



Is there Diversity in our Diet? A Cross-sectional Study among Healthcare Workers in a Tertiary care Hospital in Tamil Nadu

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ABSTRACT

Healthcare is a demanding profession and often, while performing their roles, healthcare workers face multiple occupational and personal stresses that may influence their ability to maintain positive dietary habits. Nutritional adequacy is the comparison between the nutrient requirement and the intake of a certain individual or population. Due to the limited availability of data on the dietary diversity of healthcare workers in India, an attempt was made to conduct an across-sectional study of the dietary diversity of healthcare workers working in a tertiary hospital. The sampling frame comprised of various hospital staff and healthcare workers who were working in the hospital and a total of 119 were examined. The study tool was prepared based on the FAO dietary diversity questionnaire. Details about age, gender, and details regarding their jobs, such as shift work, were collected. A score of >11 was considered as the operational definition for a diverse diet. The socio-demographic variables of study participants, when analyzed show that early 90% (107) of the study population, were aged below thirty (30) years. Amongst the 119 subjects, 19 (16%) were male and 100 (84%) were female. Almost two thirds (58.8%) of the population involved worked in shifts. A majority of the subjects 18 (26.8%) opted for taste as the major determinant, followed by Stress at 15 (22.3%) and Cost with 12 (17.9%) subjects. When compared, dietary diversity in males was found to be much better. In conclusion, there is a significant absence of dietary diversity and the presence of nutrient inadequacy among the hospital staff and health care workers. This inadequacy is present primarily due to the ignorance and lifestyle choices of the subjects involved.



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INTRODUCTION

Healthcare is a demanding profession and most involved work during weekends or in variable shifts. Often while performing their roles, healthcare workers face multiple occupational and personal stresses that may influence their ability to maintain positive dietary habits. More often than not, this leads to a lack of time to prepare healthy meals due to long working hours and being overtired from work. Moreover, poor health and lifestyle behavior exhibited by healthcare workers impacts the credibility of their health-promotion messages as well as their performance (Bjerrum *et al.*, 2012). Dietary diversity is universally accepted as an important element

of high-quality diets. As dietary factors are associated with increased risk of chronic diseases and malnutrition, international dietary guidelines recommend improving the diversity of the diet. Macro and micronutrient deficiencies are public health concerns in most developing countries, including India. Increasing the variety of foods across food groups is recommended in most dietary guidelines internationally because it is thought to ensure adequate intake of essential nutrients and to promote good health (World Health Organization, 1998).

Nutritional adequacy is the comparison between the nutrient requirement and the intake of a certain individual or population. The quality of the diet can be estimated in terms of food or food group intakes and diet patterns, or in terms of nutrient intake and the level of compliance with the nutrient requirements. To evaluate the diet in terms of nutrient adequacy, diverse types of analyses are used. The method used depends on the purpose of the analysis (to assess individuals or a population), on the nutrient under study and the type of distribution of the nutrient intake (Dubois et al., 2000). Obtaining detailed data on individual dietary intake is time-consuming and expensive, and requires a high level of technical skill both in data collection and analysis. Dietary diversity is a proxy for nutrient adequacy of the diet of individuals (Food and Agriculture Organization of the United Nations (FAO, 2013).

Due to the limited availability of data on the dietary diversity of healthcare workers in India, an attempt was made in the current study to conduct an investigation of the dietary diversity of healthcare workers working in a tertiary hospital.

MATERIALS AND METHODS

A cross-sectional study was conducted in a tertiary care hospital in Tamil Nadu, India, in the month of March 2019. The sampling frame comprised of various hospital staff and healthcare workers who were working in the hospital for a minimum period of over 6 months doctors working in the institution were not included in the study and a convenient method of sampling was used to collect a total of 119 subjects who were willing to participate in the study. The setting of the interview was the workplace of the participant, depending on the point of contact and the convenience of the participant.

Study tool

The study tool was prepared based on the FAO dietary diversity questionnaire (FAO/Nutrition and Consumer Protection Division, 2007). Details about age, gender, and details regarding their jobs, such

as shift work, were collected. The dietary diversity questionnaire (used as a proxy to identify micronutrient adequacy) was preceded by a set of questions to identify their key food determinants. A score of >11 was considered as the operational definition for a diverse diet. The anonymity of the study participants was maintained to enhance the participation rate and to ensure confidentiality. Informed consent was obtained from the participants. Ethical clearance was not required, as the study did not involve any forms of human intervention.

Data Analysis

Data were entered in an Excel spreadsheet (Microsoft, Redmond, WA, USA). Data were analyzed using Statistical Package for Social Sciences version 20 (IBM, Armonk, NY, USA). Proportions were used to describe the socio-demographic variables and the Chi-square test was used to measure the association between Diversity score and the socio-demographic variables.p-Values <0.05 were considered statistically significant.

RESULTS AND DISCUSSION

Demographics of the study participants

The socio-demographic variable of study participants, when analyzed, shows that nearly 90% of the study populations were aged below thirty years. Amongst the 119 subjects, 19(16%) were male and 100(84%) were female. There was an almost equal number of participants from both hospital staff (48.7%) and healthcare workers (51.3%). Almost two-thirds (58.8%) of the population involved worked in shifts. The number of subjects who had received an education (53.8%) The main sources of food for most of the subjects were home (52.1%) and hostel (43.7%) respectively; a very minor number of subjects had selected restaurants (4.2%) as their main source of food as shown in Table 1.

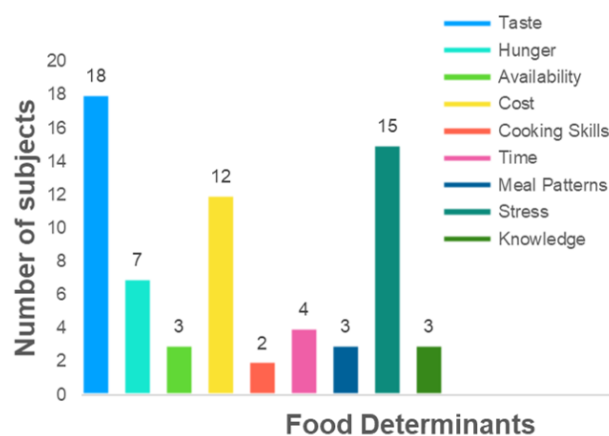


Figure 1: Factors determining the choice of food

Table 1: Socio-Demographic Variable of the study participants

Socio-demographic profile		n (%)
Age	Below 30 years	107 (89.9)
	30 years & above	12(10.1)
Gender	Male	19 (16)
	Female	100 (84)
Job	Hospital staff	58 (48.7)
	Other Health workers	61 (51.3)
Work In Shifts	Yes	70 (58.8)
	No	49 (41.2)
Education	Educated	64 (53.8)
	No formal education	55 (46.2)
Food Source	Home	62 (52.1)
	Hostel	52 (43.7)
	Restaurant/others	5 (4.2)

Table 2: Association between Socio-Demographic Variables and Nutrition Diversity Score

		Nutrition diversity score		Total	Chi-Square test	P-Value
		Less than 11	More than 11			
Age	Less than 30 years	76	31	107	0.815	0.507
	30 years & above	10	2	12		
Gender	Male	10	9	19	4.351	0.037*
	female	76	24	100		
Job Description	Hospital staff	40	18	58	0.616	0.433
	Other Health workers	46	15	61		
Work in shifts	Yes	53	17	70	1.007	0.316
	No	33	16	49		
Education	Educated	47	17	64	0.094	0.759
	No formal education	39	16	55		
Food Source	Home	42	20	62	2.746	0.253
	Hostel	39	13	52		
	Restaurant	5	0	5		

*Statistically significant (p<0.05)

Food Determinants

A comparison between the various factors which are given importance by the health care workers and the hospital staff while selecting their day to day meals.

In this study, they are referred to as the determinants of food choice. Out of the 119 subjects in the study, a majority of the subjects 18(26.8%) opted for taste as the major determinant, followed by Stress at 15(22.3%) and Cost with 12(17.9%) subjects.

The other determinants are Hunger (10.8%), Time (5.9%), availability of food (4.4%), Meal pattern (4.4%) and cooking skill with 2 (2.9%) subjects

respectively.

The most important food determinant that is Knowledge regarding dietary diversity has been opted only by 3(4.4%) subjects, as shown in Figure 1.

Association between socio-demographic variables and dietary diversity score

On analyzing the data obtained from all the subjects, it can be stated that the proportion of subjects with an adequate dietary diversity score is 27.7%. Among the subjects aged less than thirty, nearly three-fourths (71%) of the subjects had a dietary diversity score of less than eleven. When com-

pared, the dietary diversity in males was found to be much better, as nearly half (47.3%) of the males had dietary diversity scores higher than eleven, whereas only females had only 24%. This difference was statistically significant using the chi-square test. Dietary diversity was observed in almost a third of the Hospital staff and 24.5% of the Health care workers. Different work shifts do affect the meal patterns of the people working them, according to the collected data more than three-fourths (75.7%) of those working in shifts had poor dietary diversity. But the association between shift work and dietary diversity was not statistically proven. Those with prior education about healthy food habits had no significant difference over those who did not. Their percentage of subjects with scores above eleven was 26.5% and 29%, respectively. The different sources of food had a slight difference in dietary diversity, A quarter of those with hostel as their food source and 32.2% of those with Home food as their food source had adequate dietary diversity scores, which are shown in Table 2. However, this difference was not statistically significant.

The present study shows that the overall dietary diversity to be in just 27.7% of the study population. This is surprising as most studies done focusing on the same population have better rates of dietary diversity, a study done in Riyadh, Saudi Arabia found that 75.1% health care workers had a healthy dietary score (Alateeq and Alarawi, 2014), while in Delhi a study focused on female nurses discovered 85% to be the dietary diversity (Gupta, 2017).

Another study states that nurses' working patterns predispose them to faulty eating habits (Malik et al., 2011). A difference in dietary diversity between genders was observed in our study were significant. Different studies have different findings with regards to this association, a study done in four different developing countries to investigate dietary diversity stated that there were no marked gender disparities in dietary diversity were observed (Aurino, 2017). Whereas, another study done in Andhra Pradesh identified that male adolescents had access to better dietary diversity than females (Aurino et al., 2017). Working in shifts induces stress, disturbs family life and, most importantly, interrupts regular meal schedules. Few studies have addressed the association between shift duties and abnormal eating behavior in health care workers. In our study, only a quarter of those involved in shift work showed dietary diversity; however, on further analysis, there was no significant relationship between shift work and dietary diversity. However, other results indicate that shift working nurses had poor dietary habits, which in

turn were affected by their shift work (Kim and Kang, 2014). In other studies, shift duties were positively associated with abnormal eating behavior among nurses working in hospitals (Wong et al., 2010). Shift work has also proved to be a Hindrance to do exercise (Persson and Martensson, 2006). It was also observed that shift work is associated with increased consumption of unsaturated fats in women (Hemiö et al., 2015). Nearly two-thirds of the younger healthcare workers did not show dietary diversity and this number was only more elevated in the older age group, this finding was contradictory to another study where older subjects consumed more varied diets than younger subjects (Drewnowski et al., 1997).

One of the major causes behind the lack of dietary diversity in our study appears to be the basis for subjects in choosing food. According to the collected data the most opted for food, determinants are Taste(26.8%), Stress(22.3%) and Cost(17.9%). These are not healthy determinants to be selecting food. Only less than 5% of the nutrient inadequate subjects select the food based on knowledge of healthy eating habits. These are in contrast with the study done in Delhi where they had appropriate dietary practices as they followed a regular meal pattern comprising three to four meals did not skip meals or diet to lose weight, and carried home-cooked meal (Alateeq and Alarawi, 2014). Hunger, Availability, and meal patterns, which should be important, are, in fact, mostly ignored. Dietary restrictions due to disease or faith were expected to be a more prominent factor but were seen only among 25% of the nutrient inadequate subjects. Whereas the rest 75% of the nutrient inadequate had no form of dietary restrictions

CONCLUSION

In conclusion, there is a significant absence of dietary diversity and the presence of nutrient inadequacy among the hospital staff and health care workers. This inadequacy is present primarily due to the ignorance and lifestyle choices of the subjects involved. The low rates for dietary diversity among workers and staff should raise concerns. There has to be an increased awareness regarding the issue and its detrimental effects. Encouraging home-cooked meals and making a variety of healthier food available for lower costs in mess halls would definitely have an impact on dietary diversity. A great number of subjects did not possess knowledge on the importance of dietary diversity and nutrient adequacy, the addition of these to the regular teaching curriculum starting at the primary level would

greatly benefit. Better eating habits such as regular and healthy eating, avoiding food choices based on cost and taste, etc. must be followed by workers and staff to prevent low dietary diversity and decrease nutrient inadequacy.

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