

# Knowledge Attitude and Practices about Nutritional Supplements of the Students of Applied Medical Sciences, Jazan University, Jazan, Saudi Arabia

## Research Article

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### Abstract

**Background:** Nutritional Supplements (NS) include vitamins, minerals, herbs, meal supplements, sports nutrition products, natural food supplements and other related products used to boost the nutritional content of the diet.

**Objectives:** The objective of the study was 1) To determine the usage of nutritional supplements in Applied Medical Science College students. 2) To find their Knowledge, Attitude and Practices regarding nutritional supplements. 3) To find the association between knowledge, attitude and practices with socio-demographic variables.

**Materials and methods:** We conducted a descriptive cross-sectional questionnaire-based study in 2016 at College of Applied Medical Sciences, Jazan University, Jazan, Saudi Arabia. Convenient sampling was used. The data was taken through questionnaires and analyzed by using the SPSS 21.0 version.

**Results:** Majority 59 (52.21%) respondents were graded as good knowledge level of nutritional supplement. The majority of the respondents using nutritional supplements 63 (55.75%) and the most used type of nutrition supplement are vitamins 42 (66.67%). The majority of nutrition supplement users felt better 59 (93.65%) and majority consuming the supplements with doctor advice/prescription. The knowledge of nutritional supplements was attained by majority of doctors/pharmacists 79 (69.91%). Most of the students were non-smokers 109 (96.46%) and do regular exercise 111 (98.23%). The correlation between Knowledge, Attitude and Practice (KAP) of nutritional supplements with gender and marital status were statistically significant.

**Conclusion:** The usage of nutrition supplements in students is high. Hence, the knowledge, especially regarding the role of nutritional supplements in health and diseases must be highlighted in the medical science curriculum with the objective of producing well-informed professionals who can, later on, have a positive impact on the health of society.

**Keywords:** Nutritional supplements; BMI; Likert scale; Frequency

## Introduction

Nutritional Supplements (NS) include vitamins, minerals, herbs, meal supplements, sports nutrition products, natural food supplements and other related products used to boost the nutritional content of the diet [1]. US Food and Drug Administration define NS as 'a dietary supplement or product intended for ingestion that contains a "dietary ingredient" intended to add further nutritional value to (Supplement) the diet. NS are defined as concentrated sources of nutrients or other substances with a nutritional or physiological effect that supplements the normal diet [2]. Currently, dietary supplements are used in both developing and developed countries. The nutrition and supplements market size was of US \$96 billion in 2012 and was expected to raise approximately US \$104 billion globally [3].

Given the fact, lifestyle is being more and more identified as important for healthy life; emphasis on proper nutrition is enormously increasing [4]. Nutrition transition has been linked up with growing prevalence rates of non-communicable diseases which are increasingly becoming major mortality causes. Nutrition knowledge plays an important role in raising public awareness and ultimately the health of the society [5]. Inappropriate use or contamination may cause potential health problems [6-9]. Multiple research group believe that supplementing the diet of well-nourished adults has no clear benefit and might even be harmful and should not be used for prevention of chronic diseases [10-12].

A lot of research has been conducted on NS in developed countries and still ongoing. However, there are limited researches conducted on NS in Saudi Arabia. Healthcare practitioners, nurses, pharmacists and health sciences students can widely influence the beliefs and practices regarding health in the general population. They can advice people regarding the usage of nutrition supplements and the effects of those supplements on health [13,14]. Since it is believed that the health behavior of health sciences students will be reflected in their attitude while counseling patients regarding diet and nutrition, it is important to collect their nutrition supplement use data [15,16]. With this background, the study was conducted with the following objectives: 1) To determine the usage of nutritional supplements. 2) To find their Knowledge, Attitude and Practices regarding nutritional supplements. 3) To find the association between knowledge, attitude and practices with socio-demographic variables among the students of Applied Medical Sciences College, Jazan University, Jazan, Saudi Arabia.

## Material and Methods

A descriptive cross-sectional questionnaire-based study was carried out in the Department of Clinical Nutrition, Applied Medical Sciences College, Jazan University, Jazan, Saudi Arabia. The students of 6<sup>th</sup>, 7<sup>th</sup> level male and female were involved in the study. The total study period of our research was about 10 weeks from October to December 2016. Using with an expected frequency of 50% and confidence limits of 10%, the minimum sample size was calculated 92 in 95% confidence level. A total of 145 students pursuing 6<sup>th</sup>, 7<sup>th</sup> level undergraduate course in the Department of Clinical Nutrition were requested to fill the questionnaire form after explaining the importance of the study and their contribution to it. Out of 145, only

113 completed questionnaires were received, others did not wish to participate in the study or returned incomplete questionnaires.

A structured questionnaire was prepared and distributed using convenient sampling to the target population. The questionnaire consisted of three sections. Section-A: Demographic information this include the respondent's gender, marital status, height, weight and BMI. Section-B: Items addressing knowledge were answered using a 5-point Likert-type scale ranging from strongly disagree (1) to strongly agree (5). Survey items in this area asked consumers perceptions of the efficacy of nutritional supplements for treating medical conditions and/or for promoting health and wellness, as well as their beliefs related to the potential for harmful side effects and interaction potential with other supplements or medications. Respondents were also asked to rate their level of comfort in discussing nutritional supplements use with health care providers and pharmacists. Section-C: Practices and attitude on nutritional supplements. Items were asked in this section were about the lifestyle, frequency of nutritional supplements use, source of information, type of nutrition supplement and reasons for taking the nutritional supplements. The information of the questions for the questionnaire was based on the previous studies [17,18]. After collection of the completed questionnaire, the data was analyzed using SPSS 21.0 version and associations were tested by using the chi-square and Fisher exact tests. Cronbach's Alpha Index was calculated for finding internal consistency in section-B variables.

## Results

A total of 113 students of both sex (74 female and 39 male) in Department of Clinical Nutrition, Applied Medical Sciences College, Jazan University participated in the study. Cronbach's Alpha Index of internal consistency was 0.7943 for Section-B questions from 1 to 4. Therefore 79.43% of the variance was reliable variance, and only 20.57% of the variance was error variance in the variables. The majority of the respondents were female 74 (65.49%), single 103 (91.15%) and BMI normal 52 (46.02%). All of our study participants have heard about NS they received information either from doctors/pharmacists 79 (69.91%), reading books 16 (14.16%), friends/families 6 (5.31%), television 6 (5.31%), reading articles 4 (3.54%), radio/journal 1 (0.88%) and newspaper 1 (0.88%) (Table 1). The bulk 76.19% of nutrition supplement users was females. Furthermore, among the NS who are single, 93.65% were the highest users than married individuals. About 49.21% NS users had normal BMI. Among the nutrition supplement users, the most used type of nutrition supplement was vitamins 42 (66.67%) followed by meal supplements 13 (20.63%), protein supplements 4 (6.35%), herbal products 1 (1.59%) and others 3 (4.76%). Other types of supplements used were honey and hormonal supplements (Table 1).

Overall, respondents agreed that dietary supplements are useful for treating medical conditions and/or promoting health and wellness (Likert Scale mean=4.08). The mean agreement level for consumers that nutritional supplements can interact with other supplements or medications was high (Likert Scale mean=4.25). The lowest level of agreement was related to consumer perception of potentially harmful

side effects of nutritional supplements and the level of comfort in discussing nutritional supplements use with doctor/pharmacists (Likert Scale mean=3.78 and Likert Scale mean=4.02 respectively) (Figure 1).

Majority 59 (52.21%) respondents were grades as good knowledge level on nutrition supplements, and only 54 (47.79%) respondents had a poor knowledge level on nutrition supplements respectively unrelated whether they were users or non-users. Regarding lifestyle practices among study participants, the majority of them were using nutritional supplements 63 (55.75%). Majority of the study participants had a good healthy lifestyle. Most of the students were non-smokers 109 (96.46%). The study participants do exercise at least once a week 39 (34.51%), twice a week 19 (16.81%), three times per week 24 (21.24%) and every day 29 (25.66%) respectively (Table 2).

Nutrition supplements are consumed commonly to maintain good health 34 (53.97%), adequate nutrition 16 (25.40%), physical appearance 8 (12.70%), to lose weight 1 (1.58%) and others 4 (6.35%). Other reasons to take supplements were to gain weight or mothers advice. Most of the nutrition supplement users were consuming the supplements weekly 29 (46.3%), followed by daily 21 (33.33%) and monthly 13 (20.63%). The majority of the nutrition supplement users felt better 59 (93.65%) while 4 (6.35%) did not feel any improvement. 45 (71.43%) of the users consuming the supplements with doctors advice/prescription (Table 3).

The majority of the users who showed good knowledge about nutrition supplements had good attitude towards it 34 (94.44%) too. On the other hand, users that have poor knowledge about nutritional supplements have a poor attitude towards it 02 (7.41%). There was no statistically significant ( $P=0.765$ ) relation found between knowledge and attitude (Table 4).

Respondents with good knowledge and good attitude towards nutritional supplements have a higher percentage of using the nutritional supplements 34 (72.34%) compared to the respondents who have poor knowledge with poor attitude 2 (16.67%). There was a highly significant ( $P=0.001$ ) association found between knowledge and attitude to practice when compared between nutritional supplement users and non-users (Table 5).

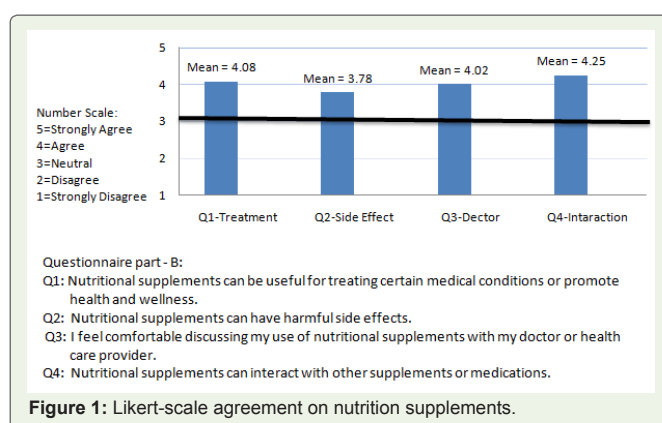
The majority of participants who have good KAP were female 31 (100%) followed by male 03 (60%), while poor KAP was mostly from male 02 (40%). There was a statistically significant ( $P=0.015$ ) association found between KAP and gender among nutritional supplement users. The majority of participants who have good KAP were single 30 (100%) followed by married individuals 04 (67.00%), while poor KAP was mostly in married individuals 02 (33.00%). There was statistically significant ( $P=0.002$ ) association was found between KAP and marital status among nutritional supplement users. The majority of the participants who have good KAP were normal BMI individuals 23 (100%) followed by overweight or obese 11 (85.00%) while poor KAP was mostly in overweight or obese 02 (15.00%). Statistically, there was no significant ( $P=0.12$ ) association was found between KAP and BMI among nutritional supplement users (Table 6).

## Discussion

Among the current study participants, the majority of the nutritional supplement users were females 76.19% which is similar to the study from Malaysia by ATM Emdadul et al. [17]. In the same way, the result reported as Saudi Arabian women kind ingests NS statistically significantly ( $P<0.001$ ) higher than male [18,19]. In the present study, women were also compressing greater part of the study

**Table 1:** Demographic information of the study participants.

Among the total respondents		Number	%
Gender	Male	39	34.5
	Female	74	65.49
Marital Status	Single	103	91.15
	Married	10	08.85
	Divorced	-	-
	Widow	-	-
BMI	Under Weight	23	20.35
	Normal	52	46.02
	Overweight	31	27.43
	Obese	7	06.19
Information received	Doctors/Pharmacists	79	69.91
	Reading Books	16	14.16
	Friends/Families	6	5.31
	Television	6	5.31
	Articles	4	3.54
	Radio/Journal	1	0.88
	News Paper	1	0.88
Among the Nutritional Supplements users		Number	%
Gender	Male	15	23.81
	Female	48	76.19
Marital Status	Single	59	93.65
	Married	4	6.35
	Divorced	-	-
	Widow	-	-
BMI	Under Weight	13	20.63
	Normal	31	49.21
	Overweight	16	25.40
	Obese	3	4.76
Type of Nutritional Supplement using	Vitamins	42	66.67
	Meal Supplement	13	20.63
	Protein Supplement	04	6.35
	Others	03	4.76
	Herbal Products	01	1.59



**Figure 1:** Likert-scale agreement on nutrition supplements.

**Table 2:** Knowledge, attitude and practices among study participants.

Variables		Number	%
Knowledge on Nutritional Supplements	Good	59	52.21
	Poor	54	47.79
	Total	113	100
Nutrition Supplement taking	Yes	63	55.75
	No	50	44.25
	Total	113	100
Smoking	Yes	04	3.54
	No	109	96.46
	Total	113	100
Exercises	At least once a week	39	34.51
	Twice a week	19	16.81
	Three times a week	24	21.24
	Every day	29	25.66
	No	02	1.77
	Total	113	100

**Table 3:** Attitude and practices among supplement users.

Variables		Number	%
Reason for taking the nutrition supplement	Good Health	34	53.97
	Adequate Nutrition	16	25.40
	Physical Appearance	08	12.70
	Lose weight	01	1.58
	Others	04	6.35
	Total	63	10
Frequency of using Nutrition Supplement	Daily	21	33.33
	Weekly	29	46.03
	Monthly	13	20.63
	Occasional	-	-
	Total	63	100
Opinion	Felt Better	59	93.65
	No Improvement	04	6.35
	Total	63	100
Doctors Advice	Yes	45	71.43
	No	18	28.57
	Total	63	100

**Table 4:** Association between knowledge and attitude among NS users.

		Attitude		
		Good (%)	Poor (%)	Total
Knowledge	Good	34(94.44)	02(5.56)	36(100)
	Poor	25(92.59)	02(7.41)	27(100)
	Total	59(93.65)	04(6.35)	63(100)

Chi-Square = 0.089 for 1 degrees of freedom at 5% level of significance and P = 0.765(>0.05)

**Table 5:** Association between knowledge, attitude and practices among NS users.

Knowledge and Attitude	Practices (usage of NS)		
	Yes (%)	No (%)	Total
Good	34(72.34)	13(27.66)	47(100)
Poor	02(16.67)	10(83.33)	12(100)
Total	36(61.02)	23(38.98)	59(100)

Chi-Square = 12.5 for 1 degrees of freedom at 5% level of significance and P = 0.001(<0.01)

**Table 6:** Association between Knowledge, attitude and practices with demographic variables.

Demographic Variables		Knowledge, Attitude and Practices			Fisher Exact Test P Value
		Good (%)	Poor (%)	Total (%)	
Gender	Male	03(60)	02(40%)	05(100)	0.015(P<0.05)
	Female	31(100)	-(-)	31(100)	
	Total	34(94)	02(06%)	36(100)	
Marital Status	Single	30(100)	-(-)	30(100)	0.02(P<0.05)
	Married	04(67)	2(33.00%)	06(100)	
	Total	34(94)	2(6%)	36(100)	
BMI	<25	23(100)	-(-)	23(100)	0.12(P>0.05)
	≥25	11(85)	02(15%)	13(100)	
	Total	34(94)	02(6%)	36(100)	

population. Women in this study were much higher in number than male colleagues. Therefore there were no similarities between the numbers of study participants in considering Sex, which may have been influenced because of disproportionate distribution of the study participants in considering the sex.

All participants of the current study heard about nutrition supplements, and the majority of the respondents received the information from doctors/pharmacists followed by reading books and friends/families which is similar finding with the study conducted by Ajitha Sharma et al. [20].

The majority 52.21% of the current study respondents possess a good knowledge regarding nutritional supplements. Which is similar finding with the study conducted by Nigerian by Aina BA, et al. revealed that their study populations possess a good level of knowledge [21]. The current study finding is quite dissimilar with the study conducted in Malaysia by ATM Emdadul et al. revealed that their majority 56.9% of the study respondents possess poor knowledge regarding NS [17]. The difference can be explained Nigerian study comprises the study population only medical students whereas in Malaysia study comprises sample cohort of a different group of people, which may affect the result.

Regarding the reasons for consuming nutrition supplements among university students, the majority of the respondents used supplements to maintain good health and ensure adequate nutrition. Similar findings were reported in the study done by Ajitha Sharma et al. [20].

In our study majority of the supplement, users were found to have healthy lifestyle practices like avoiding smoking, maintain normal body weight and exercised regularly. These findings were similar to the study by ATM Emdadul et al. [17].

Nutritional supplement users of the present study participants 93.65% believed that chosen type of NS was effective. Multiple studies were also similarly reported that NS consumers have a preconceived impression that these substances are effective in improving health [6,22].

In the present study, NS categorization is taken from the study conducted by ATM Emdadul et al. considered vitamins followed by minerals, herbal products, protein supplements, sports nutrition,



meal supplement and others [17]. Multiple studies were considered the categorization of NS as four basic categories: sports foods, dietary supplements, organic acids and herbs/traditional products [23,24]. The differences in categorizing NS may be due to the different nationality and socio-cultural environment. The current study participant's majority consumed vitamins as nutrition supplements 66.67% which is similar to the study conducted by Aljaloud and Ibrahim [24]. The current findings also can be explained as it has become a popular belief in many countries including Saudi Arabia that the vitamin supplementation maintains health and energy level. Although there are growing evidences that such indiscriminate use of vitamins and micronutrients cause no health benefits over balanced diet, but only increased wastage of money and adverse reactions [25]. Therefore, there is an urgent need to study further reasons for these findings and also with a large sample size and in a heterogeneous population.

## Conclusion

The usage of nutrition supplements in students is high. Hence, the knowledge, especially regarding the role of nutritional supplements in health and diseases must be highlighted in the medical science curriculum with the objective of producing well-informed professionals who can, later on, have a positive impact on the health of society.

## Limitations

This is a cross-sectional study with its inherent limitation. Further, the small sample size may not be representing the entire population of Saudi Arabia.

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