

ORIGINAL ARTICLE

ASSOCIATION OF DIETARY INTAKE WITH SOCIO-DEMOGRAPHIC CHARACTERISTICS AMONG NURSES AT A TERTIARY CARE HOSPITAL IN KARACHI

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Background: Nurses' health status has great importance for their better and enhanced performance in hospital setup. Unhealthy diet may expose them to various diseases. The aim of this study was to identify dietary intake and its association with socio-demographic characteristics among nurses. **Methods:** The analytical cross-sectional study was conducted from 1st June to 31st July 2020 and included 337 nurses from Dr. Ruth Pfau Civil Hospital having minimum one-year working experience, using purposive sampling technique. The Food Frequency Questionnaire (33-items) was used to measure dietary intake in association with socio-demographics of nurses. Data was analysed using SPSS-23. **Results:** Majority (71.8%) of the study participants were female, 84.0% were married, and 49.2% were in 31–40 years old. Low fat dietary and dairy products were significantly associated with gender, marital status, age group, qualification, smoking, exercise, diabetes, and hypertension with $p=0.02, 0.5, 0.03, <0.001, 0.03, <0.001, <0.01$ and <0.01 respectively. Sea food and high-fat dairy products were significantly associated with exercise only ($p=0.03$). **Conclusion:** There was no significant association of fat and sweets intake with demographic characteristics except that low-fat diet and dairy products were significantly associated with all demographic variables. Sea food and high-fat dairy products had significant association with exercise.

Keywords: Association, Dietary intake, Nurses, Socio-demographics

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INTRODUCTION

Nursing profession saves lives and nurses play critical role in the healthcare delivery system. Nurses help individuals to maintain the good quality of life.¹ The health status of health workers especially nurses has great importance because nurses must be fit and strong for their better and enhanced performance. The unhealthy diet, poor working conditions, shift duties and stress may lead to expose them to the hypertension. Hypertension was responsible for 1.5 million deaths every year among South-East Asian people till 2013.² Hypertension and cardiovascular disease are major health problems even in Pakistan and the incidence is increasing day by day.³ The risk factors which are associated with hypertension are poor dietary intake, obesity, smoking, high cholesterol levels, deficient physical activity and diabetes.³ Dietary habits contribute towards risk of developing obesity, cardiac diseases, and hypercholesterolemia etc. which in turn increase mortality.⁴ A study conducted in Pakistan identified the association of age, gender, body mass index (BMI), use of tobacco, education, and marital status with hypertension among Pakistani adults.⁵ Male gender, lower education, being married, adolescence, limited physical activity, and urban residence are factors associated with sedentary lifestyle and high-fat diet.⁶ Higher intake of fruits and vegetables can prevent obesity and increased BMI, if high fat is not taken.^{1–3,5,6} Nurses are facing hypertension as they are getting older and facing different demographic challenges. In addition

hypertension affects the work productivity and quality of care through absenteeism and health conditions.⁷ Poor dietary intake of nurses is linked with adverse health effects. There is association between poor dietary habits and psychological and cardio-metabolic problems in female nurses.⁸

Poor and unhealthy dietary trends among healthcare providers including nurses have resulted in higher prevalence of hypertension and other cardiovascular disorders.⁹ There is a significant association between unhealthy diet intake of female nurses and their blood pressure.¹⁰

Limited studies are available on nurses' dietary intake and its association with socio-demographic characteristics. The aim of this study was to identify the association of dietary intake and its association with socio-demographics characteristics among nurses working at a tertiary care hospital in Karachi.

METHODOLOGY

This cross-sectional analytical study was conducted from 1st June to 31st July 2020 on both male and female nurses above the age of 20 years and with at least 1 year working experience at Dr. Ruth KM Pfau Hospital Karachi. Purposive sampling technique was used to select the participants. Nursing assistants, technicians and nurses having less than 1 year experience were excluded.

The sample size was calculated with Open Epi online software and the calculated size was 337 using

67.5% of nursing students had BMI less than 18 with significant level of 5% and 95% confidence interval.

A total of 337 nurses participated in this study with a 100% response rate. Ethical approval was taken from the Institutional Review Committee of Dow University of Health Sciences vide (ION-MSN/2019/18/-67) and permission was obtained from Dr. Ruth KM Pfau Hospital Karachi. Written informed consent was taken from each participant. Information about socio-demographic characteristics including age, gender, marital status, qualification, experience, department, smoking status, BMI, exercise including more than 30 minutes daily walk, and history of conditions like diabetes and hypertension were recorded.

Data were collected using 33-item food frequency questionnaire (FFQ)¹¹ developed on the bases of widely employed Harvard FFQ. For all food items, nurses were asked how frequently they consume the food. These frequencies were standardized to number of times per day. BMI (Weight (Kg)/[Height (m)]² score <18.5 was taken as underweight, 18.5 to 24.9 as healthy, 25 to ≤30 as overweight, and >30 as obesity.

Data were analysed using SPSS-23. Mean±SD were calculated for all three sections of dietary intake. Frequencies and percentages were calculated for categorical variables. Mann-Whitney U test and Friedman test were applied to compare the median of different dietary sections with demographic variables, and $p \leq 0.05$ was considered as statistically significant.

RESULTS

Among 337 study participants (71.8%) were female and 84% were married. Majority (49.2%) of the participants were aged between 31 and 40 years and 56.1% were specialized nurses. The proportion of smokers, doing exercise, and having diabetes were 11.9%, 9.8% and 13.6% respectively. Nearly half of the study participants were normotensive (Table-1).

Fat and sweet intake was the only section showing no association with demographic characteristics and low-fat diet and dairy products section was significantly associated with gender, marital status, age group, qualification, smoking, exercise, diabetes and hypertension ($p=0.02, 0.05, 0.03, <0.001, 0.03, <0.001, <0.01$ and <0.01 respectively). Sea food and high-fat dairy products were significantly associated with exercise only ($p=0.03$). Daily median consumption of fat and sweets were insignificantly higher in male. Daily consumption of fat and sweets intake, low-fat diet and dairy products were higher in married nurses. For age group of 20–30 years daily consumption of fat and sweets were high as compared to other age groups, but the differences were not significant ($p=0.08$). Daily consumption in low-fat dietary and dairy products were higher in above 40 years of age.

Diploma holder nurses consumed fat and sweet intake, low-fat dietary, and dairy products more compared to nurses with other qualifications. The daily consumption of fat and sweet were higher in nurses who were smoking, were not doing exercise, and having diabetes. Consumption of low-fat and dairy products were higher in nurses who were not smoking, were doing exercise, and having diabetes ($p=0.03, <0.001, \text{ and } 0.01$ respectively). Consumption of fat and sweet were higher in pre-hypertensive nurses, however hypertensive nurses consumed low-fat. Approximately same median score were found for sea food and high-fat dairy products. (Table-2).

Table-1: Descriptive statistics of baseline characteristics (n=337)

Characteristics	Number (%)
Gender	
Male	95 (28.2)
Female	242 (71.8)
Marital Status	
Married	283 (84.0)
Unmarried	54 (16.0)
Age group	
20 to 30 years	37 (11.0)
31 to 40 years	166 (49.2)
>40 years	134 (39.8)
Qualification	
General Nursing	19 (5.6)
Specialization	189 (56.1)
BSN	97 (28.8)
MSN	32 (9.5)
Experience	
1 to 5 years	63 (18.7)
6 to 10 years	96 (28.5)
11 to 15 years	83 (24.6)
>16 years	95 (28.2)
Departments	
Ward	180 (53.4)
HDU	21 (6.3)
ICU	67 (19.9)
Emergency	51 (15.1)
Administration	18 (5.3)
Use of Smokeless tobacco	
Past	33 (9.8)
Current	53 (15.7)
Never	251 (74.5)
Smoking status	
Smoker	40 (1.9)
Non-Smoker	297 (88.1)
Exercise Status	
Yes	33 (9.8)
No	304 (90.2)
BMI	
Normal weight	21 (6.3)
Overweight	50 (14.8)
Obese	266 (78.9)
Diabetes status	
Diabetics	46 (13.6)
Non-Diabetics	291 (86.3)
Hypertension	
Normotensive	170 (50.5)
Pre-hypertensive	117 (34.7)
Hypertensive	50 (14.8)

Table-2: Association between demographic characteristics and dietary intake

Characteristics	Fat and sweet intake		Low-fat dietary and dairy products		Sea food and high-fat dairy products	
	Median (IQR)	p	Median (IQR)	p	Median (IQR)	p
Gender						
Male	5.21 (1.94)	0.35 [^]	1.95 (0.97)	0.02* [^]	1.38 (0.68)	0.49 [^]
Female	4.90 (2.11)		2.19 (0.95)		1.33 (0.75)	
Marital Status						
Married	5.02 (2.18)	0.72 [^]	2.20 (1.00)	0.05* [^]	1.35 (0.71)	0.55 [^]
Unmarried	4.88 (1.73)		1.95 (0.72)		1.35 (0.80)	
Age (Years)						
20-30	5.37 (2.52)	0.08 [~]	2.06 (1.43)	0.03* [~]	1.30 (0.77)	0.61 [~]
31-40	5.06 (2.12)		2.05 (0.81)		1.33 (0.76)	
>40	4.70 (1.98)		2.28 (0.91)		1.42 (0.71)	
Qualification						
General Nursing	5.67 (2.60)	0.42 [~]	2.78 (2.28)	<0.001** [~]	1.45 (0.92)	0.25 [~]
Specialization	5.02 (1.92)		2.16 (0.91)		1.38 (0.77)	
BSN	4.84 (2.06)		1.95 (0.71)		1.24 (0.64)	
MSN	5.17 (2.40)		2.39 (2.01)		1.37 (1.22)	
Smoking						
Yes	5.26 (1.91)	0.23 [^]	1.89 (0.90)	0.03* [^]	1.28 (0.65)	0.38 [^]
No	4.92 (2.11)		2.16 (0.97)		1.35 (0.75)	
Exercise						
Yes	4.63 (2.78)	0.44 [^]	2.85 (2.90)	<0.001** [^]	1.52 (1.65)	0.03* [^]
No	5.05 (2.09)		2.08 (0.88)		1.33 (0.68)	
Diabetes						
No Disease	4.89 (2.21)	0.41 [^]	2.06 (0.92)	0.01* [^]	1.35 (0.72)	0.18 [^]
Diabetes	5.47 (1.81)		2.40 (0.76)		1.35 (0.77)	
Hypertension						
Normotensive	4.86 (2.19)	0.08 [~]	2.10 (1.05)	0.01* [~]	1.31 (0.90)	0.95 [~]
Prehypertensive	5.27 (1.66)		2.06 (0.81)		1.38 (0.56)	
Hypertensive	4.65 (2.43)		2.35 (1.30)		1.36 (1.00)	

DISCUSSION

In this cross-sectional study, three dietary categories were identified among nurses of Karachi, including fat and sweet, low-fat dietary and dairy products and sea food and high-fat dairy products.

The fat and sweet intake is the only one that has no significant association with demographic characteristics, whereas the low-fat diet and dairy products intake has a significant correlation with gender, marital status, age group, qualification, smoking, exercise, diabetes, and hypertension. Consumption of seafood, high-fat diet, and dairy products are linked to increased physical activity. This intake was found to be linked to male gender, smoking, and lower socioeconomic status.¹²

Daily median consumption of fat was insignificantly higher in males. Similar results have been reported that consumption of sweet snacks, sports drinks, fried foods, energy drinks, soft drinks and vegetables was significantly more in male compared to female participants.⁹ An earlier study conducted in Australia observed higher prevalence of hypertension and consumption of fat and sweets, low-fat diet among single women and married men.¹³ Daily consumption of fat and sweet intake, low-fat dietary and dairy products were higher in married nurses. Similar results were reported in past studies^{11,14,15}.

For age group 20-30 years daily consumption of fat and sweet were higher compared to other age groups while daily consumption of low-fat dietary and dairy products were higher in >40 years of age. Similar results were noted in prior research¹⁶. In contrast, other studies showed that fat and sweet consumption was higher in older age participants.^{13,17}

An increased intake of fat, especially saturated fat, is a main driver of obesity and increased incidence of cardiometabolic disease.¹⁸ In our study, the daily consumption of fat and sweets was higher in nurses who were smoking, were not doing exercise, or had diabetes. Consumption of low fat and dairy products were higher in nurses who were non-smoker, were doing exercise, or having diabetes. In a past study¹⁵, smoking was established as a contributing factor of hypertension and cardiac disorders. On the other hand, no significant association prevailed between smoking, dietary intake, and hypertension in an earlier study¹⁹. A previous study did not establish any significant association of smoking and hypertension.²⁰ However, hypertension was found significantly associated with dietary intake and diabetes mellitus.¹⁹ Similarly, the risk of getting hypertension was found quite increased among participants with diabetes mellitus.^{5,15} Exercise reduce the risk of becoming hypertensive and getting cardiac diseases.^{1,2,5,19,21}

High consumption of organ meat is practiced by our subjects. In a previous study, parallel findings that increase risk of hypertension was found among the participants with high consumption of meat products.²² According to Gharibzadeh²², the nurses also eat less Naan Roti/Chappati, which should be raised to lower the risk of heart problems. Our subjects consumed cooked vegetables in huge amounts. Repeatedly heated vegetables²³ and over cooking²⁴ is a risk factor for heart problems. Margarine was also used in minor volumes which is good to secure cardiac health. Consumption of margarine is associated with cardiovascular ailments.²⁴ Our study participants used cream in ordinary amounts which is healthful indication. Nestel *et al*²⁵ reported their study subjects to be taking more cream and potatoes, and developing hypertension and other cardiac diseases. Our subjects also consumed more potatoes in their daily food intake.

CONCLUSION

Mostly participants consumed two categories of diet including high-fat with sweet products and low-fat dietary and dairy products. The consumption of fat and sweet were higher in males compared to females. Higher consumption of fat and sweets was observed in hypertensive participant.

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FR: Concept, literature search, manuscript writing and data collection

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KH: Data collection and data entry, manuscript writing and drafting

AA: Data analysis, data interpretation, analysis of manuscript

TA: Critically analysis of manuscript and final approval

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