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Title: Non-communicable disease diet risk knowledge: a population-based study from three urban poor communities from Accra, Ghana.

Abstract

Objective: To measure the knowledge level of adults about the diet risk factors for non-communicable disease and to test whether the knowledge level differed by NCD status of individuals

Method: The CVD knowledge scale was administered to 781 persons in 2013. Four items on intake of fatty foods, red meat, salt and fruits and vegetables were administered. All the items were based on "Agree," "Disagree" or "Don't Know" statements. The results of individuals with NCDs was compared with individuals without NCDs. Statistical analyses were applied to the data.

Results: The rates of correct responses varied between 29.3% and 93.0%. The mean score was 2.4.±1.15 (range 0 to 4). Thus NCD diet risk knowledge was low. There was no significant difference in the knowledge level of individuals with NCD history and those without NCDs.

Conclusion: NCD diet risk knowledge was low. The low level of knowledge is risky for prevention of the disease among individuals without NCDs and for prevention of complications among persons living with NCDs.

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1.1 Background

The prevalence of chronic non-communicable diseases and obesity have been rising in all regions of the world. Cardiovascular diseases, diabetes, cancer and chronic respiratory diseases are the most NCDs. Currently, NCDs are the principal cause of death and disability worldwide. In 2008, 63% of the global deaths (36 million) were due to NCDs (WHO, 2010). Population projections indicate that by 2030 NCDs will claim 52 million lives. Also, the prevalence of obesity has doubled globally since 1980. In 2014, about 1.9 billion adults aged 18 years and over were overweight and out of these 600 million were obese (WHO, 2015). The increasing prevalence of NCDs have also been reported in low and middle income countries. In 2008, nearly 80% of NCD deaths were estimated to occur in low and middle countries (WHO, 2010).

The change in food intake from foods of high nutritional quality to foods of limited nutritional quality is taken place alongside population aging and disease transitions (Agyei-Mensah & de-Graft Aikins, 2010; Popkin, Adair, & Ng, 2011). Population health research report evidence of an increase in obesity, hypertension, diabetes, strokes and other non-communicable diseases (NCD) associated with the nutrition and the epidemiological transition (Popkin, Adair & Ng, 2011). The prevalence of these conditions and its burden are high in urban poor communities (Awuah, Anarfi, Agyemang, Ogedegbe, & de-Graft Aikins, 2014; Ga Mashie Study Team 1996, 1996).

In Ga Mashie, the high NCD prevalence of has been related to low intake of fruits and vegetables, high intake of saturated oils (e.g. fried fish, fried pork, fried rice), processed foods and out-of-home meals in the community (Dake, Codjoe, & Agyei-Mensah, 2014). In addition to the residents practicing poor dietary behaviours, nutrition problem in the community extends to others who do not reside there. This is because about half of Ga Mashie residents work in the food industry as food vendors, fish mongers, food processors and/or bakers (Mahama, Acheampong, Peprah, & Boafo, 2011). Yet, an in-depth examination of the knowledge of adults about the diet risk factors for non-communicable disease is minimal, if not absent in this community. Therefore this study examines the knowledge level of adults about the diet risk factors for non-communicable disease and tests whether their knowledge differs by history of NCDs.

1.2 Methods

The data for the study was derived from the EU Cooperation Programme in Higher Education (EDULINK) round three. The Regional Institute for Population Studies (RIPS). RIPS, in partnership with the Secretariat of the African Caribbean and Pacific Group of States – ACP-EU Cooperation Programme in Higher Education (EDULINK) and the International Development Research Centre (IDRC), has established an active research field site Agbobloshie, James Town and Ussher Town. The round three survey was conducted in September, 2013.

The participants were administered the WHO cardiovascular health knowledge scale during interview. The CVD scale contained four items on intake of fatty foods, red meat, salt and fruits and vegetables. All the items were based on "Agree," "Disagree" or "Don't Know"

statements. All correct responses were scored as one, while incorrect responses which included "do not know" were assigned a score of zero. In addition, a self-report of NCD status and demographic characteristics were recorded.

The data was analysed using STATA. The demographic characteristics of the participants were reported using descriptive statistics (frequencies, proportions, and means). The mean scores were compared with t-tests and relationships were assessed by multiple linear regression.

1.3 Results

1.3.1 Characteristics of respondents

The respondents were aged between 15 and 59 years (mean 30.3±10.83). Fifty-five percent of the participants were women. About two-third of respondents lived at Ussher Town, 27% lives at James Town and 14% lived at Agbogloshie. JHS/Middle was the dominant level of education attained by the respondents (43%). About 5% of the sample reported having been diagnosed with an NCD such hypertension, diabetes and stroke.

Table 1. Characteristics of respondents

Variable	%	Frequency
Age	30.3/10.83	(15-59)
Sex		
Male	44.4	347
Female	55.6	434
Locality		
Agbogloshie	14	109
James Town	27.5	215
Ussher Town	58.5	457
Educational level		
None	7	55
Primary	16.4	128
JHS/Middle	42.6	333
Secondary +	33.9	265
History if NCD		
Has NCD	4.5	35
Do not have NCD	95.5	746
Total	**100**	**781**

1.3.2 Non-communicable disease diet risk knowledge

Participant's knowledge of NCD diet risk knowledge was low (2.4±) (Table 1). About 70% of the respondents did not know that fatty foods increases cholesterol. A third of the respondents did not know the salty foods increases blood pressure. Another third did not know that consumption of red meat for more than three meals per week was unhealthy. Almost all the respondents knew that eating fruits and vegetables daily is good for health. The level of knowledge did not differ among persons living with NCDs and those living without NCDs.

Table 2. Non-communicable disease diet risk knowledge

Food knowledge	Correct responses		
	Lay individuals (%)	Individuals living with NCDs (%)	Total (%)
Salty food causes high blood pressure	73.9	77.1	74.0
Fatty foods do not increase blood cholesterol	29.6	22.8	29.3
More than 3 meal per week of red meat is not good for your health	67.2	71.4	67.3
Eating fruits and vegetables every day is beneficial	93.0	94.3	93.0
Mean	2.4	2.5	2.4
Food knowledge *NCD status	β=0.01; p=.959		

When other factors where controlled for, the knowledge level of persons of NCD was lower than those without NCD, even though the relationship was not significant (Table 3). Females had significant less knowledge of diet risk of NCDs than men (B =-0.01; p=0.042). The level of knowledge did not differ by place of residence. Respondents with secondary and higher education had higher knowledge than those without education.

Table 3. Predictors of knowledge of diet risk of NCDs

	β	p
Age	-0.04	0.99
Sex		
Male		
Female	-0.01	0.042
Locality		
Agbogloshie		
James Town	-0.38	0.082
Ussher Town	-0.46	0.114
Educational level		
None		
Primary	-0.49	0.173
JHS/Middle	-0.06	0.723
Secondary +	0.28	0.4
History if NCD		
Do not have NCD		
Has NCD	-0.04	0.921

1.4 Conclusion

The respondents had good knowledge of the consumption of fruits and vegetables for health. However, they had poor knowledge of the risk of salt, fatty foods and red meat for NCDs. The level of knowledge did not differ by NCDs status and demographic status. Therefore the knowledge of diet risk of NCD is low across population sub-groups in the study communities. The low level of knowledge is risky for the prevention of disease among lay persons and for prevention of complications among persons living with NCDs.

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