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Knowledge and Attitude of Using Anabolic Androgenic Steroids Among Male Bodybuilders in Al-Russafa Baghdad Province

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Abstract

Anabolic androgenic steroids are being more popular between bodybuilders and people who are using gym to enhance their physiques. However, according to the increase of the laws prohibiting sales of these substances without physician prescription, the route of getting and administration practices have become more and more dangerous. Anabolic androgenic steroids include many synthetic derivatives of testosterone its play a significant role in medical treatment. These groups of medications are extensively abused at young ages to rising lean body mass and advance the athletic quality of performance. It has been described that anabolic steroids use can cause many long and short-term side effects, this study intended to assess the level of knowledge about AAS and its effects among gym users. 50 bodybuilders were using gym routinely and were using AASs for at least 2 months and another who were using gym routinely but never use AAS before were interviewed to show their knowledge about short and long term AASs using side effects. Participants used androgenic hormones for three main reasons health, social and personal, vast majority of the participants obtained the required results by using AAS, The majority of participants were going into the gym five to six times weekly for an hour daily. Enanthate was the main steroid abused by the participants and the gym coaches were the major source of selling steroids to the participants. The anabolic androgenic steroids had a harmful effect and abused by large number of young ages.

Keywords: Anabolic androgenic steroids, Athletes, Bodybuilding, Gym users, Baghdad.

1. Introduction

Sport is globally encouraged as the manifestation of excellence, health, hard work, unbiased play, and equality [1], but when human beings are positioned in competitive circumstances, mainly

in the sports field, they will try to gain a benefit over their challenger in order to achieve dominance and win the competition [2].

The use of drugs in athletics, for both therapeutics and improvement of performance. Further, both required professional pharmacists to provide information, drug education, and counselling to athletes, parents, coaches, athletic trainers, and the public community at all levels of competition [3].

Sports Pharmacy defines as the training and practicing of pharmacists to authorize them actively participate in anti-doping operations. There has been an enormous need to regulate the use of drugs or acceptable medicines and supplements. Therefore, a developing field, sports pharmacy has been experienced all around the world. Sports pharmacy controls the utilization of these drugs for either medicinal or to enhance the quality of performance. Another module of sports pharmacy is doping control. [4].

Anabolic androgenic steroids use for performance improvement and shape enhancement is an increasing worry in many countries; however, information, awareness, and understanding of health harmful effects connected to AAS appear to be diverse and possibly limited [5]. This has suggestions for the plan of culturally suitable health-associated involvements supported by promoting damage reduction and quitting support in the Eastern Mediterranean. We highlight implications for normalization of this type of drug use among gym goers, and athletes [6] there is developing evidence of the opportunity of harmful effects of long-term androgenic steroid use on the brain health of a user [7] also in the increased dose and long-period, users had a possibility of cognitive defects [8].

There is a study in Saudi Arabia, Iraq, Iran, Jordan, Lebanon, Kuwait, United Arab Emirates, and Pakistan that reported the main sources in these nations were friends, fitness trainers, and coaches. Other finding ways included obtaining from gym users, training partners, the black markets, online sources, veterinary doctors, fitness stores, pharmacists, and physicians [5].

Most Eastern Mediterranean participants were found to be aware of the anabolic steroid effects of AAS, such as increased muscle mass, body weight, bodybuilding effects, and greater muscle power [9-11].

According to various research conducted in Saudi Arabia, Kuwait, the United Arab Emirates, and Iran, participants' total self-reported knowledge of detrimental consequences was insufficient [9-13].

The objective of the study: To detect the level of information, and attitudes towards AAS usage among male gym users in Baghdad.

To detect the types of AAS used more than other types and duration of use.

To assess the ways of obtaining AAS and source of informations about using.

To detect the causes that lead participants to use AAS.

2. Method

In this cross-sectional, questionnaire study, the pharmacist researcher interviewed the gym members who are using AAS in the time of the study with those who were never used AAS before to detect their knowledge of AAS users about its dangerous and possible side effects. This study was carried out in two gyms in Baghdad Al-Russafa and data collection lasted for 3 months from the first of February 2022, until the end of April 2022.

3.1. Inclusion criteria include:

Male >18 years of age, Healthy bodybuilders using the gym, Agreement all the participant in the study also the agreement of college of pharmacy university of Baghdad committees had been taken.

3.2. Exclusion criteria include:

Female gender, Age under 18 years. A special sheet was designed by the research team to match the study goals, the data was collected of all participants of the study regarding their sociodemographic data, comorbidities, lab investigations, medication history, and BMI.

Asking the participants about their knowledge of AAS and its current and future side effects the interview was done by the researcher using phone calls in the Arabic language and the questionnaire obtained from a Saudi study [14].

Ethical concerns

- This study was permitted by the scientific committee of the college of pharmacy/university of Baghdad.
- All of the participants' approval has been taken before starting the samples collection.
- Anabolic Androgenic Steroids using bodybuilders were advised against substance abuse and also they were given full informations about the adverse effects. Unfortunately almost all of them continued to consume steroids afterward.

Statistical analysis

Data were analyzed using SPSS version 21.0. Descriptive statistics frequency and percentages were used to describe the categorical study and outcome variables also minimum, maximum and standard deviation for non-categorical variables. Fisher's Exact Test was used to assess the binary outcome variable (Yes/No).

3. Results

The participants were young men with an average age of 29.0 (±6.6) years, BMI of 27.2 (±3.5), and without chronic diseases (98.8%). The vast majority of the participants had a college education (81.5%) in non-medical specialties (91.4%). Approximately 26% of the participants were alcoholics and 43% were smokers.

Table 1: The sociodemographic characteristics of the participants

Character	Subcategories		Frequency (N)	%
Group	AAS not used		31	38.3
	AAS users		50	61.7
	Total		81	100
Smoking	Yes		35	43.2
Alcoholic	Yes		21	25.9
Marital status	Single		49	60.5
	Married		32	39.5
Education degree	High-school		12	14.8
	College		66	81.5
	Higher education		3	3.7
Working in medical field	No		74	91.4
	Yes		7	8.6
Having chronic disease	No		80	98.8
	Yes		1	1.2
Taking chronic medication	No		80	98.8
	Yes		1	1.2
	Minimum	**Maximum**	**Mean**	**Std. Deviation**
Age (years)	18	48	28.96	6.59
BMI	20.2	37.5	27.15	3.51

The majority of participants (76.2%) were going to the gym five to six times weekly for an hour (96.3%) daily. The participants were doing four main different exercises for three main reasons: health, social and personal. More than three quarters (82%) of the user group were taking AAS for non-continuous periods.

Table 2: The training characteristics of the anabolic steroid users

Character	Subcategories	Frequency (N)	%
Frequency of training weekly	3	2	2.5
	4	14	17.3
	5	36	44.4
	6	29	35.8
Duration of training (hours/day)	1	78	96.3
	2	3	3.7
Reasons for going to gym	Health	23	28.4
	Social	19	23.5
	Personal	39	48.1
Exercise type (inside & outside gym)	Walking	47	58.0
	Running	65	80.2
	Swimming	20	24.7
	Playing soccer	54	66.7

More than half (56.8%) of all participants have used supplements. Some participants (19, 23.4%) have used growth hormone. The vast majority (94%) of the user group have obtained the intended results after using androgenic anabolic steroids (AAS). Additionally, one-third of the user group (36%) advised others to use AAS

Table 3: The participants' behaviors toward the abuse of androgenic anabolic hormones, supplement and growth hormone.

	Frequency (%)				
Behavior	**Always**	**Often**	**Sometimes**	**Rarely**	**Never**
Using supplements	22 (27.2)	24 (29.6)	16 (19.8)	10 (12.3)	9 (11.1)
Using growth hormone	7 (8.6)	12 (14.8)	9 (11.1)	7 (8.6)	46 (56.8)
Did you get the required results after using AAs?	27 (54)	20 (40)	3.0 (6.0)		
Do you advise others to use AAS?	11 (22)	7 (14)	15 (30)	9 (18)	8 (16)

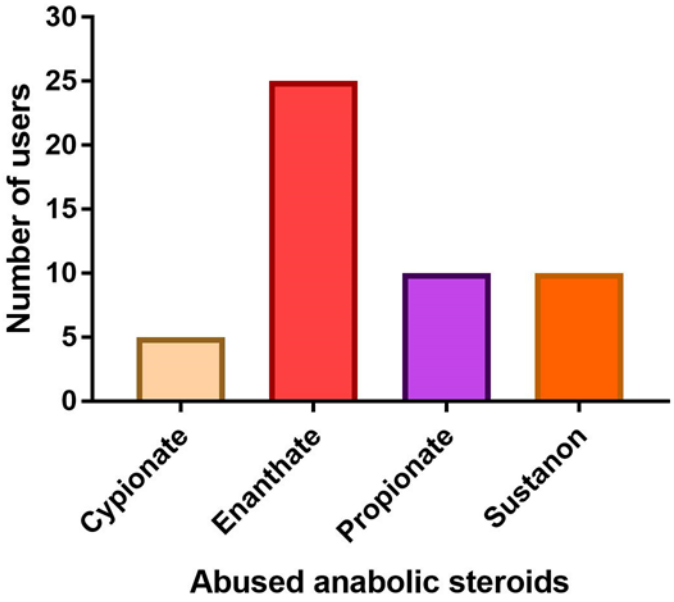

Figure 1: The types of anabolic steroid abused by gym users

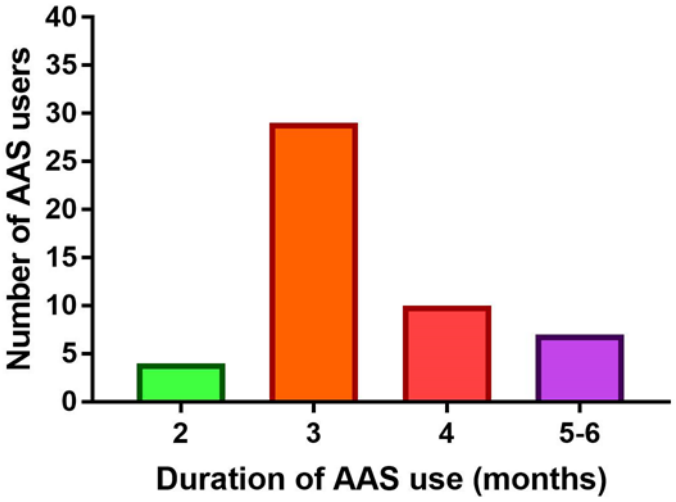

Figure 2: The duration of androgenic anabolic steroids (AAS) in months

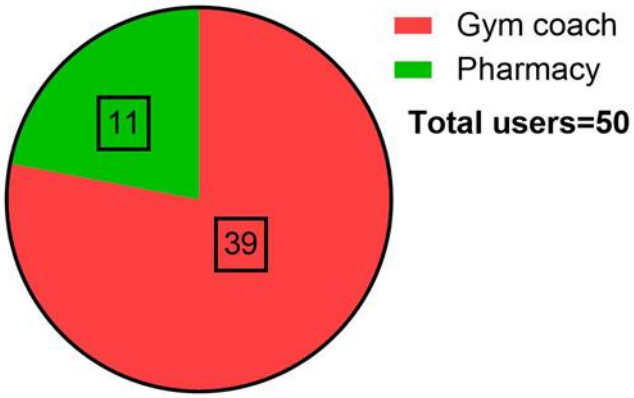

Figure 3: The sources of anabolic steroids for gym users

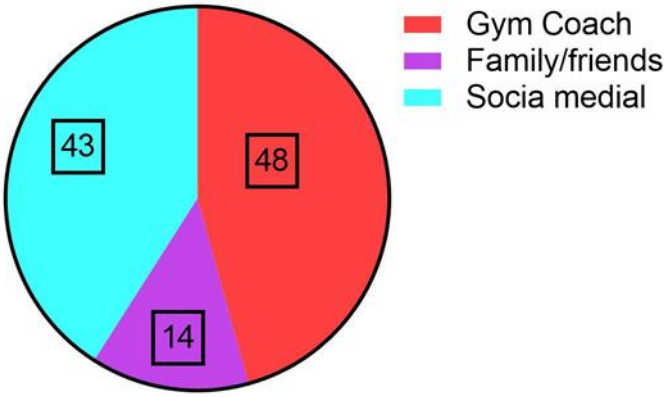

Figure 4: The sources of information about anabolic steroids for gym users.

Table 4: The association between the education level and the knowledge (awareness) of the anabolic steroid adverse effects

Knowledge about AAS adverse effects			Education		P-value
			High school	College or higher	
You know AAS cause acne	No	Count	4	17	.070
		% within	19.0%	81.0%	
	Yes	Count	1	28	
		% within	3.4%	96.6%	
You know AAS cause acne Hair loss	No	Count	1	21	.368
		% within	4.5%	95.5%	
	Yes	Count	4	24	
		% within	14.3%	85.7%	
You know AAS cause acne Infertility	No	Count	2	14	.650
		% within	12.5%	87.5%	
	Yes	Count	3	31	
		% within	8.8%	91.2%	
You know AAS cause acne Cardiac diseases	No	Count	1	18	.637
		% within	5.3%	94.7%	
	Yes	Count	4	27	
		% within	12.9%	87.1%	
You know AAS cause acne Phycological diseases	No	Count	3	21	.661
		% within	12.5%	87.5%	
	Yes	Count	2	24	
		% within	7.7%	92.3%	

Fisher's Exact Test

There was no significant (P-value >5) association between the participant education level and their awareness of AAS adverse effects.

4. Discussion

The purpose of this study was to determine how well-informed and aware male gym members were of the health risks associated with AAS misuse. This information may be useful for focusing efforts and modifying laws intended to control the use of AAS from the viewpoint of the healthcare system.

The study recruited 81 male gym users from two gyms in Al-Russafa Baghdad province. The participants were categorized into two groups: 50 users were taking androgenic anabolic steroids (AASs) and 31 men were not taking AAS. The participants were young men with an average age of 29.0 (±6.6) years, BMI of 27.2 (±3.5), and without chronic diseases (98.8%). The majority of the participants had a college education (81.5%) in nonmedical specialties (91.4%). About 26% of the participants were alcoholics and 43% were smokers Table 6-1.

The majority of participants (76.2%) were going to the gym five to six times weekly for an hour (96.3%) daily. The participants were performing four main different exercises for three chief reasons: health to improve their health status also some of them followed physician instructions about using the gym, social reasons due to the community effect on the body shape standards, and personal reasons. More than three-quarters (82%) of the AAS user group were taking AAS for a non-continuous schedule (Table 2). Non-continuous dosing means Common patterns for abusing androgenic steroids include cycling (regularly taking several doses in certain time periods, pausing for certain time periods, then restarting), stacking (this permits mixing of oral and injectable steroid dosage forms, and an addition of more two or three distinct steroids), pyramiding (gradually increasing the dose or strength of steroid abused until the peak is reached, then regularly weaning off to zero), plateauing (to break the dependency, overlap, alternate, or substitute with another steroid), however, there is no empirical proof that these ways of steroids application reduce the drugs' harmful effects [15].

More than half (56.8%) of all participants have used supplements with or without AASs following the instruction of gym coaches without medical checking if the body needs these supplements. Some participants (19.23.4%) have used growth hormones. The vast majority (94%) of the AASs users group have obtained the intended results after using androgenic anabolic steroids (AAS). Additionally, one-third of the users group (36%) advised others to use AAS Table 3. also in Saudi Arabia study found that (77%) of participants would still recommend AAS to friends in spite of self-declared knowledge of the side effects of AAS [16] that’s mean that the users of AASs had a full conviction about the usefulness of using it .

Four types of AAS were abused by the gym users: Enanthate was the most common type (50%) while cypionate was the least commonly used (10%) (Figure 6-1). More than half (58%) of the participants have used AAS for three month and one-third (34%) have used it more time (4-6 months) in order to reduce the side effects of AASs on the body in long term use (Figure 6-2). Gym coach was the most common source of AAS (78%) for the abusers (Figure 6-3) although anyone who practices the profession of pharmacy without a license shall be penalized by a fine of not more than 300,000 dinars or by a term of imprisonment not to exceed three years, or by both. according to Iraqi Pharmaceutical Profession Law chapter three·

Also, the sourcing of AASs and, how AAS users are highly influenced by the availability of items in the gym and by coaches and trainers was reported and highlighted in a number of studies [17,18].

Social media (86%) and gym coach (76%) were the most common sources of information about AAS among gym users (figure 4) this high percentage reflect the effect of social media on young ages so we can use this effect in a beneficial way to aware more about AAS side effects. Eighty percent of the AAS users were planning to take them again in the future.

Lack of knowledge about AAS and its side effects is not rare and has also been stated in studies in Australia [19] Sweden [20]

There was no significant (P-value >5) association between the participant education level and their awareness of AAS adverse effects (Table 6-4).

5. Limitations

The goal of the current study was to provide more light on the factors that are contributing to an epidemic of AAS usage among young people who utilize gyms for fitness and aesthetic reasons, despite the harmful side effects of these medicines. However, it is important to take into account the following study limitations when interpreting the findings:

(1) The research was limited to the city of Baghdad Al-Russafa, whose social and economic demography cannot be extrapolated to the rest of the nation, the region, or other nations.

(2) The study was performed only among male gym members

(3) Regarding the study participants' doses or frequency schedules for using AAS, no information was gathered.

(4) The prevalence of AAS misuse in particular gyms and the sociodemographic traits of these gyms were not compared.

We think that these restrictions should be addressed in other, independent research that look into whether there is a dose-response relationship between using AAS and its side effects.

6. Conclusion and future directions

The findings of this study provide convincing proof of a high lifetime prevalence of AAS use among male gym goers. Improving health policies is urgently needed to slow the growth of AAS use among young adults who utilize the gym. Since gym owners and coaches or trainers have been identified as one of the most significant sources of AASs, these improvements may be concentrated on raising awareness among gym users and, more crucially, among these individuals. We think that stricter regulations should be put in place to prevent gyms and gym trainers from dealing with AAS. Abuse of illegal substances is becoming more and more recognized as a severe public health issue in Iraq. However, the current study's findings suggest that the usage of AASs should be a major focus of those efforts.

Acknowledgements

Further, similar studies are required for other parts of Iraq, which have distinct demographics and could produce more interesting results, in order to establish a more accurate and generalizable assessment of prevalence, knowledge, and attitudes linked to AAS misuse. Future research examining blood levels of AASs, usage patterns, and potential side effects will be more valuable in providing a better knowledge of the side effect profile of AAS use in Iraq.

References

1. Barkoukis, V.; Lazuras, L.; Tsorbatzoudis,H.; Rodafinos,A.; Motivational and sportspersonship profiles of elite athletes in relation to doping behavior, *Psychol Sport Exerc*, **2011**,*12(3),205–12*.
2. Holt, RIG.; Erotokritou-Mulligan, I.; Sönksen, PH.; The history of doping and growth hormone abuse in sport, *Growth Horm IGF Res*, **2009**,*19(4),320–6*.
3. Ambrose, PJ.; An advanced pharmacy practice experience in sports pharmacy, *Am J Pharm Educ [Internet]*, **2008 Feb**,1*5;72(1),19*. Available from: https://pubmed.ncbi.nlm.nih.gov/18322580
4. Khan, N.; Noushad, S.; Ahmed, S.; Sports Pharmacy as an Emerging Health Science Field, *a Perspective on the Global and National Scope*, Int J ENDORSING Heal Sci Res. **2018 Mar**,*1;6,58*.
5. Hearne, E.; Wazaify, M.; Van Hout, MC.; Atkinson, A.; McVeigh, J.; Anabolic-Androgenic Steroid Use in the Eastern Mediterranean Region, a Scoping Review of Extant Empirical Literature, *Int J Ment Health Addict* [Internet], **2021**,*19(4),1162–89*. Available from: https://doi.org/10.1007/s11469-019-00217-8
6. Baumann, GP.; Growth hormone doping in sports: a critical review of use and detection strategies, *Endocr Rev*., **2012**,*33(2),155–86*.
7. Bjørnebekk, A.; Walhovd, KB.; Jørstad, ML.; Due-Tønnessen, P.; Hullstein, IR.; Fjell, AM.; Structural brain imaging of long-term anabolic-androgenic steroid users and nonusing weightlifters, *Biol Psychiatry*, **2017**,*82(4),294–302*.
8. Kanayama, G.; Pope, Jr. HG.; Illicit use of androgens and other hormones: recent advances, *Curr Opin Endocrinol Diabetes Obes*, **2012**,*19(3),211*.
9. Al Bishi, KA.; Afify, A.; Prevalence and awareness of anabolic androgenic steroids (AAS) among gymnasts in the western province of Riyadh, Saudi Arabia, *Electron physician*, **2017**,*9(12),6050*.
10.Al-Falasi, O.; Al-Dahmani, K.; Al-Eisaei, K.; Al-Ameri, S.; Al-Maskari, F.; Nagelkerke, N.; et al. Knowledge, attitude and practice of anabolic steroids use among gym users in Al-Ain district, United Arab Emirates, *Open Sport Med J*. **2008**,*2,75–81*.
11.Mohammad, H.; Anabolic-androgenic steroids amongst Kuwaiti males, *Coll Stud J*. **2014**,*48(1),120–9*.
12. Alharbi, FF.; Gamaleddin, I.; Alharbi, SF.; Almodayfer, O.; Allohidan, F.; Alghobain, M.; et al. Knowledge, attitudes and use of anabolic-androgenic steroids among male gym users, A community based survey in Riyadh, Saudi Arabia, *Saudi Pharm J*. **2019**,*27(2),254–63*. Available from: https://doi.org/10.1016/j.jsps.**2018**.*11.007*
13. Uddin, Z.; Iqbal, Q.; Haider, S.; Saleem, F.; Usage and perceptions of anabolic-androgenic steroids among male gym attendees in Quetta city, Pakistan–a descriptive analysis, *Res Pharm Heal* Sci. **2019**,*5(2),152–7*.
14. Althobiti, S.; Alqurashi, N.; Alotaibi, A.; Alharthi, T.; Alswat, K.; Prevalence, Attitude, Knowledge, and Practice of Anabolic Androgenic Steroid (AAS) Use Among Gym Participants, *Mater Socio Medica*, **2018**,*30(1),49.*
15. El Osta, R.; Almont, T.; Diligent, C.; Hubert, N.; Eschwège, P.; Hubert, J.; Anabolic steroids abuse and male infertility, *Basic Clin Androl*, **2016**,*26(1),1–8*.
16. Hitti, EA.; Melki, JP.; Mufarrij, AJ.; The prevalence and determinants of anabolic steroid use among fitness centre attendees in Lebanon. *Int Sport J*, **2014**,*15(4):391–401*.

17. Razavi, Z.; Moeini, B.; Shafiei, Y.; Bazmamoun, H.; Prevalence of anabolic steroid use and associated factors among bodybuilders in Hamadan, western province of Iran, *J Res Health* Sci. **2014**,*14(2),163–6*.
18. Fijan A, Eftekhari MH, Dashtabi A. The prevalence of anabolic androgenic steroid misuse and its associated factors among bodybuilders in Shiraz, Iran. Int J Nutr Sci. 2018;3(3):151–6.
19. Yager Z, O'Dea JA. Relationships between body image, nutritional supplement use, and attitudes towards doping in sport among adolescent boys: Implications for prevention programs. J Int Soc Sports Nutr. 2014;11(1).
20. Nilsson S, Spak F, Marklund B, Baigi A, Allebeck P. Attitudes and behaviors with regards to androgenic anabolic steroids among male adolescents in a county of Sweden. Subst Use Misuse. 2004;39(8):1183–97.