



## Factors influencing fruit and vegetable intake among urban Fijians: A qualitative study



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### ABSTRACT

Low fruit and vegetable intake is an important risk factor for micronutrient deficiencies and non-communicable diseases, but many people worldwide, including most Fijians, eat less than the World Health Organization recommended amount. The present qualitative study explores factors that influence fruit and vegetable intake among 57 urban Fijians (50 women, 7 men) of indigenous Fijian (iTaukei) and South Asian (Indian) descent. Eight focus group discussions were held in and around Suva, Fiji's capital and largest urban area, which explored motivation for eating fruit and vegetables, understandings of links to health and disease, availability and sources, determinants of product choice, and preferred ways of preparing and eating fruit and vegetables. Data were analysed using thematic content analysis. Regardless of ethnicity, participants indicated that they enjoyed and valued eating fruit and vegetables, were aware of the health benefits, and had confidence in their cooking skills. In both cultures, fruit and vegetables were essential components of traditional diets. However, increasing preferences for processed and imported foods, and inconsistent availability and affordability of high-quality, low-priced, fresh produce, were identified as important barriers. The findings indicate that efforts to improve fruit and vegetable intake in urban Fijians should target the stability of the domestic fruit and vegetable supply and access.

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### 1. Introduction

Fruit and vegetable (F&V) consumption is associated with reduced risks of micronutrient deficiencies (Fulton, Cardwell, McKinley, & Woodside, 2011) and non-communicable diseases (NCDs) (Wang et al., 2014), and may protect against weight gain (Ledoux, Hingle, & Baranowski, 2011). However, most of the world's population eat less than recommended amounts, and populations in low-income countries have the lowest F&V consumption (Hall,

Moore, Harper, & Lynch, 2009; Lock, Pomerleau, Causser, Altmann, & McKee, 2005). The most recent Global Burden of Disease analysis estimated that 4.9 million deaths per year were attributable to low fruit intake and 1.8 million were attributable to insufficient vegetable intake (Lim et al., 2012).

Pacific Islanders have low F&V intake (C-POND, 2014). Throughout the region, extensive dietary changes are occurring, characterised by a shift away from relatively healthy traditional diets towards increased consumption of imported and processed foods low in fibre and high in refined carbohydrates, fat, and salt (DiBello et al., 2009; Hughes & Marks, 2009; Hughes, 2003). Research has shown a more 'modern' dietary pattern to be associated with increased prevalence of metabolic syndrome in Pacific Islanders (DiBello et al., 2009) and the ongoing dietary transition has contributed to dramatic rises in prevalence of obesity and NCDs, creating major health and economic challenges (Anderson, 2012;

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DiBello et al., 2009; Maharaj & Reddy, 2012). Since 1980, mean body mass index (BMI) has increased more in the Pacific Islands than in any other world region (Finucane et al., 2011). In Fiji, 75% of women and 59% of men now are overweight or obese, only 15% of adults meet the national recommendation of five servings of F&V per day, and 10% consume no F&V (Snowdon & Tukana, 2013).

Most previous research exploring barriers and facilitators to F&V consumption is from the US and Europe (Krølner et al., 2011; Rasmussen et al., 2006; Shaikh, Yaroch, Nebeling, Yeh, & Resnicow, 2008; Yeh et al., 2008). Evidence from other parts of the world, including the Pacific Islands, remains limited. To our knowledge, the only in-depth qualitative study of F&V choice with consumers from the region was conducted by Hartman, Wadsworth, Penny, van Assema and Page (2013) and focused on a small sample of New Zealand university students. The authors found taste, health awareness, peer influences, availability, and affordability to be important determinants of F&V consumption. Analyses of household income and expenditure surveys have also identified cost as a key barrier to F&V intake in Vanuatu (Jones & Charlton, 2015). More information from the Pacific Islands is needed to inform the development of effective policies and programmes to increase F&V consumption (Hartman et al., 2013; Snowdon, 2011). Documented ethnic differences in dietary habits and cooking practices within Pacific populations suggests a benefit to conducting research with different groups (Metcalf et al., 2008). The present study explores factors that influence F&V intake among urban Fijians of indigenous (iTaukei) and South Asian (Indian) descent.

## 2. Methods

Focus groups with urban Fijians were used to explore competing influences that affect F&V consumption. Eight groups were conducted in July and August 2012: four with iTaukei participants and four with Indian participants. Data collection ceased when saturation appeared to have been reached.

Adults aged 18 years and older were recruited via existing religious and community groups in the Suva-Nausori corridor, Fiji's capital and largest urban area. This approach was chosen to ensure participants in each focus group were familiar with each other and shared a common language and ethnicity. Initial groups were identified through the National Food and Nutrition Centre's community networks, with a primary focus on women's groups due to women's central role in food purchasing and preparation in Fiji (Schultz, Vatucawaqa, & Tuivaga, 2007). Snowballing led to suggestions for additional community groups. Focus group selection aimed to balance ethnicity and geography (urban and periurban). For each community group, contact was made first with the leader or, when none existed, a selected representative. For participating community groups, a recruitment session was held where the study was explained in English, Fijian, and Hindi.

In total, 50 women and 7 men took part, over half ( $n = 30$ ) were iTaukei. Sessions lasted about an hour and were held at the community groups' normal meeting sites. No compensation was given, but refreshments were provided. All participants provided written informed consent.

The primary facilitator (EHM) led the discussions in English, with a co-facilitator repeating questions in the appropriate local language, as necessary. All facilitators were trained in focus group methods and the study objectives. Participants were encouraged to respond in the language in which they were most comfortable.

Draft focus group questions were compiled by EHM following a search of the literature on factors salient to F&V consumption (Krølner et al., 2011; Rasmussen et al., 2006; Shaikh et al., 2008; Yeh et al., 2008). The other researchers reviewed the questions and

made changes as needed. The topic guide explored motivation for eating F&V, availability and sources of F&V, determinants of product choice, and preferred ways of preparing and eating F&V. A pilot focus group was held in April 2012 and helped refine the topic guide and identify culturally-appropriate and contextually-relevant wording for questions.

The focus groups were audio-recorded with participant consent, transcribed verbatim, and translated into English, if required. Translations were verified by a second person fluent in the language. Transcripts were analysed using thematic content analysis, with a mixture of inductive and deductive coding, to identify emerging themes guided by a template approach (King, 2004). A provisional template was created of deductive themes which were broad, overarching, and relevant to the study questions and food choice literature (Brunsø, Fjord, & Grunert, 2002). Two researchers (EHM and PV) independently read the transcripts, applied this template to a subset of the data, and discussed the coding scheme and emerging themes. A revised template was then applied to all transcripts by EHM. As coding proceeded, additional themes emerged. NVivo software (version 9.2; QSR International, Australia) was used to organise the transcripts and aid the analysis.

This study was conducted as part of a larger project that aims to identify opportunities to increase demand for, and improve supply of, local F&V in Fiji. Ethics approval was obtained from the London School of Hygiene and Tropical Medicine and the Fiji National Research Ethics Review Committee.

## 3. Results

### 3.1. F&V as part of culture and traditional diets

Participants of both ethnic communities reported that traditional dietary patterns influenced F&V intake. Within iTaukei culture, leafy greens often complemented root crops, meat, and fish in meals and, in the Indian community, vegetables were prepared daily in curries. For Hindus, a vegetarian diet was typically observed several days each week and for extended periods during religious functions. Both ethnic groups ate fruits as breakfast foods, snacks, and desserts.

"We can't keep eating meat without vegetables. There will also be green leafy vegetables cooked along with it. And the fruits are used in the morning." (iTaukei woman)

Most participants were aware of population-wide dietary changes and high penetration of local markets by imported and processed foods. Discussions with participants of both ethnicities indicated that traditional foods are still commonly consumed at home and are valued for special events and holidays, but are now often combined with imported or processed foods. Some described growing preferences, particularly of children and adolescents, for eating "junk" foods, such as crisps, pizza, and burgers, over traditional meals prepared with local ingredients. It was felt that young people also favoured imported fruits.

### 3.2. F&V are understood to be part of a healthy diet

Participants understood that F&V are essential components of a healthy diet. Some articulated the importance of F&V to prevent micronutrient deficiencies and diet-related NCDs. Their knowledge of health benefits of F&V came from government campaigns and advice of older community members. Certain F&V were valued for specific health benefits and as traditional medicine, such as leafy green vegetables for prevention of anemia and papaya as a digestive aid. There was no discussion of the role of F&V in weight

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