

Prevalence Of Commercial Dietary Supplement Use And Physical Quality Of Life Among Gym Attendees In Baghdad

Ammar Ghazi Faesal¹, Maha A. Al-Nuaimi²

¹M.B.Ch.B.

²Ph.D., Professor in Epidemiology, College of Medicine, Mustansiriyah University, Iraq, Maha_alnuaimi@yahoo.com

Abstract

Background: Supplements comprise easily obtainable products intended to enhance nutrition, improve general health, expedite recovery, and elevate athletic performance. The absence of a cohesive categorizing or regulatory framework for these goods leads to the lack of a singular and global description of a supplement. **Objective:** To assess the Prevalence of commercial dietary supplement users and physical quality of Life among gym attendees in Baghdad. **Method:** To achieve these objectives, a cross-sectional study for 20 gym-centers, was conducted in Baghdad City. By a multistage sampling technique, 200 participants who met the inclusion criteria, were recruited for this study. A standardized questionnaire was used for data collection. **Results:** the prevalence of supplement users among gym-attendees was 78.5%. Protein powders were the commonest one, used by 75.8% of respondents, followed by creatine in (60.5%). According to the scoring of the responses of the study participants toward the QoL questionnaire, 151 (75.5%) participants showed good and 49 (24.5%) showed poor, physical quality of life level showed no significant association with the use of protein powders supplements. **Conclusion:** the prevalence of supplements use in male gym attendance is prominent in Baghdad, with good levels of quality of life

Keywords: Prevalence, Commercial dietary supplement, Male gym attendees, physical quality of Life

1. Introduction

Physical activity is a key determinant of overall health and quality of life. Regular exercise enhances physical fitness, reduces risk of chronic disease, and improves mental wellbeing. Evidence suggests that fitness-center membership and consistent attendance are positively associated with self-perceived health and higher QoL scores (WHOQOL domains) among gym-goers.^(1,2) Evidence indicates that regular exercise may be as beneficial as medication therapy for specific facets of sex problems in men and hormones equilibrium.^(3,4) Mediated physiologically via vascular and nervous systems.⁽⁵⁾ Therefore, there is a need for non-pharmacological strategies with fewer side-effects. One such lifestyle change could be increasing physical activity levels.⁽⁶⁾

Athletes have employed several strategies to secure a competitive edge since puberty, driven by the emergence of innovative training techniques and media representations of professional sports. Sports nutrition encompasses the integration and implementation of scientific ideas from nutrition and exercise physiology to enhance physical activity, athletic performance, and recuperation. Apart from adopting training and sports nutrition regimens, athletes also pursue specific supplements.^(7, 8) Acknowledging that athletes had greater nutritional requirements than the general population, as the time progresses and the level of exercise escalates, it becomes difficult to consume the appropriate and adequate quantity of food to meet their normal dietary requirements and caloric intake. Therefore, a greater quantity of chemicals is necessary to meet the metabolic demands of sports throughout training or period of recuperation.⁽⁹⁾ Supplements comprise easily obtainable products (whether one or multiple ingredients) intended to enhance nutrition, improve general health, expedite recovery, and elevate athletic performance. The absence of a cohesive categorizing or regulatory framework for these goods leads to the lack of a singular and global description of a supplement.^(7,10) Available in powdered, limited volume liquid, tablet or capsule form, that provides sporting benefit.⁽¹¹⁾ They include minerals, vitamins, plant-based amino acids, ergogenic substances and others.^(12,13) At one extreme of the supplement spectrum are conventional foods, while at the opposite extreme are distinctly recognized pharmaceuticals; however, in the intermediary, exist several chemicals that are challenging to categorize. Nonetheless, supplementation typically refers to specific nutrients or molecules rather than entire cuisines.^(14,15) Gym culture is sometimes accompanied by risky practices, that can affect gym-goers health

Objectives of this study: To estimate the prevalence of the most common types of commercially available supplement

users, among Iraqi gym-attendees in Baghdad and its association with physical quality of life

Method:

To achieve the study objectives, A cross sectional study was conducted in Baghdad city. From January, to the end of March 2026. By using multistage sampling technique, 200 participants who met the inclusion criteria, were recruited for this study. The stage of selection started from the District (Al-Karkh and Al-Resafa), reaching to Selection of 10 Gyms from 10 Neighborhoods, in each District. Using simple random sampling (lottery method) Participants from each Gym were selected using random systematic sampling based on the membership lists of individuals. Ten participants who met the inclusion criteria, where recruited, contacted and interviewed. those who could not be contacted, not available or refuse to participate, were replaced (replacement sampling) using the same list and manner. The included participants were; Male gym attendees, aged 18-49 years, regularly trained ≥ 4 times/week, ≥ 60 minutes/session for ≥ 6 months. Whereas, Participants with chronic illness, currently use medications or hormones other than (AAS/TRT), or Excessive alcoholic or drug users. Height and weight measures were estimated for all participants. Furthermore, adiposity indicators, namely, body mass index (BMI), was computed. Data were collected from participants within the selected gym centers using a questionnaire covering socio-demographic characteristics, gym-related practices, the use of androgenic-anabolic steroids and dietary supplements, physical quality of life assessment, sexual wellbeing, and sexual function-related domains. In addition, anthropometric measurements and laboratory data were obtained from the participants.

Results

Two-hundreds married male, were recruited, mean of age was 30 ± 7.6 years. About 70% of them were married. Participants with Bachelor's degree formed 87% of this sample and 58.5% of them were employees. Table 2 displays that, the mean BMI $\pm$ SD was 25.7 ± 2.3 kg/m². As well as, 34.5% of participants had normal BMI, 58% were overweight. More than three-quarters of the sample (78.5%), were currently use any type of dietary or fitness supplements. Also 88 (56.1%) have been using these supplements for less than a year, and 42 (26.8%) for 1-2 years. Protein powders were the commonest used supplement 119 (75.8%). Followed by creatine (95, 60.5%), AAS use was among 40.8% of the sample, pre-workout supplements in 36.9% of users and other supplements as; multivitamins, amino acids/BCAAs, glutamine, omega-3, or fat burners, were used by only 15 (9.6%) of supplement users. However, large proportion of the participants used combined supplement items that overlapped total.

Table 1. Frequency distribution of participants' responses towards general use of dietary or fitness, and anabolic steroids supplements, of the study participants (n=200).

Variables		No.	%
Currently use dietary or fitness supplements	Yes	157	78.5
	No	43	21.5
Duration of supplements' usage (n=157)	<1year	88	56.1
	1 - 2	42	26.8
	>2years	27	17.2
The type of supplements used (n=157);	Protein powders	119	75.8
	Creatine	95	60.5
	AAS	64	40.8
	Pre-workout supplements	58	36.9
	Other supplements	15	9.6

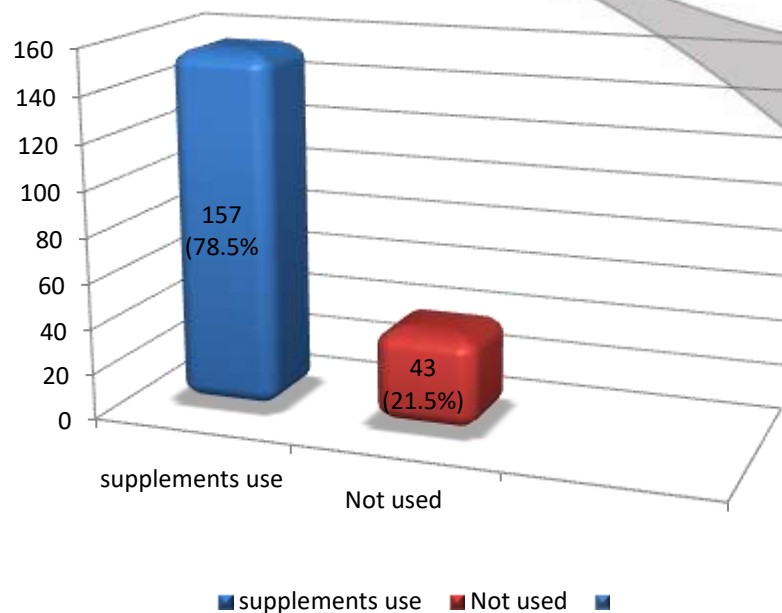


Fig 1: prevalence of supplements users, among the studied sample (T=200).

Participants who used protein powders supplement, reported a good physical quality of life in the last 4 weeks, among 75.6% of them, while a bout one-quarter experienced poor QoL measures. With no significant association. (Table 2).

Table 2. The Protein powders supplements users versus levels of Physical Quality of life of all dietary or fitness supplements users(n=157).

		Protein powders use				P value
		Yes (N=119)		No (n=38)		
		No.	%	No.	%	
Physical Quality of life in the last 4 weeks	Poor	29	24.4	12	31.6	0.378
	Good	90	75.6	26	68.4	
*Significant difference between percentages using Pearson Chi-square test (χ^2 -test) at 0.05 level.						

Association between Protein powders supplements and biochemical levels

No significant association was found between using protein powders supplements and each of biochemical and hormonal parameters, in all comparisons, (Table 3).

Table 3. The Protein powders supplements users versus biochemical levels of all dietary or fitness supplements users(n=157).

Variable	Category	Protein powders supplement use				P value*
		Yes (n=119)		No (n=38)		
		N o.	%	N o.	%	
ALT (SGPT)	High	29	24.	12	31.	0.378

(IU/L)			4		6	
	Normal	90	75. 6	26	68. 4	
	Mean (SD)	33.20 (17.5)		38.65 (18.01)		0.099
AST (SGOT) (IU/L)	High	22	18. 5	9	23. 7	0.484
	Normal	97	81. 5	29	76. 3	
	Mean (SD)	30.04 (13.38)		32.15 (13.13)		0.396

*Significant difference between percentages using Pearson Chi-square test (χ^2 -test) at 0.05 level.

The association between the use of creatine supplements and level of physical quality of life, of the study participants was not significant. (Table 4).

Table 4. The Creatine supplements users versus Physical Quality of life among supplement users of the study sample (T=157).

Variable		Creatine use				P value
		Yes (n=95)		No (62)		
		No.	%	No.	%	
Physical Quality of life in the last 4 weeks	Poor	23	24.2	18	29.0	0.501
	Good	72	75.8	44	71.0	

*Significant difference between percentages using Pearson Chi-square test (χ^2 -test) at 0.05 level.

Table 5, shows no significant association was found between use of creatine supplements and each of biochemical and hormonal parameters, in all comparisons.

Table 5. The Creatine supplements users versus biochemical levels of all dietary or fitness supplements users (T=157).

Variable	Category	Creatine use				P value
		Yes (n=119)		No (n=38)		
		No	%	No	%	
ALT (SGPT) (IU/L)	High	25	26.3	16	25.8	0.943
	Normal	70	73.7	46	74.2	
	Mean (SD)	34.57 (16.24)		34.43 (19.91)		0.961
AST (SGOT) (IU/L)	High	18	18.9	13	21	0.756
	Normal	77	81.1	49	79	
	Mean (SD)	30.60(12.52)		30.46(14.54)		0.948

*Significant difference between percentages using Pearson Chi-square test (χ^2 -test) at 0.05 level.

Table 6, shows that the pre-workout supplements users, had no significant relation with physical quality of life during the past 4 weeks, (Table 6).

Table 6. The pre-workout supplements users versus levels of Physical Quality of life, of all dietary or fitness supplements users(n=157).

Variable		Pre-workout supplements use				P-value
		Yes (n=58)		No (n=99)		
		No.	%	No.	%	
Physical Quality of life in the last 4 weeks	Poor	17	29.3	24	24.2	0.485
	Good	41	70.7	75	75.8	

*Significant difference between percentages using Pearson Chi-square test (χ^2 -test) at 0.05 level.

The mean AST enzyme levels was significantly higher among users of pre-workout supplements compared to non-users, where the mean AST level was 33.31 ± 13.37 vs. 28.93 ± 13.07 IU/L, respectively, (P. value =0.046), however, the frequency of high level of AST was higher among pre-workout supplements users compared to non-users; 27.6% vs. 15.2%, but not to a level of significant association, (table 7).

Table 7. The pre-workout supplements users versus levels biochemical levels of all dietary or fitness supplements users(n=157).

Variable	Category	Pre-workout supplements				p valu e
		Yes (n=58)		No (n=99)		
		No .	%	No .	%	
ALT (SGPT) (IU/L)	High	18	31	23	23. 2	0.28 3
	Normal	40	69	76	76. 8	
	Mean (SD)	36.44 (17.53)		33.39 (17.82)		0.30 1
AST (SGOT) (IU/L)	High	16	27. 6	15	15. 2	0.05 9
	Normal	42	72. 4	84	84. 8	
	Mean (SD)	33.31 (13.37)		28.93 (13.07)		0.04 6*

*Significant difference between percentages using Pearson Chi-square test (χ^2 -test) at 0.05 level.

Good physical quality of life in the last 4 weeks, seems to be higher among non-users of other supplements, than non-users, with no significant association, (Table 8).

Table 8. Other supplements users versus levels of Physical quality of life, of all dietary or fitness supplements users (n=157).

		Other supplements				P value
		Yes (n=15)		No (n=142)		
		No.	%	No.	%	
Physical Quality of life in the last 4 weeks	Poor	6	40.0	35	24.6	0.198
	Good	9	60.0	107	75.4	
*Significant difference between percentages using Pearson Chi-square test (χ^2 -test) at 0.05 level.						

Discussion

Assessment and analyses were performed to assess the intercorrelations between the studied variables and parameters. In the present study, no significant association was found between the use of supplements and all independent variables except duration of gym membership where the frequency of using these supplements tend to increase with the longer duration. In Italy, Mazzilli et al. ⁽²⁶⁾ found that longer duration in training, longer duration in gym-membership were associated with the extensive use of protein powder, amino acids and creatine. This association could be explained by some points, using dietary supplements by gym clients tends to increase with the longer duration of attending the gym this is in fact due to longer exposure to gym culture, influence of peers and friends, and recommendations of coach/trainer. ⁽²⁶⁾

In the current study, no significant association was found between the current use of supplements and each of levels of physical quality of life, of the study participants. This finding agreed with that reported in previous studies, Skar et al. ⁽²⁷⁾ found high rates of supplement use but no significant association with physical QoL and experiences. Mazzilli et al. ⁽²⁶⁾ found an association with the duration but significant correlation was found with other variables. Sajid et al. found higher prevalence of dietary supplements use but no clear evidence about the positive effect of this supplement and physical QoL. ⁽²⁸⁾

Our findings revealed abnormal higher levels of liver enzyme (ALT) among participants currently using dietary and fitness supplements than those who did not use these supplements, while no significant association was found between the use of supplements and AST levels. Schlickmann et al. ⁽²⁹⁾ In Brazil concluded that, using dietary supplements was significantly associated with abnormal liver enzymes, blood urea and serum creatinine. From other point of view, Li et al. ⁽³⁰⁾ from China, documented that natural products and dietary supplements can affect the liver enzymes. These findings reflect the importance of using supplements under professional supervision and according to scientific instructions.

No significant association was found between the type of supplements and each of level of education, employment or BMI. Our findings disagreed with an Iranian study by Mahdavi et al. ⁽³¹⁾ where they found a significant association between type of supplements and older age, obesity, level of education and having chronic diseases.

Using protein powders as a supplement, has no impact on the physical quality of life, these findings supported Ketheeswaran et al. study, who stated that protein supplementation, did not have evident health effect, its effect is still questioned. ⁽³²⁾

Regarding the Creatine supplements use and its association with physical QoL. The present study did not find any significant association with QoL. Creatine is widely used as ergogenic supplements among athletes where it is used in by up to 40% of athletes. This due to its suggested effect by improving the performance and strength and assisting the ATP regeneration as well as, it supports the muscle mass via myogenesis and protein synthesis. ^(33,34)

In the current study, using pre-workout supplements was not significantly associated with variables of physical QoL

within the last 4 weeks. Similar findings were reported by Vancini et al., who found that dietary supplement use alone was not necessarily associated with better health-related quality of life, suggesting that quality of life is influenced by multiple lifestyle and behavioral factors rather than supplement intake alone. ⁽³⁵⁾

However, the current study did not support any association between these supplements and physical QoL function. From other point of view, it found that using pre-workout supplements was significantly associated with the elevated levels AST.

Conclusions

Using dietary or fitness supplements was prominent among gym attendees in Baghdad. Using dietary or fitness supplements was significantly associated with the higher frequency of elevated ALT levels. Protein powders as a supplement were significantly associated with good physical quality of life. With no significant biochemical parameter's changes. Using Creatine as supplements was neither associated with Physical Quality of life, nor with biochemical parameters changes. usage of pre-workout supplements was significantly associated with elevated AST levels. These findings reflect the importance of using supplements under professional supervision and according to scientific instructions.

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