Research Article

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Assessment of salt intake behaviour among undergraduate health care students studying in London

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ABSTRACT

Background: Excessive salt intake causes high blood pressure and cardiovascular diseases. Salt intake behaviour among health care students is still unexplored. The objective of the present study is to assess the extent of salt intake behaviour among undergraduate health care students studying in a university in London.

Methods: This is a descriptive cross-sectional study. The participants of this research are undergraduate business and healthcare management students. Students were invited to complete the online questionnaire by sending the link through emails.

Results: A total of 132 students completed their questionnaire. The results reveal that about 70.4% female respondents take salt and about 54% male respondents take salt in their foods. Respondents who are above 35 years of age take less salt compared to those who are less than 35 years of age. Household earning and salt intake behaviour do not show any significant differences.

Conclusions: This study just provided a snapshot of salt intake behaviour among the healthcare students but more innovative health promotion approaches may help in future to make people aware of the recommended salt intake and its impact on their health.

Keywords: Salt intake, Students, Healthcare, Behaviour

INTRODUCTION

Excessive salt intake in food is a major public health concern worldwide in recent time. High salt consumption can cause high blood pressure and cardiovascular problems. The relationship between dietary salt intake and high blood pressure has been researched by experimental, epidemiological, migration and intervention studies. Hypertension due to high salt intake and their causal relationship is globally accepted. It is now widely recognised that alteration in sodium handling by kidney plays an important role in the pathogenesis of all forms of hypertension. Evidence suggests that 30% of the cases of hypertension happens due to salt added to food. There are differences between developed and developing world in regards to salt intake. The primary source of salt in diets comes from processed foods in developed world

whereas in the low and middle-income countries people like to add salt while cooking their foods. Therefore, salt (sodium chloride) intake is hidden and people are unaware of how much salt they are consuming on a regular basis.⁵ Research also indicates that even modest reduction of salt intake is also associated with cardiovascular problems.6 It has been found that food consumption is dictated by beliefs and cultures.⁷ In the UK, it has been found that a significant proportion of the respondents found themselves to be health conscious but they were not fully aware of the health issues regarding salt in the diet.⁸ Review studies suggested that a greater number of women and those with higher education levels have higher levels of knowledge about salt intake.9 According to World Health Organisation, recommended maximum consumption for an adult is 5 g salt/day. 10 UK National Food Survey data collected in 2000 revealed

that cereal products accounted for the highest proportion (38%) of salt intake among the households.⁵ It has been reported that an individual's diet and physical activity habits are generally influenced by their knowledge and attitudes towards that behaviour.11 Health Survey for England reported that most of the adults were aware of the national public health campaigns that addressed issues like reduce salt intake. 12 An African study found that average daily salt intake and inadequate behaviour were related among the medical students in Angola. A study on knowledge, attitude and practices medical and non-medical students in Pakistan revealed that superior knowledge about healthy lifestyle does not result in better practices. 13 By giving a clear picture to the population regarding salt intake and understanding how to use salt and also identifying the best way to reducing salt intake is very important to improve health status of the population both in developing and developed world. Lifestyle changes like having healthy diets are important to maintain blood pressure level and to control cardiovascular diseases.¹⁵ Though available research suggest negative health impact of salt intake, the understanding related to behaviour of salt intake is not clear and profuse. 16 The objective of the present study is to assess the extent of salt intake behaviour among undergraduate health care students studying in a university in London.

METHODS

This is a descriptive cross-sectional study. The participants of this research are undergraduate business and healthcare management students who are in their 1st year of study. The study was undertaken in March and April 2016. Both business and healthcare management students who were enrolled in their 1st year of studies were contacted by email for the participation in the research. Data were collected using anonymous online questionnaire. Students were invited to complete the online questionnaire by sending the link through emails. A total of 132 students completed their questionnaire. For data collection process, STEPS instrument version 3.1 by WHO, was used and only STEP 1 was used in this research. The university's internal ethics committee accepted ethical approval of the research. All the participants were given information about the purpose of the research in detail and informed consent of their willingness to take part in the research was taken. All the information collected from the respondents was kept confidential and anonymous. The data was entered in Microsoft Excel and analysed using IBM SPSS version 20.

RESULTS

The study results presented that about 81% of the respondents were female students and about 18% students were male. The highest (40%) percentage of students was in the age group 36-45. The lowest percentage of students was in the age group 55 and

above. Approximately 11% respondents said that they are aged between 18-25 years of age. The mean age of the respondents was 37.6±50.5 years as shown in Table 1.

Table 1: Background characteristic of the respondents.

Male 24 18.2 Female 108 81.8 Age 18-25 15 11.4 26-35 38 28.8 36-45 53 40.2 46-55 21 15.9 55+ 5 3.8 Marital Status Cohabitating 4 3.0 Currently married 42 31.8 Divorced 12 9.1 Never Married 36 27.3 Separated 18 13.6 Widowed 2 1.5 Prefer not to say 18 13.6 Work Status Government employee 16 12.1 Non-government employee 16 12.1 Non-government 37 28 employee Self employed 13 9.8 Non paid 2 1.5 Student 132 100 Homemaker 2 1.5 Retired 0 0 Unemployed (able to work) 3 2.3	Characteristics	Frequency (n=132)	Percentage
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	Between £50000-£60000		
Above £60000 3 2.3	Above £60000	3	2.3
Prefer not to say 36 27.3	Prefer not to say	36	27.3

Among the respondents, about 31% respondents are currently married and 27% respondents were never married. Approximately 13% students are separated. About 28% of respondents are non-government employees and 12% of them are working for government. About 10% respondents stated that they are self-employed. Almost 44% respondents said that their

income is between £10000-£20000 and 20% respondents are earning between £20000-£30000.

Table 2: Distribution of respondents by their salt intake behaviour.

Distribution	Frequency	Percentage			
Eat fruit in a week					
Less than 3 days	46				
More than 3 days	86	65.2			
Eat vegetable in a week					
Less than 3 days	40	30.3			
More than 3 days	92	69.7			
Add salt or salty sauce to fo	od				
Always	33	25.0			
Often	11	8.3			
Sometimes	24	18.2			
Rarely	36	27.3			
Never	27	20.5			
Don't know	1	0.8			
Add salt or salty sauce to ac	dded to cooki	ng			
Always	70	53.0			
Often	21	15.9			
Sometimes	18	13.6			
Rarely	20	15.2			
Never	1	0.8			
Don't know	2	1.5			
Eat processed food high in s	salt				
Always	9	6.8			
Often	13	9.8			
Sometimes	51	38.6			
Rarely	41	31.1			
Never	18	13.6			
Don't know	0	0			
Consume salt					
Far too much	6	4.5			
Too much	20	15.2			
Just the right amount	63	47.7			
Too little	18	13.6			
Far too little	9	6.8			
Don't know	16	12.1			
Importance of lowering the salt in your diet					
Very important	87	65.9			
Somewhat important	33	25.0			
Not at all important	8	6.1			
Don't Know	4	3.0			
Salt intake cause health problem					
Yes	124	93.9			
No	8	6.1			
Don't Know	0	0			

Table 2 shows distribution of respondents by their salt intake behaviour. About 65% respondents eat fruit more than 3 days a week and almost 70% students eat vegetables more than 3 days a week. About 25% respondents always use salt in their food and 27.3%

rarely use salt in their food. A vast number of respondents (53%) added salt or salty sauce to their cooking. About 38% respondents sometimes eat processed foods, which are high in salt. High percentage of respondents (48%) consumes salt just at the right amount. About 66% respondents think that it is very important to lower salt in their diet and 94% reported that too much salt intake cause various health problems.

Table 3 displays information about respondent's history of health problems. About 33.3% respondents reported that they have High BP for the last 12 months and 16% of them are taking medication. About 24.2% respondents said that they have been diagnosed with diabetes in the last 12 months and 11% of them are taking medication and only 6% respondents are taking insulin. Almost 50% respondents reported that they have high cholesterol and only 4.5% respondents stated that they had once suffered from a heart attack. Only 6% respondents are taking aspirin regularly.

Table 3: Distribution of respondents by their history of BP, diabetes, raised cholesterol and cardiovascular disease.

Patients history of	Frequency		Percentage		
health problems	Yes	No	Yes	No	
History of BP					
BP Measured	123	9	93.2	6.8	
Have High BP	36	96	27.3	72.7	
High BP in last 12 months	44	88	33.3	66.7	
Medication	22	110	16.7	83.3	
History of diabetes					
Blood sugar measured	92	40	69.7	30.3	
Raised blood sugar	23	107	17.4	81.1	
Raised blood sugar in last 12 months	32	100	24.2	75.8	
Medication for diabetes	15	117	11.4	88.6	
Insulin for diabetes	8	124	6.1	93.9	
History of high cholestero	l				
High cholesterol	65	67	49.2	50.8	
High cholesterol told by doctor	24	108	18.2	81.8	
High cholesterol in last 12 month	25	107	18.9	81.1	
Medication	9	123	6.8	93.2	
History of cardiovascular disease					
Ever had a heart attack or chest pain	6	126	4.5	95.5	
Taking aspirin regularly	8	124	6.1	93.9	

The cross tab analysis in Table 4 presents those respondents (37%) over 35 years of age who have high BP and 55% respondents who have high cholesterol. The respondents with household earning more than £30000 about 58% of them have high cholesterol. About 37.5% male respondents have high BP, and almost 71% male respondents have high cholesterol and about 25% female

respondents have high BP and 44% have high cholesterol. The results also show that males suffer more with cardiovascular diseases than females. The marital status results indicate that the respondents who are married and cohabiting suffer less from diabetes than other categories. 52% Respondents who are married and cohabiting have high cholesterol. Salt intake behaviour results show that those who are taking too much salt

about 32.6% of them have High blood pressure and 55.8% of them have high cholesterol. About 11.6% respondents reported those who take salt have suffered from cardiovascular diseases. On the other hand, those who take less salt 85% of them have diabetes compared to those who take a high level of salt only 72% of them have diabetes.

Table 4: Association between characteristics of respondents, salt intake behaviour and BP, diabetes, high cholesterol and cardiovascular disease.

	High BP		Diabetes High cl		High ch	olesterol	Cardiova	Cardiovascular disease	
	Yes	No	Yes	No	Yes	No	Yes	No	
Age of the respondents									
< 35 years of age	13.2%	86.8%	9.4%	86.8%	39.6%	60.4%	1.9%	98.1%	
> 35 years of age	36.7%	63.3%	22.8%	77.2%	55.7%	44.3%	6.3%	93.7%	
Household earning									
Less than £30000	32.1%	67.9%	16.7%	82.1%	44.0%	56.0%	4.8%	95.2%	
More than £30000	18.8%	81.2%	18.8%	79.2%	58.3%	41.7%	4.2%	95.8%	
Gender									
Female	25.5%	75.0%	15.7%	82.4%	44.4%	55.6%	3.7%	96.3%	
Male	37.5%	62.5%	25.0%	75.0%	70.8%	29.2%	8.3%	91.7%	
Marital status									
Married or Cohabitating	26.1%	73.9%	13.0%	87.0%	52.2%	47.8%	2.2%	97.8%	
Others	27.9%	72.1%	19.8%	77.9%	47.7%	52.3%	5.8%	94.2%	
Salt intake behaviour									
Too less	24.7%	75.3%	12.4%	85.4%	46.1%	53.9%	1.1%	98.9%	
Too much	32.6%	67.4%	27.9%	72.1%	55.8%	44.2%	11.6%	88.4%	

Table 5: Association of socio demographic variables, knowledge of respondents with salt intake behaviour.

Variables	Salt intake behaviour		
	Yes	No	
Gender			
Female	70.4%	29.6%	
Male	54.2%	45.8%	
Importance of salt			
Very important	66.3%	33.7%	
Not very important	71.1%	28.9%	
Age of the respondent			
<35 years of age	84.9%	15.1%	
>35 years of age	55.7%	44.3%	
Household Earning			
Less than £30000	67.9%	32.1%	
More than £30000	66.7%	33.3%	
Marital Status			
Married or cohabiting	56.5%	43.5%	
Others	73.3%	26.7%	

Table 5 explores the relationship between respondents' sociodemographic variables and their knowledge about the importance of using salt in their food with their salt intake behaviour.

The results reveal that about 70.4% female respondents take salt and about 54% male respondents take salt in their foods. Respondents who are above 35 years of age take less salt compared to those who are less than 35 years of age. Household earning and salt intake behaviour do not show any significant differences. Those who are married and cohabiting, use less salt in their foods, and respondents from other categories, about 73% of them use salt in their foods. The respondents who think it is important to reduce salt in their diet about 66% of them use salt in their foods and the respondents who do not think it is important to reduce salt in their diet about 71% of them use salt.

DISCUSSION

The study was conducted among the undergraduate business and healthcare students to assess their salt intake behaviour. The results indicate that the respondents are aware of the importance of reducing salt in their diets. Almost 94% respondents revealed that they know that salt intake causes different health problems. About 39% respondents said that they sometimes eat processed foods and 53% of the respondents always add salt in their cooking which is far less than a Greek study where the researchers found that about 72.4% respondents add salt during cooking.²⁰ The study results display that the participants of this research are more knowledgeable regarding salt intake compared to other researches for example in a study in Angola medical students revealed that only 6.5% of them are aware of excessive salt intake. A study on cardiovascular risks among university students from developing and developed nations shows significant variation in cardiovascular risk among the young adults studying in universities.¹⁷ Too much salt intake is associated with development of cardiovascular diseases is also in line with other research findings where it has been established that there is association between habitual salt intake and cardiovascular diseases. 18,20 Studies also showed that women tend to have better knowledge about salt intake compared to men and significant consumption of salt intake is associated with increasing age.²⁰ Those participants who usually take too much salt in their foods are found to suffer with high BP is one of the prominent findings of this research. This in line with a review finding where it shows that obesity coupled with lack of exercise is a crucial factor for developing hypertension but the research revealed that there is stronger evidence of relationship between higher salt intake and hypertension and BP rises with increasing age.²¹ Male participants suffered more health problems compared to the female participants in the research and similar findings are reported in Europe where salt intake in males are higher than females.²² There are some limitations of the study. The study was conducted with a very small sample size which may not be representative of all healthcare students studying in university's in London. The study findings established that the respondents have good knowledge about salt intake and its implication of health.

CONCLUSION

This study just provided a snapshot of salt intake behaviour among the healthcare students but more innovative health promotion approaches may help in future to make people aware of the recommended salt intake and its impact on their health.

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