

ASSESSMENT OF THE PREVALENCE OF USING DIETARY SUPPLEMENTS AMONG PHYSICALLY ACTIVE ADULTS IN MAKKAH ALMUKARRAMAH 2019

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Abstract:

Background:

Adequate nutrition is essential for maintaining health and well-being. Apart from nutrition intake through diet, supplement use is prevalent worldwide, supplements are commonly used to replenish the body with essential nutrients that are important in regulating the body's metabolic processes. The use of supplements, which may be defined as multi-vitamins, single vitamins, single minerals, herbal supplements, oil supplements and any other dietary supplementation, the economic boom in Saudi Arabia indirectly, prompted the use of dietary supplements in the last two decades. Must to investigate the prevalence of dietary supplement use and its association with socio demographic. The Kingdom of Saudi Arabia is a fast growing economic country that has affected its general population in various ways including a transition in daily lifestyle patterns and dietary intake habits.

Aim of the study: to Assessment of the prevalence of Using Dietary Supplements Among Physically Active Adults in Makkah ALMukarramah 2019.

Method: Cross-sectional study design. The current study was conducted at Sports and Physiotherapy Center and fitness time centers at Holy Capital of Makkah, during the October to December, 2019, Our total participants were (400).

Results: that a significant difference between age and using supplements in the study while Chi-square 24.413 & p-value = 0.001. Most age of participants use supplements from 23-35 years were constitute (30.0 %), the gender that no significant difference between using supplements and gender in the study while Chi-square 1.437 & p-value 0.911 less than 0.05, regarding education show that significant difference between education status and using supplements in the study while Chi-square 14.827 & p-value more than P=0.022.

Conclusion: Supplements were commonly used among female students, The prevalence of dietary supplement use was high and was significantly associated with socio demographic and lifestyle factors. A substantial proportion of populations take supplements. Further investigation into the social, psychological and economic determinants that motivate the use of supplements is required, to ensure appropriate use of supplements among adults and the most commonly used supplements.

Keywords: Assessment, Prevalence, supplements, dietary, prevalence, physically active, adults, Makkah.

Introduction

Diet and nutrition play a key role in the maintenance of good health and prevention of diseases. While a well-balanced diet aims at providing the essential nutrients, the role of dietary supplements in complementing the diet cannot be undermined. [1] Dietary supplements represent an important source of essential nutrients. [2] Definition of a product taken orally that contains one or more ingredients (such as vitamins, minerals, herbs, or amino acids) that are intended to supplement one's diet and are not considered food but know that there are potential pitfalls of these dietary supplements. [3], may be sold as a dietary supplement in the United States under the Dietary Supplement Health and Education Act of 1994, without premarket approval from the FDA. [4] Batches of a dietary supplement L-tryptophan that have been implicated in a mysterious disease were produced by a genetically engineered organism. [5] Saudi Arabia is a vast country with about 31.74 million populations. Nearly two-thirds of them are adults. An adult is a person older than 19 years of age unless national law defines a person as being an adult at an earlier age. [6]. The Dietary Supplement Health and Education Act of 1994 (DSHEA) defines dietary supplements

as products, not drugs, that contain an ingredient intended to supplement the diet. They include vitamins, minerals, and other less familiar substances; as herbals, amino acids, and enzymes.[7] They often contain 100% or more of the daily need of one or more nutrients.[8,9] However, supplements should not replace the variety of foods that are important to a healthful diet. Unlike drugs, supplements are not intended to treat, diagnose, prevent, or cure diseases.[10]. Sports dietary supplements are out there purchasable publicly places as well as sports clubs. Though there's uncertainty relating to their safety, several gymnasium members World Health Organization often see consume them.[11,12,13]

There is a requirement to speak risks to the general public and convey a message that each active substance might need edges however may also have adverse effects on health .The public's risk perception is influenced by personal, psychological, environmental and social factors. So as to speak the danger, there's a requirement to require the danger communication approach to make an interactive method of exchanging information and opinions among people, teams.[14] The use of dietary supplements may be for general nutritional purposes or for specific purpose such as sports, high endurance exercise, etc. They may be used in pregnancy, aging and, prevention of diseases. The benefits of DS are evident when used in recommended dose and as directed [15, 16].

Aging is often accompanied the middle of hyperbolic nutritional risk which will cause or exacerbate health conditions. Undernutrition in older adults may be because of reduced energy and food intake, biological changes within the systema alimentarium, medical and psychological conditions, polypharmacy, and social problems like economic condition and therefore the inability to buy and prepare meals.[17,18,19]. Any product labeled as a "supplement," according to Food and Drug Administration (FDA), indicates that its contents and the claims on the label have not been evaluated or validated by the FDA. It well documented that the use of some of these products may lead to critical health injury. It means that the regular users are at risk resulting from taking various categories of DSs intended for athletic improvement.[20,21]dietary supplement (DS) use is widespread, with over 1/2 adult's news use, and also the highest use rumored in older adults. DSs can give nutrients that will be lacking or inadequate within the diet and may facilitate older adults meet counseled intake targets. DSs is also required to fulfill nutrient necessities, significantly for nutrients that don't seem to be omnipresent within the food provide, like D[22,23,24]

1.2 Literature Review

The study by Alfawaz and colleagues in Saudi female students highlighted maintenance of healthy hairs and recovery in an illness/injury, as major reasons for use of such products[25]. Similar reasons were also reported by Nigerian and Indian students[26,27] also a cross-sectional study, published in Journal of Nutrition and Metabolism in April 2017 was conducted in Riyadh among regular gymnasiums. The aim of study to determine the prevalence of DSs use. A validated structured questionnaire used. The study showed that 113 (37.8%) individuals out of 299 participants were DSs users. This consumption was less frequent in females than males (16.4% versus 44.7%) The most ordinarily used supplements were whey protein (22.1%), multivitamins (16.8%), amino acids (16.8%), omega 3 (11.5%), and creatine (11.5%). The causes for taking dietary supplements were to improve body shape (47.7%), increase health (44.2%), and improve performance (41.5%).[22,28] In a Japanese study, there was an inclining trend when it came to prevalence based on study years [29]. This was similar to another study reported among female Saudi students as the supplements were commonly used [25,30]. In another study in female students studying in medicine college at university, a high prevalence of vitamin and minerals supplement use 44% was reported [31].

In 2013, the Journal of Nutrition and Metabolism had published an article targeted to understand the patterns of using DSs among professional athletes in Saudi Arabia. A questionnaire conducted and distributed to three locally famous football clubs. The researcher studied 103 participants, 93.3% of them were using DSs and only 45.9% of that users were professionally advised. 88.7% used sports drinks while just 26.5% took amino acids.[32,33] .

At the same time, a previous study in male colleges at this university highlighted a high prevalence of multivitamins use [16]. Most students reasoned general health and well-being for supplement use. This was in line with the findings of study conducted in male students at university [4]. Contrastingly, Pakistani undergraduate students reasoned physician recommendation for consuming such products [34].

Journal of Family and Community Medicine have published a cross-sectional study in early 2017 about nutrition and hormones among Gyms' Attendees in Riyadh to assess the prevalence of supplements use and their types and to obtain the main reasons of that enhancement. The researcher used self-administered questionnaire proceeded at gyms in Riyadh that were selected randomly from different sectors. Out of a total of 457 randomly selected volunteers, approximately 47.9% of the sample reported an intake of nutritional supplements while 7.9% said that they took hormones. Protein powder massively consumed by 83.1% of the participants . Almost 16.8% of supplement users had noticed some side effects, and 25.7% of those had quit taking them because of adverse effects. Only half of the hormone users (54.2%) reported that they had had medical checkups. The dominant source of

information on the supplement and hormone use was non-health professionals. Friends being the primary source (40%) of knowledge on the application of hormones. The method of nutritional supplements significantly associated with BMI, duration of daily exercise, and following a special diet. There was an apparent association between DSs consumption and hormone use[35]

2. Rationale .

The pervasiveness of SDS use among competitors however infrequently talks about or looks at between the hazard impression of center individuals, coaches, and dietitians, who speak to the physically-active general population, in regards to SDS.

The researcher is joined several fitness centers in Makkah in the last years. She noticed that DSs were widely used between adult gymnasiums. The researcher failed to lay a hand on previous studies conduct the same subject among athletes In Makkah Al Mukarramah city. Moreover, studies that carried out in this field in our country the Kingdom of Saudi Arabia are insufficient and were performed only in Riyadh, the capital of Saudi Arabia. Previous studies showed the high prevalence of DSs consumption with lack of professional background.

2.1 Aim of the study:

To Assessment of the prevalence of Using Dietary Supplements Among Physically Active Adults in Makkah AlMukarramah 2019

2.2 Objectives

- To assessment the prevalence of using dietary supplements among physically Active adult .
- To understand the concept of their DSs misuse.
- To allocate the most common types of DSs consumed

3. Methodology:

3.1 Study design:

Cross-sectional study design on estimation of Prevalence of Using Dietary Supplements among Physically Active Adults

3.2 Study Area

The study will be carried out in the city of Makkah Al-Mokarramah Makkah is the holiest spot on Earth. It is the birthplace of the Prophet Mohammad and the principal place of the pilgrims to perform Umrah and Hajj. It is located in the western area in Kingdom of Saudi Arabia and called the Holy Capital. Contains a population around 1.578 million. This study was conducted in fitness time centers .The Holy capital, Makkah Al-Mukarramah city. Makkah Al-Mukarramah had all services such as Health, Education, Electricity, Municipality, and Transportation and it reflects a diversified demographic profile with a considerable portion of the population comes from rural descent, while others come from an urban one. This difference translates into biological, socioeconomic and lifestyle differences in the Makkah population.

3.3 Study Sampling :

The number of registered adults at fitness centers in main sectors in Makkah AlMukrammah is a total of 5300, which considered the total population of interest. 1810 (34%) were female, while 3510 (66%) were male. Assuming that, the prevalence of DSs consumption among adult trainees is 50%. Confidence level is: (95%) Error: (7%). Therefore, by stratified sampling technique the required sample size will be total of 400 participants.

3.4 Study population:

Adult gymnasiums between 19 and 65 who are training in different fitness centers in main sectors in Makkah Al-Mukrramah2019 .

A. Inclusion criteria:

- All healthy male and female gymnasiums between <25 and >55years of age at the time of study training in fitness time, elite, and curves centers.

B. Exclusion criteria:

- Training coaches .
- Participants below 25 years of age or over 55 years .
- Participants with chronic diseases or any health problem .

3.5 Sampling technique:

Simple random generator used to select centers randomly from sectors around Makkah AlMukrramah. During the period of data collection, 2019, the researcher has been distribute a validated questionnaire to every adult gymnasium who fit into the inclusion criteria by non-probability convenience sampling technique till she obtains the required sample size over a period of three month.

3.6 Data collection tool (instrument)

A validated self-administered questionnaire will be used. That would include demographic characteristics such as age, gender, education and occupation, marital status, health status, smoking status, sleeping length and dietary

habits. In addition, it would include exercise-related features like duration, frequency, and type of exercise. Moreover, that form will contain questions concerned with DSs used such as type, duration of use, source of information, and purpose of consumption.

The questionnaire has been constructed in Arabic language to be validated by two consultants, and then it has been distributed and filled by participants.

4. Data Collection technique :

During the period of data collection, the researcher has been going to the selected female fitness centers. She has been collecting data from eligible gymnasiums, by distributing the questionnaire to athletic adults while they are in the training area. Each questionnaire has been filled by an exerciser, and then the researcher will collect the questionnaires immediately after filling.

The researcher will seek the help of male facilitator in the selected male fitness centers. He will collect the data by the same technique followed in the female centers.

4.1 Study variables:

A. The depended variables are:

- DSs consumption propagation among adult gymnasiums.

B. The in-depended variables are:

- Age ,Gender , Nationality ,Marital status , Education level ,Occupation, Income, BMI, Health status , Smoking status ,Type of Diet.
- Sleeping hours:
- Duration of being physically active (years):
- Type of exercise:
- Frequency of training (days per week):
- Type of DSs used:
 - ✓ Vitamins: Vitamin B , C , D , E , Multivitamins , Iron.
 - ✓ Fish oil: Omega3 , 6 , Whey Protein , Amino acids , Creatin , Collagen , Caffeine , Coenzymes , Herbs , ,Hormones , Slimming supplements , Other.
- Form of supplement: Energy drinks , Health bars , Powders, Bills , Gummies , Other.
- Reasons of using: Recovery , Prevent injury , Lose weight ,Improve performance , Improve health , Appearance , Other.
- Knowledge about dose: Recommended dose , Maximum dose , Toxic dose.
- Awareness of side effects.
- Source of Information: Online, Magazine, Commercial advertising, Friends, Gym colleagues, Coach, Physician, Dietician, Academic journal, other.

4.2 Data entry and analysis

Data has been entered into a personal computer and has been analyzed by using Statistical Package for Social sciences (SPSS24). Necessary statistical tests such as Chi-square, T-test, and other appropriate tests will be used. A p- value of less than 0.05 has been adopted for statistical significance.

4.3 Pilot study/pretesting

The researcher has been performing a pilot study on <25 adult gymnasiums training in "Fitness way" center (out of the study), to test the tool, the methodology, and the environment. Necessary changes will be made accordingly.

4.4 Ethical considerations:

- Research ethics committee approval has been obtained.
- Permission from higher authorities including public health administration and fitness centers' directors has been obtained.
- All collected data has been kept confidential.
- All participants will sign a formal consent after being informed about the objectives of the study.
- Acknowledgments of the supervisor, participants and family members for their role in the research process.
- Awareness sessions and materials would be provided.

4.5 Relevance & expectations:

- Increase awareness of the risk of DSs misuse among adult gymnasiums.
- Decrease possible side effects of non-professional DSs consumption.

4.6 Budget :It will be self- funded

5. Result :Table (1):Distribution of the demographic characteristics data (age, gender, Marital status, Education, Occupation and Income, BMI, Smoking)

	N	%
Age		
<25	80	20
25-35	132	33
35-45	92	23
45-55	60	15
>55	36	9
Range	23-65	
Mean+SD	36.12+12.181	
Gender		
Male	292	73
Female	108	27
Marita status		
Married	272	68
Single	128	32
Education		
Illiterate	36	9
Primary certificate	44	11
Middle School certificate	72	18
Secondary certificate	48	12
diploma	76	19
BA	104	26
Postgraduate	20	5
Occupation		
Yes	308	77
No	92	23
Income		
<5000	152	38
5000-10000	188	47
>10000	60	15
BMI		
Underweight	116	29
Normal	92	23
Overweight	80	20
Obese	112	28
Smoking		
Non	196	49
Yes	204	51

Age In our study, the majority age period of 25-35years (33.0 %) constitutes the most common period In our study, while the age period of 35-45years represents (23.0%). Gender, the majority of our study are male gender in our

study was (73.0 %) while female were (27.0 %) of cases. Marital status, in our study the majority of participant is married 68.0 % while the single were 32.0 %. Education Level, the majority of our participants were at BA were constitutes (26%), followed by diploma were constitutes (19.0%). Occupation, in our study the majority were employees' yes 77.0 % while the not employees was 23.0%. Income, in our study Income from 5000-10000 SR were 47.0% , while <5000 SR were 38.0%. Related to BMI the majority of our participants were having Underweight constitutes (29.0%), followed by Obese BMI participants were constitute (28.0%). While increase BMI (obese) were constitutes 26.4 %. Smoking, the majority of our participants were yes smoker constitutes (51.0%). The followed by non-smokers were constitutes (49.0%).

Table (3):- The Distribution for (food system, average hours of sleep during the day, how long have you practiced sporting, the exercises you are doing and rate your exercise during the week) and(using any supplement and Food supplements used) in study group in study group.

	N	%
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Food system		
Do not follow	184	46
Follow a healthy diet	216	54
Average hours of sleep during the day		
Less than 7 hours	164	41
From 7-9 hours	212	53
More than 9 hours per day	24	6
How long have you practiced sporting?		
less than one year	120	30
1-5years	152	38
More than 5 years	88	22
I rarely do it	40	10
The exercises you are doing		
Cardio exercises	112	28
Resistance exercises	64	16
Stretching exercises	52	13
Mixed Exercises	172	43
Rate your exercise during the week		
Less than 3 days per week	160	40
3-5 days	180	45
More than 5 days	60	15
Do you use any supplement?		
Yes	340	85
No	60	15
Food supplements used		
Vitamin B	28	7
Vitamin C	16	4
Vitamin D	24	6
Vitamin E	8	2
Multivitamins	128	32
Iron	20	5
Omega 3	40	10
Omega 6	8	2
Whey protein	48	12
Amino acids	24	6
Creatine	8	2
Collegians	8	2
Caffeine	12	3
Herbs	8	2
Hormones	12	3
Weight Loss Supplements	8	2

Food system, the Most participants follow a diet a healthy were constitutes (54.0%) while not follow a healthy diet were constitutes (46.0%). Average hours of sleep during the day, the majority of our participants sleep per day from 7-9 hours was (53.0 %). While the sleep per day less than 7 hours were (41.0%).How long have you practiced sporting, the majority of our participants were do sporting from 1-5 years were (38.0%) followed by less than one

year (30.0 %).The exercises you are doing, the majority of our participants were do mixed exercises constitutes(43.0%). Followed by Cardio exercises were constituting (28.0%). Rate your exercise during the week, most of participants the rate of exercise during the week from 3-5 days per week was constitute (45.0 %). Followed by less than 3 days per week were constitute (40.0%). Do you use any supplement, most of participants the answer yes used supplement were constitutes (85.0%) Followed by answer not used supplement were constitute (15.0 %). Food supplements used, majority of our participants were used food supplements like Multivitamins , then Whey protein ,then Omega 3 constitutes (32.0% then 12.0 % then 10.0) , Followed by Vitamin B ,then Vitamin D ,then Amino acids were constituting (7.0% , 6.0% ,6.0 %) .

Figure (1)distribution of using any supplement and Food supplements used in study group in study group .

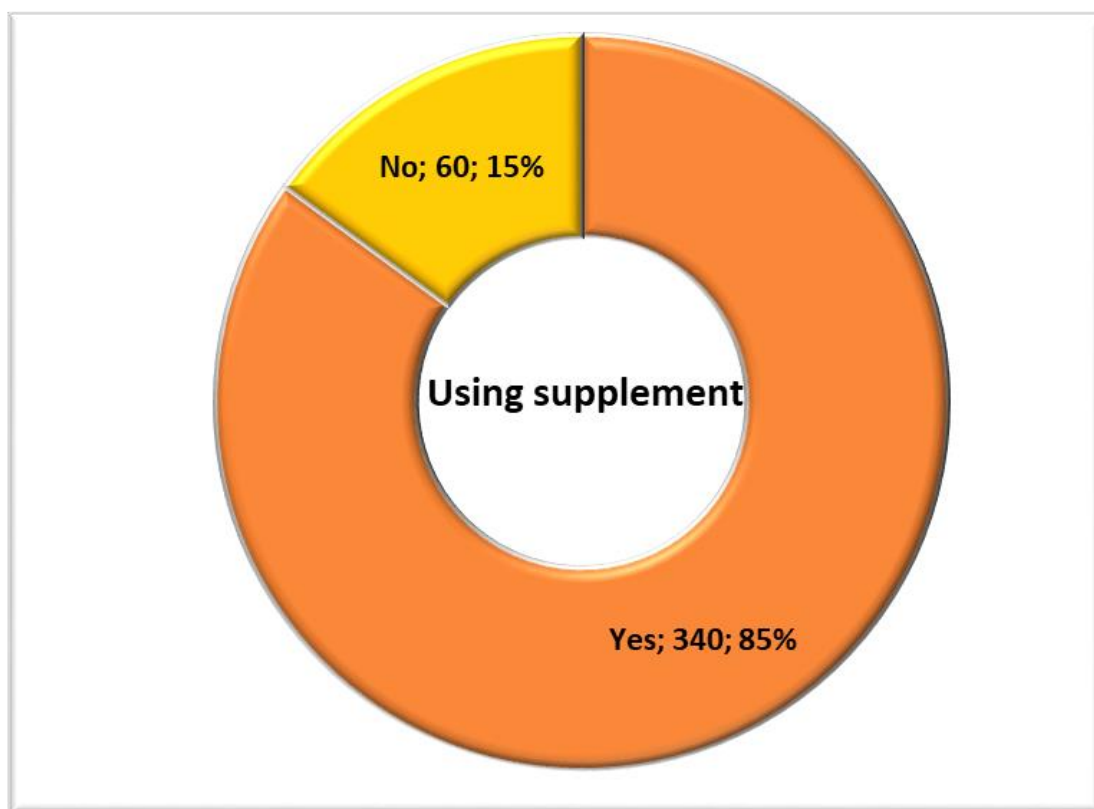


Table (4):- The Distribution for the source used to obtain information in study group

The source used to obtain information		
	N	%
Internet	100	25
Magazines and newspapers	8	2
Commercial ads	12	3
Friends	72	18
Trainees with you in the sports center	60	15
Sports Trainer	88	22
The doctor	32	8
Nutritionist	16	4
Magazines and scientific papers	8	2
Other	4	1

The internet was the most sources to obtain information in study group were constitutes(25.0%) then the second source to obtain information was sports trainer and newspapers were constitutes (22.0%) than Friends were constitutes (18.0%)

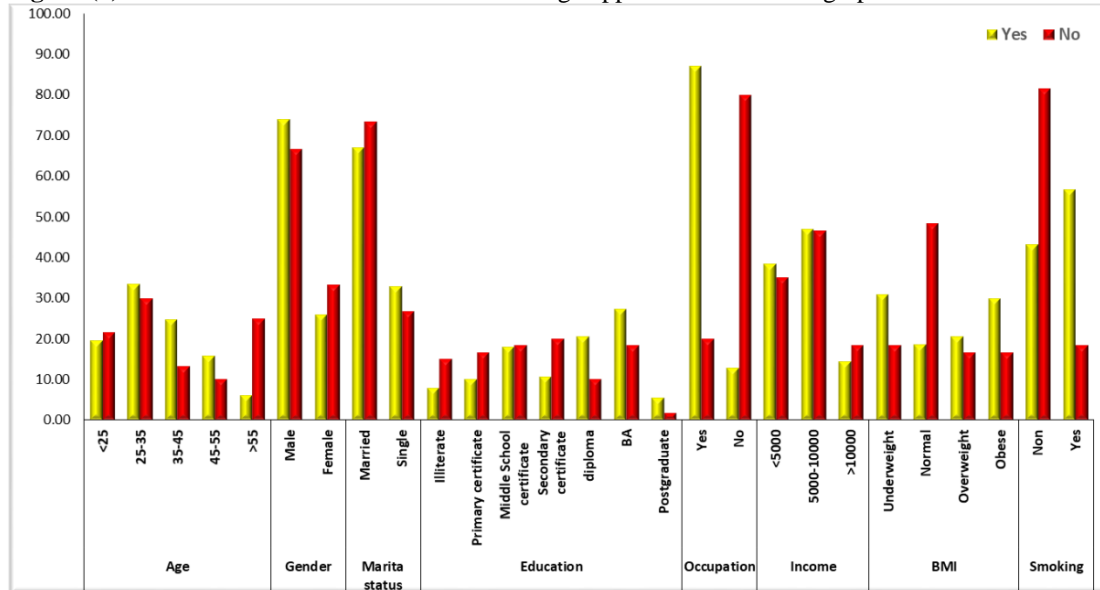
Table (5):- Distribution of the relation between using supplements and demographic characteristics data

		Yes (n=340)		No (n=60)		Total		Chi-square	
		N	%	N	%	N	%	X ²	P-value
Age	<25	67	19.71	13	21.67	80	20	24.413	<0.001*
	25-35	114	33.53	18	30.00	132	33		
	35-45	84	24.71	8	13.33	92	23		
	45-55	54	15.88	6	10.00	60	15		
	>55	21	6.18	15	25.00	36	9		
Gender	Male	252	74.12	40	66.67	292	73	1.437	0.231
	Female	88	25.88	20	33.33	108	27		
Marita status	Married	228	67.06	44	73.33	272	68	0.923	0.337
	Single	112	32.94	16	26.67	128	32		
Education	Illiterate	27	7.94	9	15.00	36	9	14.827	0.022*
	Primary certificate	34	10.00	10	16.67	44	11		
	Middle School certificate	61	17.94	11	18.33	72	18		
	Secondary certificate	36	10.59	12	20.00	48	12		
	diploma	70	20.59	6	10.00	76	19		
	BA	93	27.35	11	18.33	104	26		
Occupation	Yes	296	87.06	12	20.00	308	77	129.498	<0.001*
	No	44	12.94	48	80.00	92	23		
Income	<5000	131	38.53	21	35.00	152	38	0.692	0.708
	5000-10000	160	47.06	28	46.67	188	47		
	>10000	49	14.41	11	18.33	60	15		
BMI	Underweight	105	30.88	11	18.33	116	29	26.096	<0.001*
	Normal	63	18.53	29	48.33	92	23		
	Overweight	70	20.59	10	16.67	80	20		
	Obese	102	30.00	10	16.67	112	28		
Smoking	Non	147	43.24	49	81.67	196	49	30.142	<0.001*
	Yes	193	56.76	11	18.33	204	51		

Table5 show that a significant difference between age and using supplements in the study while Chi-square 24.413& p-value= 0.001. Most age of participants use supplements from 23-35years were constitute (30.0 %). Regarding the gender that no significant difference between using supplements and gender in the study while Chi-square 1.437& p-value 0.911 less than 0.05 . Most of participants male the answer yes use supplements were constitute (74. 12 % but 66.67 %) of male study group answer YES we use supplement. While the female answer by YES or NO use supplement equal were constitute (25.88% , 33.33%) . regarding education show that significant difference between education status and using supplements in the study while Chi-square 14.827& p-value more than P=0.022. Most of the BA education status of participants use supplements were constitute (27.35%). regarding

occupation show that a significant difference between occupation and using supplements in the study while Chi-square 129.498 & p-value=0.001, regarding BMI show that a significant difference between BMI and using supplements in the study while Chi-square 26.096 & p-value=0.001, also Smoking show that a significant difference between Smoking and using supplements in the study while Chi-square

Figure (2) Distribution of the relation between using supplements and demographic characteristics data



6. Discussion

The present study demonstrated the high prevalence of dietary supplement use and its association with socio demographic and lifestyle factors in Adults in Makkah Almuqarramah at King Saudi Arabia. The association between education level and dietary supplement use has been in study. A significant direct association of level of education and dietary supplement use in the adult population. significantly higher consumption of vitamins and/or mineral food supplements in males with educational status. Our present study supports the above findings showing a significant direct association between level of education and food supplements used in study group While Chi-square 14.827 & P 0.022 While p-value more than 0.05.

Studies across completely different populations and sex show a healthier manner related to dietary supplement (men and women) that dietary supplement use. Participants lack correct data and basic information concerning aspect effects, importance of doctor's prescription and reliable supply. A doable cause for this unknowingness might be the shortage of correct counseling and suggestions concerning healthy diet from time to time via reliable sources like physicians and consultants. This study has some limitations and will be thought of before extrapolating the results to the overall public. These findings can't be generalized thanks to little sample size, that isn't representative of the population in Kingdom of Saudi Arabia. Thanks to the cross-sectional style of this study, the reported associations, significantly with relevance socio demographic/lifestyle characteristic and health outcomes couldn't establish relation.

7. Conclusions

The findings of this study facilitate an understanding of why dietary supplement use is so widespread. It shows that there is a gap in the risk perception between trainers, dietitians and gym members regarding this issue. This study can constitute a basis for recommendations for the Health Ministry and for sports associations to increase the importance of apprising gym members about the uncertainty and about the importance of judicious consumption, while providing clear information about supplements

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