

## NUTRITIONAL KNOWLEDGE AMONG MEDICAL STUDENTS IN MADURAI

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### INTRODUCTION

The role of nutrition in health promotion, disease prevention and treatment of chronic diseases is well recognized. Balanced nutrition is vital for optimum growth and development of the individual as well as for the proper functioning of various organ systems. Apart from being an important part of weight management, diet plays a substantial role in the etiology of many chronic degenerative diseases such as atherosclerosis, coronary heart disease, non-insulin dependent diabetes mellitus, osteoporosis and some types of cancer. Thus nutrition can be considered as a double edged sword with one end of the spectrum occupied by nutrient deficiency disorders while at the other end we have diseases of surplus. So medical professionals have to play an important role in educating the patients regarding what they eat in order to emphasize the importance of diet in the management as well as prevention of disease conditions. In this scenario nutrition knowledge of doctors becomes essential. This study was carried out in II year medical students who are budding medical professionals. Moreover this age group is considered as the age of emerging identity when specific behavior patterns are established. And so in this study we have tried to examine the nutritional knowledge and dietary behavior of these students using GNKQ.

**AIM AND OBJECTIVES:** To assess the nutritional knowledge of medical students in Madurai.

### MATERIALS AND METHODS

Nutrition knowledge of 2<sup>nd</sup> year MBBS students studying in Madurai Medical College was assessed using the General Nutritional Knowledge Questionnaire (K Parmenter and J Wardle). The original questionnaire was slightly modified by removing three questions containing unfamiliar food items from the food choices section. In addition a glossary to western food items was provided in the questionnaire for the participants to refer.

After obtaining informed consent, II year medical students of Madurai Medical College, Madurai(n=119)

were made to answer the General Nutritional Knowledge Questionnaire (K Parmenter and J Wardle) with 116 items categorized into four sections namely. i) Dietary recommendations ii) Food groups, iii) Everyday food choices and iv) Diet-disease links. Demographic characteristics were assessed in the same instrument with simple questions. The questionnaire was administered at the end of a lecture class. Compliance was good and all the 119 students completed the questionnaire in 15-20 minutes. The responses of the students to the questions were evaluated by scoring them. And the scores were statistically analyzed using SPSS 16 software through one way ANOVA test (p value < 0.05 was taken as statistically significant).

### RESULTS AND DISCUSSION

The demographic characteristics of the study sample are shown in Table I.

**Table 1: Demographic Characteristics (N=119).**

Demographic Characteristics	(n)
<b>Gender</b>	
Male	54
Female	65
<b>Age</b>	
18-22	119
<b>Ethnic origin</b>	
Indian	119

others	
<b>Marital Status</b>	
Single	119
Married	
Divorced	
<b>Employment Status</b>	
Employed	0
Students	119
Others	

**Table 2: Overall Scores of Students of the Study.**

<b>Score</b>	<b>Max=116</b>
Marks Range	27 - 96
Marks Range %	23.3 - 82.7
Average score	57.32
Average %	49.40%

**Table 3: Overall Scores of Male and Female Students.**

Q & Marks (116)	Mean	SD	p value
Male (54)	54.48	13.04	
Female (65)	59.67	10.92	0.020 Sig

Chart 1 shows the mean percentages of the correct responses for all sections and the whole questionnaire.

### SCORES OF STUDENTS IN EACH CATEGORY OF QUESTIONNAIRE

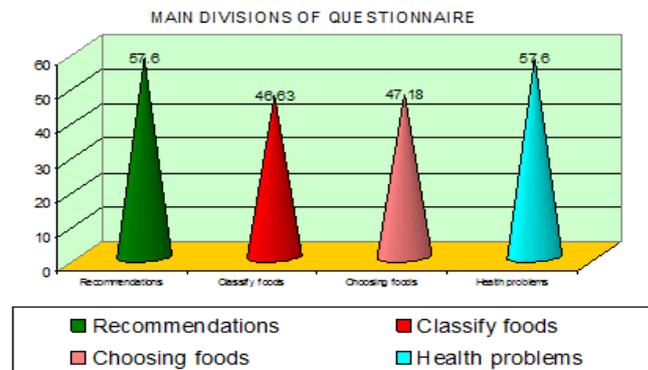
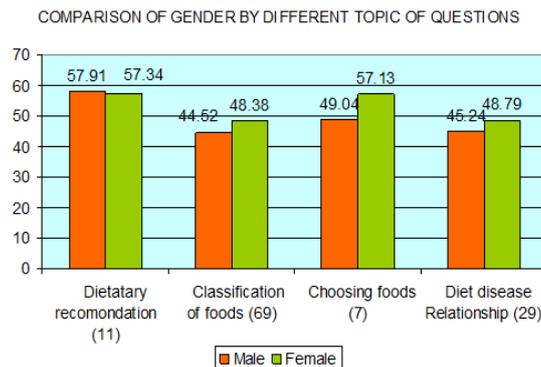


Chart II shows the difference in knowledge scores between male and female students.

### GENDER DIFFERENCES IN ANSWERING EACH SECTION OF QUESTIONNAIRE



The overall scores show that the prevalence of nutrition knowledge in 2<sup>nd</sup> MBBS students is around 50% which is low for medical professionals. Female students demonstrated superior knowledge in all areas of nutrition, as has been found in most studies. Section wise analysis of the scores is as follows.

**Section 1- Dietary recommendations:** Out of a maximum of 11 points for this section, the mean score was 6.34. 84% of the respondents were aware of the recommendations to decrease fat intake, while about 70% were aware of decreasing sugar and salt intake. Only 65% were aware of increasing fiber intake while 95% were aware of increasing fruit and vegetable intake, indicating that these basic messages are being successfully conveyed. But surprisingly 98% of the students did not know that the recommended daily intake of fruits and vegetables was as many as 5 or 6 servings, with just over 50% believing that one to three portions is adequate

**Section 2- Food groups:** Of the possible 69 points for this section on food groups, the mean score was 32.18. When asked to categorize various foods as high or low in sugar, fat, starch, salt, protein, fibre or saturates, mistakes were made by over half of the respondents. There were a few items which stood out as being poorly answered. 90% of the students failed to realize that low fat spread is actually high in fat, with the majority of respondents believing it to be a low-fat food. Only just over half of the respondents knew that nuts are low in starch and over 35% students realized that cheese is high in salt. And 40% were aware that processed food like sausages and kippers had high salt content. The section on fiber was answered correctly by 50% of students. About 70% realized that banana and cornflakes had high fiber content. People were generally better in identifying foods high in saturated fat. 80% knew that whole milk and red meat were high in saturated fat. About 85% failed to recognize mackerel was low in saturated fat. There was much confusion about whether foods could be high in fat but contain no cholesterol (agree-57%, disagree-22%, not sure-21%).

About 90% students either incorrectly believed that margarine contained less fat than butter or were unsure. In the question which asked to identify food items which are high or low in added sugar, 86% were aware that ice cream was high in added sugar while over 80% of students were confused over what qualifies as added sugar.

Knowledge about monounsaturated fat was also poor, with fewer than 15% of the people knowing that olive oil contains mostly this type of fat.

Finally, students were confused about which food types contained most energy. Almost equal numbers believed that it was fatty and sugary foods (34% and 35% respectively) with 22% being unsure.

**Section 3- Every day food choices:** Out of maximum 7 points in this section the mean score was 3.3. Most mistakes were made in the question which asked them to select the best choice to cut down on fat. Only 21% chose grilled turkey. Similarly 68% of the students did not know that thick cut chips are healthier than thin or crinkle cut chips. Likewise when asked to pick up low fat, high fiber snack, only 39% chose the correct answer (raisins), with almost 60% endorsing muesli bar distracter option.

**Section 4-diet-disease relationships:** In this section participants were asked first whether they knew of any links between eating more or less of particular foods and major health problems. The mean score was 15.5 out of a possible 29 points.

76% of the students were aware of a relationship between high fat intake and disease but almost 24% of them did not know about this link. Of the people who were aware of the fat disease link nearly 80% also knew about the link between saturated fat and heart disease.

As regards fruits and vegetables, well over 28% were unaware of a link between low intake and health problems. Only 11% correctly thought that eating more fruits and vegetables can help reduce the risk of cancer, and 75% knew that it could also reduce the chances of heart disease.

69% of the students knew of the health risks associated with a low fiber intake, with a majority of these people being aware of the specific risk of bowel disorders. Only a very few about mentioned about cancers.

65% were aware of link between sugar and disease, and 70% knew of the link between high salt diet and heart disease.

When asked to specify diseases linked with food types, respondents replies varied enormously. For fruits and vegetables the most commonly mentioned disorders were vitamin deficiencies and bowel problems. Bowel problems were also associated with insufficient fiber intake by many students which included cancer and constipation.

Most people thought that sugar caused diabetes and obesity, but only a very few mentioned tooth decay.

70% of the students mentioned heart problems as being associated with high fat intake, with obesity being the second most popular response. 86% of the students said that they have heard about antioxidant vitamins. When asked to say whether a vitamin was antioxidant vitamin, 72% selected vitamin E, 45% selected Vitamin A, 32% selected vitamin C, and < 15% chose vitamin B Complex.

To sum up the section wise scores show that the students have fared better in dietary recommendations and diet – disease relationship categories when compared to knowledge of food groups and choices of foods.

### CONCLUSION

Overall results indicate that there are serious gaps in nutrition related knowledge among second year medical students. Many are not aware of nutrition related health problems. On comparing the performance of female students with that of male students, girls showed superior knowledge in all areas of nutrition, as has been found in most studies looking at nutrition knowledge. This has to be changed because all doctors irrespective of their gender should have a fairly good nutrition knowledge in order to educate their patients.

On the whole the evidence from the study clearly indicate that the current nutrition education imparted in the MBBS curriculum is inadequate and so special emphasis should be given on the practical implications of nutrition and dietetics by revising the curriculum and dedicating more teaching hours to nutrition.

Apart from teaching nutrition, medical schools should become places where healthy eating practices are inculcated and nurtured. Student mess in the hostels should become model eateries where healthy and balanced diet is served. These life style modifications along with increased weightage for nutrition in MBBS curriculum will improve the students' nutritional knowledge and change their dietary behavior for better. This might help the medical students in the long run to carry forward the principles of health promotion and primordial prevention of nutrition based disorders in the community in which they serve.

**Limitations of the study:** 1) the findings cannot be generalized as this study was done in one institution using small sample size. More studies are needed to describe the state of nutrition knowledge of medical students to recommend improvements in their curriculum. 2) the questionnaire being developed for use in UK has to be modified for use in India.

### REFERENCES

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