

# **Nutrition knowledge, food habits and healthy attitude of graduates on diet related chronic non-communicable disease: a cross sectional study in the Southern Eastern University of Sri Lanka**

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## **Abstract**

Non-communicable diseases (NCDs), also known as chronic diseases, are not transmitted from person to person, are of long duration and generally slow in progression. In Sri Lanka, diet-related chronic NCDs currently account for 18.3 percent of all deaths and 10.2 percent of public hospital expenditures. In 2025, chronic diseases are expected to account for 20.9 percent of all deaths. Implications of NCDs include reduced life expectancy, income and savings all of which have a great impact on the economic productivity of a country, bringing about the spiral of ill health and poverty. Graduates are an important section in the society and policy makers in future. Therefore, it is important to estimate the nutritional knowledge on the diet-related chronic NCDs among the graduates. A descriptive cross sectional study was undertaken to assess the nutrition knowledge on diet-related chronic NCDs among graduates of the south Eastern University of Sri Lanka. Purposive sampling method was used to select 200 graduates from different areas. Fifty (50) graduates from each batch from each faculty (Faculty of Applied Science, Faculty of Management studies and Commerce, Faculty of Arts, Faculty of Islamic Studies and Arabic language) were recruited. Questionnaires containing 36 questions [Knowledge of Applied Nutrition (KN), Food Preparation (KP) and Perceived Confidence in Cooking Skills (PC)] were distributed. Knowledge was assessed using a score system, descriptive statistics and SPSS software package. The overall knowledge of graduates was poor; not a single graduate was identified with good knowledge. Gender, home area, religious group of the respondents were not associated with the knowledge level ( $p>0.05$ ). 33% of Applied Science graduates had a satisfactory level of knowledge and it was significant when compared to the other faculties ( $p<0.05$ ). 64.5% of graduates had obtained their knowledge from newspapers and magazines whilst, 3.5% of the graduates had obtained their knowledge from the nutritionist / dietitian.

**Key words:** *Nutrition knowledge, NCDs, Graduates, Diet-related*

## **Introduction**

Non-communicable diseases (NCDs) are the diseases which can not be passed from person to person. They are of long duration and generally slow in progression. The four main types of non-communicable diseases are cardiovascular diseases (like heart attacks and stroke), cancers, and diabetes (WHO, 2011). NCDs have an impact on individuals and families; they also affect economies, health structures and societies. Amongst the many implications of NCDs – reduced life expectancy, overall reduction in consumption, income and savings of individuals plus households and early retirement, all have a great impact on the economic productivity of a country, bringing about the spiral of ill-health and poverty (Abegunde and Stanciole, 2006; Suhrcke et al., 2005).

It has been projected that, by 2020, NCDs will account for almost three-quarters of all deaths worldwide, and that 71% of deaths due to ischemic heart disease (IHD), 75% of deaths due to stroke, and 70% of deaths due to diabetes will occur in developing countries (Barker et al, 1993a). The number of people in the developing world with diabetes will increase by more than 2.5-fold, from 84 million in 1995 to 228 million in 2025 (Barker et al, 1993b). On a global basis, 60% of the burden of chronic diseases will occur in developing countries.

In Sri Lanka, diet-related chronic NCDs currently account for 18.3 percent of all deaths and 10.2 percent of public hospital expenditures (but 16.7 percent of all hospital expenditures). The current loss attributable to diet-related chronic disease is estimated as 0.3 percent of GDP. In 2025, chronic diseases are expected to account for 20.9 percent of all deaths. Currently, dietary factors account for 10-20 percent of these chronic diseases. By 2025, dietary factors (particularly overweight) will increase in importance to account for 18-40 percent of chronic disease, and the importance of low birth weight as a predisposing factor will increase (Popkin et al., 2001)

Even though the genetic factor is involved in the chronic NCDs, it is highly influenced by many environmental factors such as: Unhealthy foods: contain high-salt content, high-sugar content, high trans-fatty acids, saturated fat and by sedentary life style. Since the traditional Sri Lankan diet is vegetable based, a large proportion of adults (82%) do not consume adequate amount of vegetables. Despite the availability of an abundance and variety of fruit in Sri Lanka, the average consumption is found to be inadequate. Despite a modest consumption of fat (15%-18%) by the Sri Lankans, a higher percentage of saturated fats is included in the diet compared to unsaturated fat. Higher saturated to unsaturated fat ratio is an important risk factor for the development of cardiovascular diseases. The daily intake of salt (10g /day) and added sugar (60g/day –based on food consumption data, 35 g/day based on individual dietary records) is also high in Sri Lankan diet when compared to WHO recommendations. Physical inactivity in moderate is a protective factor against

many NCDs. Majority of Sri Lankans (78 %) are engaged in moderate or higher level physical activities (> 600 Metabolic Min /Week). However, only a small proportion is engaged regularly in recreational activity. Females are significantly sedentary (30%) compared to males (19%) and this is also reflected in the higher mean BMI of the former. Alcohol consumption, percentage of current drinkers is significantly higher in males (26.0%) compared to females (1.2%). However, less than five percent of male population takes alcohol more than 4 days per week (Ministry of Healthcare and Nutrition Sri Lanka, 2009).

World Health Organization has proposed a number of actions to address the problem of unhealthy eating behaviors. Among these recommendations, educating the people is expected to be more effective to control the diet related chronic NCDs. It is widely practiced in many developed countries, in the school level as well as in the university level.

Graduates are the most important section in the society. In future they are going to be the policy makers in the country. Therefore it is important to estimate the nutritional knowledge on the diet- related chronic NCDs among the graduates, since there is a deficiency in that knowledge we can make necessary recommendations. Hence the study was carried out with the objective of assess the nutritional knowledge on diet related chronic NCDs among graduate students and to identify the source of knowledge on diet related chronic NCDs among graduates.

## **Methodology**

A descriptive cross sectional study was undertaken to assess the nutrition knowledge on diet-related chronic NCDs among graduates of South Eastern University of Sri Lanka, mainly in the field of Arts, Commerce and Science. Purposive sampling method was used to select 200 graduates from different area. Fifty (50) graduates from each batch from each faculty (Faculty of Applied Science, Faculty of Management studies and commerce, Faculty of arts, Faculty of Islamic studies and Arabic language) were recruited. Equal number of males and females were selected from each faculty.

Self-administrated questionnaire containing 36 questions [Knowledge of Applied Nutrition (KN), Knowledge of Food Preparation (KP) and Perceived Confidence in Cooking Skills (PC)], (Whati, 2005) was used to collect data from respondents. The questions were directed towards gaining information regarding graduates' knowledge on diet-related chronic NCDs, sources of information, and socio-demographic characteristics of the subjects. Knowledge was assessed by using a score system. Data were analyzed by using descriptive statistics and SPSS software package.

## Result and discussion

Preparation of questionnaire to check the nutritional studies in a particular target group is a difficult task. Further, preliminary studies were conducted to select the questions to include them in the final questionnaire. Preliminary study describes an evaluation of validity and reliability measures in a questionnaire designed to assess the knowledge of nutrition in graduates participating in this research, for that, 60 basic nutritional questions were included in the questionnaire and was provided randomly to the graduates (Whati, 2005). Finally each question was checked for answering correctly by 5 to 95% of the target population. The question which did not fulfill the above requirement was removed from the questionnaire. After the preliminary study of two times, the final questionnaire was prepared with 36 questions (Anderson, 2002).

Description of the respondent according to socio – demographic characteristics is give a below (refer: Table 1). Characteristics analyzed were: Faculty, gender, home area and religious group.

Table 1: Description of the respondent according to socio – demographic characteristics (N=200)

Characteristics	Number(N)	Percentage
<b>Faculty</b>		
Faculty of Applied Science	50	25.0
Faculty of Management studies and Commerce	50	25.0
Faculty of Arts	50	25.0
Faculty of Islamic studies and Arabic language	50	25.0
<b>Age (years)</b>		
26-29	77	38.5
30-33	56	28.0
34-37	67	33.5
<b>Gender</b>		
Male	100	50.0
Female	100	50.0
<b>Marital states</b>		
Single	62	31.0
Married	138	69.0
<b>Home area</b>		
Urban	113	56.5
Semi urban	40	20.0
Rural	47	23.5

<b>Religious group</b>		
Muslim	168	84.0
Hindus	20	10.0
Christian	12	6.0
Buddhist	0	0.0

Nutrition knowledge may influence the dietary behavior directly or through nutrition attitudes. Dietary behavior may further become dietary patterns and influence one's nutrient intake. Therefore, understanding people's nutrition knowledge, attitudes, and behavior is the basis for nutrition education (Stanek and Sempek, 1990; McIntosh et al, 1990). Studies on nutritional knowledge in Sri Lanka are very rare, among them; there is no such research on the knowledge of graduate students on diet-related chronic non communicable diseases done in the past years.

According to the results, the overall knowledge of graduates on diet related chronic NCDs were poor (refer: Table 3). Not a single graduate was identified with good knowledge. Faculty of applied science had 33% of satisfactory level in knowledge. Nonetheless, it was significant when compared to the other faculties. As in the case of applied science, increase in the satisfactory level difference may be due to the early knowledge they gained during the advanced level studies. There was no significant difference between the knowledge score and of the gender ( $p>0.05$ ), in another research, which was conducted in Thailand, In comparing the knowledge between male and female adolescents it was found that females had more nutrition knowledge than males with statistical significance at the 0.01 (Ruamsup and Charoenchai, 2011). This deviation in results may be due to the literacy level, which is higher in Sri Lanka when compared to other developing countries and its almost equal among male and female (Central Bank of Sri Lanka, 2005).

### **Overall knowledge on diet related chronic NCDs according to the background characteristics**

Table 2: Overall knowledge on diet related chronic NCDs according to the background variables (N=200)

<b>Characteristics</b>	<b>Knowledge</b>		<b>Significance</b>
	<b>Poor (%)*</b>	<b>Satisfactory (%)*</b>	
<b>Faculty</b>			
Faculty of Applied Science	17(34.0)	33(66.0)	$X^2 = 46.007$ df = 1 p=0.001
Other faculties	126(84.0)	24(16.0)	

<b>Gender</b>			
Male			$X^2 = 0.613$
Female	74(74.0)	26(26.0)	df = 1
	69(69.0)	31(31.0)	p=0.433
<b>Home area</b>			
Urban	79(69.9)	34(30.1)	$X^2 = 0.322$
Semi urban / Rural	64(73.6)	23(26.4)	df = 1
			p=0.570
<b>Religious group</b>			
Muslim	120(71.42)	48(28.5)	$X^2 = 0.003$
Others	23(71.87)	9(28.12)	df = 1
			p=0.959
<b>Marital status</b>			
Single			$X^2 = 1.545$
Married	95(68.84)	43(31.16)	df = 1
	48(77.41)	14(22.58)	p=0.214

\*Row percentage

There is no significant difference between the knowledge score and home area of the respondents ( $p > 0.05$ ). Where 84% of them had poor knowledge, which is higher than the semi-urban / rural area graduates. Most of the rural area is now being urbanized and most of the people in Sri Lanka are going towards the sedentary life style without knowing the consequences of it. In another study which mainly targeted the Taiwanese elderly persons who were female, with lower educational levels, and living in remote areas scored lower on the knowledge scale than males with higher educational levels and living in more urban areas (Lin and Lee, 2005). However, the result variation may be due to the knowledge level gaining on diet related chronic NCDs of the people who were living in either urban or rural are similar.

Table 3: Overall Knowledge of diet-related chronic non communicable diseases (N=200)

Level of knowledge	Number (N)	Percentage
Poor (1-12)	143	71.5
Satisfactory (13-24)	57	28.5
Good (25-36)	0	0.0

Total	200	100.0
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Minimum: 6                      Maximum: 23                      Standard deviation: 4.07

The knowledge score ranged from zero to 36. Minimum, maximum of scores obtained by the respondents were 6 and 23 respectively.

As in the case of religious group, there were no Buddhist graduates found. Most of the graduates were identified to be Muslims and therefore, their knowledge level on diet related chronic NCDs were compared with other religious groups (refer table 2). There was no significant difference found among religious groups, and the knowledge level was almost the same ( $p>0.05$ ). It implies that the availability of sources of knowledge on diet related non communicable disease was low in every ethnic group and the lifestyle of all religious groups was interrelated. There is no association found with the nutrition knowledge on diet related chronic NCDs and marital status of the respondents ( $p>0.05$ ).

Table 4: Number and percentage of sources of knowledge in which the respondents received information on diet-related chronic NCDs.

<b>Source of information *</b>	<b>Number(N)</b>	<b>Percentage</b>
News paper	129	64.5
Magazine	110	55.0
Television	93	46.5
Internet	78	39.0
University	57	28.5
Health personals	43	21.5
Leaflets	25	12.5
Radio	21	10.5
Family	17	8.5
Nutritionist/ dietitian	7	3.5
Others	5	2.5

\* Multiple responses. Others include friend/ peers, awareness programs, patients.

In the case of individual source of information about the diet related chronic NCDs; from all the source graduates are getting their knowledge where newspaper and magazines are used as an important source for getting their knowledge (refer: Table 4). Since, some of the TV channels showing their advertisement for their commercial purpose; it is also used by the graduates to gather their knowledge on chronic non communicable disease. Diet related Chronic NCDs associated with health complications, such as an increased risk of type 2 diabetes and cardiovascular disease (CVD) (Moller and Kaufman, 2005).

When the graduates experience the diet related NCDs themselves, they go to health personals that also found to be a source of providing knowledge. Only 3.5% of graduates gain their knowledge from the nutritionist / dietitian. Nonetheless, people seldom seek nutrition counseling from dietitians because it is not covered by the National Health policy and only some of the private hospitals have a dietitian and it's very rare in government hospitals. As a result, medical practitioners or nurses have become the major sources of nutrition information. However, many studies have indicated that the nutrition knowledge of doctors and nurses is not satisfactory (Dappen et al, 1986; Harrison et al, 1969).

### **Conclusion /Suggestion**

The overall knowledge of graduates on diet related chronic NCDs was poor. Gender, home area, religious group, marital states of the respondents turned out to be not associated with the knowledge level on related chronic NCDs. Statistically there was significant association found between the faculty of Applied Science with other faculties. Increase of the knowledge level of graduates might increase the awareness and it would lead the society to minimize the diet related chronic NCDs. So it is suggested that the Nutrition studies should be added as a compulsory subject in each and every degree programs provided by Sri Lankan Universities to feed the knowledge on diet related chronic NCDs. This study was only restricted to the graduates of South Eastern university of Sri Lanka due to the time constraints and resource limitation. It is recommended; in future, further studies should be carried out through out the country to find out knowledge level of the graduates on diet related chronic NCDs.

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