

RESEARCH ARTICLE

OPEN ACCESS

Usage and perceptions of anabolic-androgenic steroids among male gym attendees in Quetta city, Pakistan—a descriptive analysis

Zaheer Uddin, Qaiser Iqbal, Sajjad Haider, Fahad Saleem*

Faculty of Pharmacy and Health Sciences, University of Balochistan, Quetta, Pakistan

Received: 02 May, 2019

Accepted: 20 June, 2019

*Correspondence to:

Dr. Fahad Saleem, PhD

Email: fahaduob@gmail.com

Copyright: © the author(s), publisher and licensee Indian Academy of Pharmacists. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

Published by: OZZIE Publishers



Abstract

We aimed to investigate the knowledge, attitudes, and practice of AAS use amongst male gym users in Quetta city, Pakistan. This was a cross-sectional, questionnaire-based survey. By using a double design method, 866 gym users were approached for data collection. In addition to frequency distribution, mean and standard deviation were used to descriptively explain the study population. Out of 866 respondents, 841 responded to the study with a response rate of 97.1%. Majority of the respondents (501, 59.6%) belonged to the age group of 28-37 years and 556 (66.1%) had a bachelor level of education. More than 60% of the study respondents were aware of the term “anabolic steroids” and had the information that anabolic steroids are used in bodybuilding. Friends/gym partners (289, 49.7%) were the major source of information towards anabolic steroids followed by the media (176, 30.2%). Five hundred and two (60.8%) respondents reported having used anabolic steroids whereas friends (244, 47.6%) and online stores (1162, 31.6%) were the major sources of obtaining anabolic steroids. Five hundred and fifty-nine (66.4%) reported anabolic steroids as “safe” to be used in bodybuilding. Almost 60% of the respondents agreed that the use of anabolic steroids increases the size of the muscles, make the muscles stronger, and increases the stamina hence making a person a stronger athlete. In totality, around 60% of the respondents agreed that anabolic steroids can be purchased and used without the advice of a professional trainer or healthcare professional. Result of the current study provided clear and convincing evidence of the high frequency of AAS use among the gym users. Educating the masses, limiting the access to AAS and strict implications of policies are needed to decrease the prospect negative repercussions of AAS use.

Keywords: Anabolic-androgenic steroids; Male gym attendees, Quetta city, Pakistan

INTRODUCTION

The anabolic-androgenic steroids (AAS) are testosterone and its derivatives which are used for genital tract dysfunctions [1]. Additionally, AAS are also therapeutically prescribed to stimulate muscle growth and increase in body weight that leads to the gain in muscular strength through high-intensity exercise [2]. Because of the very reason, AAS are commonly used to develop masculinizing effects and are frequently used by professional bodybuilders and by young adults to improve the physical appearance [3]. Nevertheless, such nonmedical uses of AAS are associated with significant health risks whereby literature reports detrimental changes in blood pressure, hepatic dysfunctions, and treacherous changes of the heart, hormonal imbalances and irreversible masculinization [4-5].

The use of AAS is frequently reported from Europe, Australasia and North America [6]. Furthermore, the use of AAS among gym users and athletes is also reported from Brazil [7], United Arab Emirates [8], Saudi Arabia [9] and Iran [10]. Collectively, all studies focusing on the use of AAS reported poor level of awareness especially the possibility of adverse effects was fairly limited among the users. Disturbingly, the use of AAS is steadily growing and this increased frequency among the population presents a confrontation with public health, concerning its harmful

effects [11]. Therefore, it is the need of time to provide education as well as to limit access to AAS to lessen future negative repercussion of AAS use among general populations [11].

Shifting our concerns to the use of AAS in a developing country like Pakistan, literature is scarce. To the best of our knowledge and through extensive literature review, only two studies were identified that focused on the use of AAS among athletes and gym users. Whereby Usman and colleagues reported increased use of AAS among bodybuilders [12], Zafar et al reported normal usage of AAS among the study respondents [13]. However, there is information that is available from the mass and print media. Inline to what is reported; AAS and body-enhancing drugs were illegally imported from neighboring countries in Pakistan, some of which are even past their expiry dates. The use of such illegal drugs resulted in the death of four athletes including two medalists from the South Asian Bodybuilding Championship in only 17 days in Pakistan [14]. Furthermore, young athletes were convinced by the trainers to take AAS which would help them to look stronger and muscular in no time. Moreover, the trainers refuse to accept any responsibility for any health issues their clients may face [15]. Even with the limited available information, it is quite

clear that the use of AAS is on the rise and been consumed by the bodybuilders and athletes without a piece of professional advice in majority of the cases.

Within this context, it is our observation that the use of AAS among athletes and gym users is quite prevalent in Quetta city, the provincial capital of Balochistan province of Pakistan. Quetta being the biggest city of Balochistan holds attraction to business as well as leisure and sports activities. Bodybuilding is a popular sport in Quetta and it is of common observation that the spread of AAS among bodybuilders is prevalent. Moreover, located at the Pakistan-Afghanistan-Iran border, the city is also a center of trade activities including legal and illegal imports [16]. Therefore, access to AAS is also easy as compared to other parts of the country. Last but not least; the health-related status of the province is also low when compared with other parts of Pakistan. Consequently, it is theorized that the use of AAS will be higher among gym users because of lack of health related information. Considering the recent popularity of bodybuilding in Quetta and the lack of scientific investigation into the use, knowledge, and attitudes towards AAS, we aimed to investigate the knowledge, attitudes and practice of AAS use amongst male gym users in Quetta city, Pakistan.

METHODS

Study design and settings

This was a cross-sectional, questionnaire-based survey. Quetta city is administratively divided into four zones, therefore, fitness centers (gyms) located in each zone were selected randomly based on the snowball technique [17]. Self-administered questionnaires were then distributed to all individuals leaving each centre on a randomly selected day and period which was different for each centre.

Sampling

We used a double design effect to calculate the minimum sample required for the study. By using a response based approach (50%), with CI at 95% and MOE at 5%, 377 respondents were needed. We further added an attrition of 15%; hence the final sample size was increased to 433. However, keeping the nature of study in mind a further added a double design to the sample and the final sample size required for the study was 866 [18].

Measures/instruments

A self-administered questionnaire was constructed based on extensive literature review [3, 7-9]. The questionnaire was initially constructed in English and was translated to Urdu (National language of Pakistan) by using standard translating procedures. The questionnaire was subjected to face and content validity by experts in both sports and health sciences to ensure that the tool was comprehensive.

The questionnaire was piloted among 30 respondents to determine validity and reliability. Little modification was needed and the questionnaire was reliable with an alpha value of 0.82. Data from the pilot analysis was not included in the original study. The questionnaire covered demographic characteristics, participants' knowledge, and attitudes towards AAS.

Ethical approval

The ethical committee of Faculty of Pharmacy & Health Sciences, University of Balochistan, Quetta approved the

study. Written consent was also taken from the study respondents before data collection.

Data collection and analysis

Participants were approached by the first author for data collection. The data was then coded and added to SPSS v 20.0. Data were cleaned and based on the objectives of the research was analyzed descriptively. In addition to frequency distribution, mean and standard deviation were used to descriptively describe the study population and the responses to the questionnaire.

RESULTS

Demographic characteristics of the study respondents

The demographic characteristics are presented in Table 1. Out of 866 respondents, 841 responded to the study with a response rate of 97.1%. Majority of the respondents (501, 59.6%) belonged to the age group of 28-37 years and 556 (66.1%) had a bachelor level of education. Eight-five percent were married, and 76% belonged to urban settings. Almost 80% of the respondents reported training and fitness as major reason for joining the gym and attend the gym on a daily basis. Seven hundred and four (83.7%) of the respondents spent 30 minutes to one hour in the gym as shown in Table 1.

Awareness and use of anabolic steroids among the study respondents

More than 60% of the study respondents were aware of the term "anabolic steroids" and had the information that anabolic steroids are used in bodybuilding. Friends/gym partners (289, 49.7%) were the major source of information towards anabolic steroids followed by the media (176, 30.2%). Five hundred and two (60.8%) respondents reported having used anabolic steroids whereas friends (244, 47.6%) and online stores (1162, 31.6%) were the major sources of obtaining anabolic steroids. Five hundred and fifty-nine (66.4%) reported anabolic steroids as "safe" to be used in bodybuilding. Out of the (282, 33.6%) respondents that considered anabolic steroids as unsafe reported aggression/mood swings (277, 98.2%), heart problems (269, 95.3%) and infertility (262, 92.9%) as the major problems associated with anabolic steroids use as shown in Table 2.

Perception and attitude towards the use of anabolic steroids

The perception and attitude towards the use of anabolic steroids among the study respondents is presented in Table 3. Almost 60% of the respondents agreed that the use of anabolic steroids increases the size of the muscles, make the muscles stronger, and increases the stamina hence making a person a stronger athlete. In response to anabolic steroid use increases performance during work out, 496 (58.9%) were in favor of the statement and therefore considered anabolic steroids a must to win bodybuilding competitions (508, 60.4%). Five hundred respondents also agreed that anabolic steroid use improves looks and appearance and (509, 60.4%) considered anabolic steroids having no adverse effects. In totality, around 60% of the respondents agreed that anabolic steroids can be purchased and used without the advice of a professional trainer or healthcare professional.

DISCUSSION

The current study was designed to assess the awareness, perception, and attitude of gym users towards the use of AAS

in Quetta city, Pakistan. Demographic characteristics of the participants indicated a mean age of 32.23±6.03 years (age range 28-37 years) dominated the cohort making 59.6% of the entire group. Our findings are in line with the study conducted in Saudi Arabia [3]. Majority of the gym users in the present study findings were married, had a government job and had monthly income of PKR 30,000 that is contradictory to another study which reported single, students and less monthly income as study participants [3]. A possible explanation to this difference may be affordability because in Pakistan bodybuilding is considered an expensive game. It needs a balanced diet and gym fee which is hard to handle in the cases where athletes belong to poor social class. Furthermore, office timing in the majority of government institutes is from 9 am to 5 pm, therefore it is feasible for the employer to attend the gym at night, as compared to those who run their business or work in private organizations observe strict timing. Urban residents used gym more than the rural residents and our result is in line to what was reported in our neighboring country China [19]. Baluchistan province of Pakistan is less developed, Quetta being the provincial capital is developed as compared to peripheral areas. Therefore, residents of Quetta city used gyms for their fitness more often as compared to other areas.

A large number of people (82.9%) joined the gym for fitness, visited gym on a daily basis for at least 1 hour. Our result is in agreement to what was reported in another city of Pakistan which revealed that the educated young individuals use gyms for better fitness and regular means of exercise to tone their body as compared to the uneducated individuals whose sole drive to use gyms is bodybuilding [12].

Sixty-nine percent of the respondents were aware or had heard the name of AAS and about similar percent knew that they are used in bodybuilding. Friends/gym partners stayed a major source of information in the current study cohort. In contrast, to the present finding, a study reported that the main source for acquiring anabolic steroids was gym coaches [3, 20].

Majority of the participants (60.8%) used the AAS and 66.4% thought that consumption of AAS was safe. However, those who think AAS being not safe indicated aggression/mood swings followed by heart problems and infertility. Overall, users perceived that the benefits to muscle bulk outweighed the risks of negative side-effects. These findings are in broad agreement with those reported in other studies of gym users and athletes [7, 21].

The current study revealed that a large number of gym users perceived that use of anabolic steroids pertains to increase muscle size and make them stronger, helps in maintaining stamina during work out and helps in improving looks/appearance. These findings are similar to that reported in some other studies showing that education plays an important role in the use of steroids. Uneducated people are inclined more towards steroid use since they are unaware of its side effects [8].

Majority of the respondents believed that long term use of anabolic steroids has no adverse effects. Surprisingly, large number of gym users believed that purchase and use of anabolic steroids require neither prior consultation of trainer nor advice from health care professionals. These results are similar to another study conducted in Islamabad; Pakistan [12]. Steroids are easily available either from the sports shop or inside the gym. This shows that illegal drugs are easily

available in Pakistan. In connection, a study conducted in Iran also showed that steroid availability is not an issue [22]. It is of concern that even though anabolic steroids are sold illegally in Quetta, a significant percentage of users reported being able to acquire them from sports shops and gym owners who are not knowledgeable regarding the risks of taking anabolic steroids. Oral route of administration was common (which is more hepatotoxic), and may increase the risk of side-effects. This may present an additional burden to the health service by a relatively young group of adults. From a regulatory perspective, there may be a need to consider tightening the control of distribution of anabolic steroids.

Conclusion and future recommendation

Result of the current study revealed limited awareness of towards AAS in the study participants. Additionally, the study provided clear and convincing evidence of a high frequency of AAS use among the gym users. It is high time that both sport and health policy-makers should highlight the adverse effects of AAS use for the general public. This is achievable through improved understanding among gym users, athletes and gym owners, and trainers. At the same time, the free availability of AAS in the market is needed to be regularized as it is becoming a serious health concern for the general population. Collectively, educating the masses, limiting the access to AAS and strict implications of policies are needed to decrease the prospect negative repercussions of AAS use. We also warrant similar studies of the same nature in other parts of Pakistan to get more generalized findings.

Disclosure

We do not have any conflict of interest to declare. No funding was received for the study.

REFERENCES

1. Sagoe D, Torsheim Tr, Molde H, Andreassen CS, Pallesen S. Anabolic-androgenic steroid use in the Nordic countries: A meta-analysis and meta-regression analysis. *Nord Stud Alcohol Dr* 2015; 32(1): 7-20.
2. Powers M. Performance-Enhancing Drugs. Principles of Pharmacology for Athletic Trainers: SLACK Incorporated; 2011 2nd Edn.
3. Alsaeed I, Alabkal JR. Usage and perceptions of anabolic-androgenic steroids among male fitness centre attendees in Kuwait-a cross-sectional study. *Subst Abuse Treat Prev Policy* 2015; 10(1): 33.
4. De Piccoli B, Giada F, Benettin A, Sartori F, Piccolo E. Anabolic steroid use in body builders: an echocardiographic study of left ventricle morphology and function. *Int J Sports Med* 1991; 12(04): 408-12.
5. Turillazzi E, Perilli G, Di Paolo M, Neri M, Riezzo I, Fineschi V. Side effects of AAS abuse: an overview. *Mini Rev Med Chem* 2011; 11(5): 374-89.
6. Sagoe D, Pallesen S. Androgen abuse epidemiology. *Curr Opin Endocrinol Diabetes Obes* 2018; 25(3): 185-94.
7. Santos AM, da Rocha MSP, da Silva MF. Illicit use and abuse of anabolic-androgenic steroids among Brazilian bodybuilders. *Subst Use Misuse* 2011; 46(6): 742-8.
8. 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 Sports Med J* 2008; 2: 75-81.

9. Alharbi FF, Gamaledin 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 Pharma J* 2019; 27(2): 254-63.
10. Allahverdipour H, Jalilian F, Shaghaghi A. Vulnerability and the intention to anabolic steroids use among Iranian gym users: An application of the theory of planned behavior. *Subst Use Misuse* 2012; 47(3): 309-17.
11. Evans-Brown M, McVeigh J. Anabolic steroid use in the general population of the United Kingdom: Odense: University Press of Southern Denmark; 2009.
12. Usman HB, Rashid F, Ayub H, Ayub A, Akram N, Walter S, et al. Knowledge, awareness and practices of harmful effects of anabolic steroids among body builders in Rawalpindi and Islamabad. *Pak Armed Forces Med J* 2015; 65(2): 282-5.
13. Zafar R, Waseem W, Akhtar S, Ahmad H, Akhtar H, Gul R. Weight Lifters Maltreatment of Anabolic Steroids in Twin Cities of Pakistan. *RADS Journal of Pharmacy and Pharmaceutical Sciences* 2018; 6(4): 217-22.
14. NEWS 18. 4 bodybuilders die in 17 days; steroids wreak havoc in Pakistan 2016. Available from: <https://www.news18.com/news/other-sports/4-bodybuilders-die-in-17-days-steroids-wreak-havoc-in-pakistan-1232263.html>.
15. Asghar I. Lives at risk as gyms supply steroids to young bodybuilders. *The Express Tribune*. 2019. Available from: <https://tribune.com.pk/story/1897717/1-gyms-supplying-steroids-young-bodybuilders-posing-serious-health-problems/>
16. Encyclopedia Britannica. Quetta 2019. Available from: <https://www.britannica.com/place/Quetta-Pakistan>.
17. Sadler GR, Lee HC, Lim RSH, Fullerton J. Recruitment of hard-to-reach population subgroups via adaptations of the snowball sampling strategy. *Nurs Health Sci* 2010; 12(3): 369-74.
18. Daniel WW, Cross CL. *Biostatistics: a foundation for analysis in the health sciences*: Wiley; 2018.
19. Zheng J, An R. Satisfaction with local exercise facility: a rural-urban comparison in China. *Rural Remote Health* 2015; 15(2): 1-11.
20. Habeeb MB, Kasim WJ, Khamees LA, Hawi MM, Khashoom QN. Athletes' perceptions toward substance use in Baghdad city. *Am J Mens Health* 2012; 6(6): 462-71.
21. Singhammer J. Attitudes toward anabolic-androgenic steroids among non-competing athletes in various types of sports—a cross-sectional study. *Sport Sci Rev* 2013; 22(1-2): 109-28.
22. Mokri A. Brief overview of the status of drug abuse in Iran. *Arch Iran Med* 2002; 5(5): 184-190.

Cite article as: Uddin Z, Iqbal Q, Haider S, Saleem F. Usage and Perception of anabolic-androgenic steroids among male gym attendees in Quetta city, Pakistan- A descriptive analysis. *Res Pharm Health Sci*. 2019;5(2):152-157., doi:<https://doi.org/10.32463/rphs.2019.v05i02.06>

Table 1: Demographic characteristics of the study respondents

Characteristics	Frequency	Percentage
Age (32.23 ± 6.03 years)		
18-27	183	21.8
28-37	501	59.6
38-47	157	18.7
Educational level		
Higher Secondary School	45	5.4
Bachelors	556	66.1
Masters	240	28.5
Marital status		
Single	80	9.5
Married	715	85.0
Divorced	46	5.5
Occupation		
Private employee	370	44.0
Government employee	471	56.0
Monthly income (Pakistan Rupees)		
10000-20000	51	6.1
20001-30000	340	40.4
> 30000	450	53.5
Locality		
Urban	639	76.0
Rural	202	24.0
Gym fees (Pakistan Rupees)		
>1000	535	63.6
1000-5000	233	27.7
5001-10000	73	8.7
Reasons for joining the gym		
Medical need	92	10.9
Recreational use	52	6.2

Training and fitness	697	82.9
Frequency of gym visit		
Daily	752	89.4
1-2 times a week	48	5.7
3-4 times a week	41	4.9
Average time spent in gym		
< 30 minutes	29	3.4
30 minutes -1 hour	704	83.7
1 - 2 hours	108	12.8

Table 2: Respondents' awareness and use of anabolic steroids

Items in the questionnaire	Frequency	Percentage
Have you ever heard of anabolic steroids? Yes	581	69.0
No	260	31.0
Do you know that anabolic steroids are used in bodybuilding? Yes	557	66.2
No	284	33.8
Information sources about anabolic steroids Friends/gym partner	289	49.7
Media	176	30.2
Muscle magazines	57	9.8
Coach/trainer	49	8.4
Healthcare professional	10	1.7
Have you ever used anabolic steroids? Yes	512	60.8
No	431	39.2
Sources of obtaining anabolic steroids Coach/trainer	61	11.9
Friends	244	47.6
Fitness store	45	8.7
Online purchase	162	31.6
Are anabolic steroids safe to use in bodybuilding? Yes	559	66.4
No	282	33.6
In the case of no, what are the problems associated with the use of anabolic steroids in bodybuilding?*		
Acne	211	74.8
Aggression/mood swings	277	98.2
Hypertension	209	74.1
Hyperlipidemia	144	51.0
Stunted growth	199	70.5
Liver problems	200	70.9
Infertility	262	92.9
Heart problems	269	95.3
Kidney problems	256	90.7
Hair loss	126	44.6
Memory issues	215	76.2

*Percentage is from respondents who said no (n=282)

Table 3: Perception and attitude towards the use of anabolic steroids

Items in the questionnaire	Agree		Disagree		Do not Know	
	N	%	N	%	N	%
Anabolic steroids use increases the size of the muscles?	510	60.6	275	32.6	56	6.6
Anabolic steroid use can make the muscles stronger?	499	59.3	312	37.0	30	3.5
Anabolic steroid use can make you a stronger athlete?	501	59.5	291	34.6	41	4.8
Anabolic steroid use can increase your stamina?	511	60.7	212	25.2	118	14.0
Anabolic steroid use can increase your performance during work out?	496	58.9	299	35.5	46	5.4
Anabolic steroid use improves your looks and appearance?	500	59.4	301	35.7	40	4.7
Anabolic steroids are a must to win bodybuilding competitions?	508	60.4	287	34.1	46	5.4
Long term anabolic steroids have no adverse effects.	509	60.4	202	24.0	130	15.4
Anabolic steroids can be purchased without the coach/trainer' advice.	488	58.0	250	29.7	103	12.2
Anabolic steroids can be used without the coach/trainer' advice.	480	57.0	251	29.8	110	13.0
Anabolic steroids can be purchased without a healthcare professional advice.	501	59.5	215	25.5	125	14.8
Anabolic steroids can be used without a healthcare professional advice.	496	58.9	201	23.9	144	13.5