participant on government support was:

'I have my suggestion is, you know the government should send a group to come and teach about farming, healthy living, and exercise. We people are very far from the city, and it's hard for us to go to the city and find information' (Age 36, overweight, AK).

The participants cited several perceived internal and external barriers of government support for the local people to carry out farming and led them to rely on cheap food from the mini-stores in the village. Such barriers included people in the village who did not possess equipment and knowledge of seasonal farming practices.

FIGURE 1 Summary of factors pertaining to food intake in the rural community environment

4. Discussion

This paper has explored perceptions and experiences of the socio-cultural context of food linked to obesity in rural iTaukei community. A study conducted in Fiji reported about 62% of the islands' food consumption requirements derived from importation, which has shaped the eating habits and patterns of the 'iTaukei people resulting in significant food acculturations over time [20]. A recent observation by Chelho and colleague in the micro-environmental situation highlights the generation of income through selling local produce in city markets by villagers which are increasingly being used to purchase processed foodstuffs [21]. Media advertisements that market unhealthy processed foods to villagers easily convince the local, iTaukei adults to buy junk food without giving any indication of the adverse health effects. Thus, WHO portrays the iTaukei diet as an unhealthy one rich in fats and sugar and low in fibre and designating the community as a high-risk group for non-communicable diseases (NCDs) [22]. The major nutritional transitions which have adverse effects on health were the shift from the iTaukei staple diet of starchy root crops and fruits to increased consumption of processed foods [23].

Five factors relate to food transition in Fiji [24]. These are ethnic pluralism, overemphasis on cash crop production, the westernised lifestyle which influences local diet, a shift in prestigious food values and the global nutrition industry with regards to changes in agricultural policy. The introduction of the globalising process continues to impact on Indigenous which leads to an inability to maintain cultural continuity such as hunting and subsistence farming [25].

Several gaps were identified in this study, such as declining attempts to promote tailored health-related initiatives, clinical ineffectiveness, lack of accessible and culturally competent health education, and absence of integration into the system of health promotion where needs are complex to prevent obesity and other diseases in iTaukei communities. The findings of this study substantiated previous quantitative studies documenting low levels of obesity prevention knowledge and awareness in the rural iTaukei community [26, 27]. The study data presented have implications for policymakers and Ministry of Health leaders' delegates who can inform and improve health services for the rural iTaukei communities.

Numerous barriers to service delivery continue to prevent iTaukei communities from successfully engaging with health services. iTaukei engagement with health services in rural areas characterised as being one of distrust, poor communication, and overall pessimism about the future of institutional health care.

This study will impact the National Strategic Plan of Fiji 2016–2020.The National Strategic Plan of Fiji 2016–2020 focuses on two strategic pillars [28]. This study provides evidence CBPR and bottom-up approaches which are necessary to address the socio-cultural determinants of health in rural iTaukei communities and should be tailored to the local cultural context.

This study suggests, health policy design involves not merely a material process, but the adoption of community consultation methods utilizing the existing population, which leads to change. It is recommended the needs of the iTaukei people should be understood intimately. This understanding will help local community health clinicians and the local researchers to examine the problem at hand and contribute towards developing long-term solutions.

This study recommends for a primary health care model to be applied to the community; which needs to be redesigned to incorporate better iTaukei cultural, familial, and spiritual needs of the community under study. This study identified the importance of engaging iTaukei people as their social aspect needs to be incorporated before the information related to health care and health promotion are disseminated to them.

4.1 Limitation

Conducting CBPR is time-consuming as it involves working with the community to develop an agenda on a day-to-day basis. The obstacles faced in this work were notably similar to those encountered by other researchers [29-32], especially in applying Indigenous principles. A lack of trust can impede researchers from accessing underrepresented communities, from deepening community engagement, and from forming a true partnership with them [33, 34].

5. Conclusion

Obesity prevention based on socio-cultural appropriateness should be a priority in identifying the mediums of instruction best suited to the iTaukei communities. If culturally tailored obesity prevention campaigns are not made a core element of the

healthcare sector, the increasing costs of healthcare and treatment costs for NCDs could overwhelm and exhaust the entire Fijian health system.

Higher mortality rates of iTaukei families pose a critical issue for direction and leadership and may ultimately destroy entire iTaukei clans. The Fijian Government, along with international agencies such as WHO and AusAID, academic institutions, and community health clinicians must support, create, and report on different campaigns for the prevention of obesity using CBPR principles as an essential mode of delivering health promotion-based programmes.

In addition, there is a need to report the shortcomings and setbacks encountered in this approach so that sufficient structural changes can be made as part of community public health programmes, which can be adequately sourced. With the help of this study, the CBPR approach has proven to be a useful step in working with the iTaukei communities. It is highly recommended that this applies to future research with iTaukei communities, particularly about research that focuses on the widening gaps between urban, rural, and remote population.

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