Purchasing and Consumption Patterns of Green Leafy Vegetables in Maharagama Divisional Secretariat in Colombo District, Sri Lanka

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Abstract
Low fruit and vegetable intake is a main contributor to micronutrient deficiencies in the developing world and is among the top ten risk factors contributing to mortality worldwide. An increased intake of vegetable and fruit is therefore needed. Green Leafy Vegetables (GLVs) are rich source of many nutrients such as vitamin A, vitamin C, riboflavin, folic acid and minerals (Ca, K, Fe, and Na). However, the consumption of GLVs is still low among Sri Lankan households. Therefore this study was carried out in Maharagama DS division with the intention of identifying purchasing and consumption patterns of GLVs in household level. Interviewer administered questionnaires were used to gather data and information relating to purchasing and consumption patterns of GLVs were obtained. Results suggested that *Centella. asiatica, Alternanthera sessilis, Sesbania. Grandiflora* and *Ipomoea aquatica* are the most consumed GLVs and *S. grandiflora, and C. asiatica* are most cultivated types. The average frequency of consumption of GLVs is thrice per week. Most of the respondents used to purchase GLVs from the retailers. Education level, monthly income level and the demographic characteristics of the households did not play a significant role in the consumption of GLVs. When purchasing GLVs, many people considered the nutritional value than the price. Many of the respondents know about packed GLVs which are available in the super markets but 79% do not prefer to purchase them. The findings of the study would be helpful to producers and sellers in assessing market potentials of GLVs.

Key words: Consumption patterns, Green leafy vegetables, Households, Purchasing
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Introduction

It is widely accepted that green leafy vegetables is an important component of a healthy diet, and their consumption could help to prevent a wide range of diseases such as cancers and cardiovascular diseases. Similarly, green leafy vegetables play an important role in nutrition as they are known to be rich in array of nutrients such as vitamin A, vitamin C, riboflavin, folic acid, carotene, minerals (Ca, K, Fe, Na), crude fibers (Prabha, 2009). Other than that, Sri Lanka is an ideal agro-ecological area to cultivate green leafy vegetables. GLVs can be easily grown with their shorter growth period, low amount of input. However, Sri Lankan per capita consumption of green leafy vegetables remains far below the required average daily intake.

According to the WHO, adequate fruit and vegetable intake entails a consumption of at least 400 g of fruits and vegetables per day, (per capita) 146 kg per year per capita) (Ruel, 2004). Therefore there is a requirement to identify patterns behind the purchasing and consumption of green leafy vegetables in household level. This study aims to understand the purchasing and consumption patterns of green leafy vegetables in Maharagama Divisional Secretariat in Colombo District.

Materials and Methods

Maharagama Divisional Secretariat of the Colombo district was selected as the study area. Three GN divisions in the Maharagama Divisional Secretariat were selected for the study using systematic sampling. One hundred and twenty-one households were selected as sample size using simple random sampling technique. Before data collection, a pilot survey was done with four households to pre-test the questionnaire. Primary data were collected through interviewer administered questionnaire consisting of structured questions relating to the individuals socio-demographic data, and the purchasing and consumption decisions (Banwat, 2012). Quantitative data were presented using mean and standard deviation while chi-square test was used to test the association between socio-demographics and the preference level and purchasing and consumption decision. All data collected was analyzed using Microsoft Excel 2010 software package and SPSS 16.0 software package. Rank based quotient (RBQ) was used to analyze the ranked data.

Results and Discussion

Most of the studied subjects were female (76%) and of the age group 30-44 years (40%). Majority of the respondents were Sinhalese

(98%) and Buddhist (92%). The average household size was 4 members. 55% respondents said there are children in their family and 66% said there are elders in their family. A good number had education up to the G.C.E. Advanced level (50%) and were working in private sector (31%). Majority got monthly income between Rs.25, 000- Rs.34, 999 (31%). Finding from the study revealed that majority of the respondents (65%) had a high preference level toward the consumption of green leafy vegetables.

Seventeen species were identified as most preferred leafy vegetables types. Among them *C. asiatica* (24%), *A. sessilis* (15%), *S. grandiflora* (14%), *I. aquatic* (13%) are the most preferred green leafy vegetable types. Sixteen species were identified as most consumed leafy vegetables types. Among them *C. asiatica* (30%), *A. sessilis* (22%), *I. aquatica* (17%), *S. grandiflora* (15%), are the most preferred leafy vegetable types.

S. grandiflora (24%) and *C. asiatica* (23%) are the most cultivated types of leafy vegetables in the home gardens basis. GLVs were consumed in both cooked and uncooked forms. 84% of the respondents consumed leafy vegetables in both cooked and uncooked forms. Sixteen species were eaten in the cooked form including *A. sessillis* (26%), *I. aquatica* (25%), *S. grandiflora* (21%) and Most of the people consumed *C. asiatica* (39%) in uncooked form.

Green leafy vegetables are not included in daily consumed foods among most of the households (92%). Majority of the respondents (37%) consumed greens thrice a week. Praba *et al.* (2009) has shown 51% of respondents consumed greens twice a week among selected households at Bangalore, India. Mathiventhan *et al.* (2014) have also shown overall consumption of GLVs twice a week ranged from 8% to 38% and three times per week ranged from 10% to 45%.

Most of the people (49%) acquire their daily need of consumption of leafy vegetables from both home gardens and the market. 50% of them used to purchase GLVs from the retailers. Rs. 201-400 were spent by 37% of the respondents for consumption of leafy vegetables monthly. There were no associations between the preference level and the demographic factors of the participants. Here, age, gender, ethnicity, religion, household size, children in the family, elders in the family, education background, occupation, monthly income were considered. People prefer green leafy vegetables irrespective of the above factors.

There are no associations between preference levels, way of acquiring daily needs of leafy vegetables, the places that can be purchasing leafy vegetables, frequency of consuming GLVs, and way of consuming GLVs with the education level. Because of people tend to acquire the daily needs of leafy vegetables without considering their educational status.

Again there are no associations between the preference levels, the way of acquiring daily needs of leafy vegetables, the places that can be purchasing leafy vegetables, frequency of consuming leafy vegetables, amount of money spend for GLVs per month with monthly income.

Table 1 described the factors affecting purchasing pattern. According to the rank based quotient nutritional value ranked the first while price ranked last. The results reveal that people tend to look for more on nutritional value of the green leafy vegetables than the price. After looking for nutritional value, they look for cleanliness, freshness and appearance respectively. Therefore people are wise to pay attention more on nutritional value and the quality rather than looking price.

Table 1: Rank based quotient of factors affecting purchasing pattern

Factors	RBQ	Rank number
Nutritional value	83.63	1
Cleanliness	79.83	2
Freshness	63.14	3
Appearance	41.32	4
Price	31.73	5

Majority of the respondents (61%) know the packed GLVs which are available in the super markets. Most of the respondents (79%) do not prefer to purchase packed GLVs which are available in the super markets. People, who prefer to purchase packed GLVs, are willing to pay Rs.50-60 for them.

Conclusion

C. asiatica , *A. sessilis, S. grandiflora, I. aquatica* are most consumed types of leafy vegetables and *S. grandiflora, C. asiatica* are cultivated by most of the households in their home gardens. Leafy vegetables were not among daily consumed foods among many households in Colombo district. There was no significant association between demographic characteristics and the consumption of leafy vegetables. When

purchasing leafy vegetables most of the people look for nutritional value than the price. Even though people aware on packed leafy vegetables, most of them do not prefer to buy those packed leafy vegetables.

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