

Suicidal tendencies and psychiatric symptoms as consequence of anabolic androgenic steroid usage among athletes in District Rawalpindi

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Abstract

Objective: To elucidate the possible association between suicidal tendencies and psychiatric symptoms associated with anabolic androgenic steroid usage among athletes.

Method: The cross-sectional study was conducted from December 2016 to July 2017 in Rawalpindi and Wah Canttonment, Pakistan, after approval from the International Islamic University, Islamabad, and comprised male athletes aged >18 years. Those using androgenic anabolic steroid formed group A, while the non-users were in group B. In addition to demographics, data was collected using Beck Scale for Suicidal Ideation and the Symptoms Checklist-90. Data was analysed using SPSS 22.

Results: Of the 60 subjects, there were 30 (50%) in each of the two groups. The majority were aged 24-26 years 41 (68.30%). Group A scored significantly higher compared to group B on suicidal ideation, had more interpersonal problems, depression, hostility, paranoia and psychoticism ($p < 0.05$). Unemployment and low household income increased steroid usage ($p < 0.05$).

Conclusion: There was found to be a significant association of anabolic androgenic steroid use with suicidal tendencies and mental health issues.

Keywords: Performance enhancement drugs, Testosterone, Suicide, Psychopathology, Sportsman. (JPMA 72: 616; 2022) DOI: <https://doi.org/10.47391/JPMA.791>

Introduction

The non-medical and non-legitimate usage of anabolic androgenic steroid (AAS) is getting popular day by day among athletes¹⁻³ and the easy availability of anabolic drugs play a key role in the trend. Subsequently, it is noted that male athletes are encouraged and facilitated to use it primarily for masculine appearance and performance enhancement.⁴ There are different types of steroids available in the global and local markets, but AAS is most commonly used by athletes to enhance physical power and muscularity. It is widely used in competitive events as an inexpensive supplement.⁵ The manufacturers claim that AAS is synthesised from the natural male hormone which creates an effect on a range of sites within the body, particularly on the skeletal muscle and the nervous system.⁶ These drugs are available in the form of tablets and injections which are the common mode of anabolic drugs intake.⁷

The most common perception about AAS is that it has no side effects and is harmless. However, it is associated with deleterious physical health consequences, such as cardiovascular toxicity, hypertension, jaundice, blood clotting, hepatic neoplasms and carcinoma.^{8,9} Evidence

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demonstrates that AAS use is also associated with mental health issues, like anger, mood syndromes, dependence syndromes, progression to other forms of substance abuse and body image disorders.^{10,11} AAS usage often leads to psychosocial complications, which, in turn, may lead to suicide.¹² For instance, in 2016, five bodybuilders committed suicide and the autopsy report yielded that they were regular AAS users.¹³ Recently, AAS dependence has been placed under "Other Substance Use Disorder" category in the Diagnostic and Statistical Manual for Mental Disorder-5.¹⁴

The current study was planned to explore the link between AAS usage and suicide ideation and other psychiatric symptoms.

Subjects and Methods

The cross-sectional study was conducted from December 2016 to July 2017 in Rawalpindi and Wah Canttonment, Pakistan, after approval from ethics review board of the International Islamic University (IIU), Islamabad.

AAS definition included testosterone and its synthetic derivatives.¹⁵

The sample size was calculated while assuming 0.02 prevalence of Anabolic Androgenic Steroid among athletes with a precision of 0.01 by using the formula $n = Z^2 P (1-P) / d^2$.¹⁶ Furthermore, the sample was raised using purposive sampling technique. Data was collected from male gymnasiums. Several attempts were made to collect data

from females also, but permission was not provided from gymnasium administrations. Besides, some evidence suggests that anabolic androgenic steroids (AAS) has is more prevalent among males athletes and body-builders.¹¹ Data was collected from four gyms. Those included were male athletes aged >18 years. Those using AAS for the preceding six months formed group A, while the non-users, defined as not having used AAS for the preceding six months, were in group B. Those excluded were individuals having used any other steroids in the preceding six months and those unable to communicate and respond.

After taking informed consent, data was collected using the 19-item Beck Scale for Suicidal Ideation (BSSI) with clinician rating scale, which is commonly used to measure the presence of suicidal thoughts and the client attitude towards suicide.¹⁷ The current study used the BSSI Urdu version.¹⁸ The alpha reliability of the BSSI is 0.89 and inter-rater reliability is 0.83.¹⁷

The Symptoms Checklist-90 (SCL-90) is a 90-item scale and is widely used to assess the broad range of psychopathology.¹⁹ SCL-90 consists of nine distinct dimensions to measure the different psychiatric symptoms, including depression, anxiety, phobic anxiety, obsessive-compulsive, somatisation interpersonal sensitivity, hostility, psychoticism and paranoid ideation. In the current study, the Urdu version of SCL-90²⁰ was used to measure the psychopathology.

The participants filled the questionnaire in the presence of the researchers and their queries were answered

Table-1: Demographic characteristics (N = 60).

Variables	Categories	f (%)
Age	18-20	8 (13.30)
	21-23	11 (8.30)
	24-26	41 (68.30)
Usage	Yes	30 (50.00)
	No	30 (50.00)
Steroid Pattern Use	Tablet	26 (43.30)
	Injection	34 (56.70)
Marital Status	Unmarried	41 (68.30)
	Married	19 (31.70)
Education	Intermediate	20 (33.30)
	Graduation	14 (23.30)
	Masters	26 (43.30)
Occupation	Unemployed	50 (83.30)
	Employed	10 (16.70)
Sports	Body builder	19 (48.30)
	Cricket	17 (23.30)
	Football	9 (15.00)
	Hockey	5 (8.30)
Monthly Household Income	Below 40,000	37 (61.70)
	40-100,000	12 (20.00)
	Above 100,00	11 (18.30)

during the administration of the scale.

Data was analysed using SPSS 22. The association between AAS users and non-users were assessed using the chi-square and independent sample t test was used. $P < 0.05$ was set as statistical significance cutoff.

Results

Table-2: Relationship between range of demographics and anabolic androgenic steroid (AAS) usage.

Variables	Categories	Drug Usage History		χ^2	P	Cramer's V
		Yes f (%)	No f (%)			
Age	18-20	4 (6.70)	4 (6.70)	0.11	0.94	.04
	21-23	6 (10.00)	5 (8.30)			
	24-26	20 (33.30)	21 (35.00)			
Marital Status	Unmarried	20 (33.30)	21 (35.00)	0.07	0.78	.03
	Married	10 (16.70)	9 (15.00)			
Education	Intermediate	9 (15.00)	11 (18.30)	1.10	0.57	.13
	Graduation	6 (10.00)	8 (13.30)			
	Masters	15 (25.00)	11 (18.30)			
Occupation	Unemployed	22 (36.70)	28 (46.70)	4.32	0.03*	.26
	Employed	8 (13.30)	2 (3.30)			
Sports	Body builder	16 (26.70)	13 (21.70)	0.68	0.87	.10
	Cricket	8 (13.30)	9 (15.00)			
	Football	4 (6.78)	5 (8.30)			
	Hockey	2 (3.30)	3 (5.00)			
Monthly Household Income	Below 40,000 (low)	16 (26.70)	21 (35.00)	6.40	0.02*	.30
	40-100,000 (middle)	5 (8.30)	7 (11.70)			
	Above 100,00 (high)	9 (15.00)	2 (3.30)			

* $P < 0.05$.

Table-3: Relationship between psychiatric symptoms and anabolic androgenic steroid (AAS) usage.

Variable	Groups				t	P	95% CI		Cohens d
	AAS Non-users		AAS Users				LL	UL	
	M	SD	M	SD					
Beck Suicide Inventory	7.00	2.20	23.93	11.06	8.38	0.001***	-21.06	-12.80	2.10
Somatization	12.86	1.38	14.20	3.86	1.78	0.08	-2.85	.18	0.46
Obsessive Compulsive Disorder	10.76	1.27	12.13	3.59	1.96	0.06	-2.78	.04	0.50
Interpersonal	3.59	0.84	11.63	3.55	2.74	0.01*	-3.19	-.47	3.11
Depression	13.66	.92	15.96	4.81	2.56	0.01*	-4.10	-.47	0.66
Anxiety	10.46	.73	11.73	3.72	1.82	0.07	-2.67	.14	0.47
Hostility	6.27	.78	7.70	2.68	2.81	0.001***	-2.46	-.42	0.78
Phobia	7.63	1.09	8.46	2.94	1.45	0.15	-1.99	.32	0.37
Paranoid	6.43	.77	8.06	2.95	2.92	0.01**	-2.76	-.49	0.75
Psychoticism	10.43	.77	12.13	3.38	2.68	0.01*	-2.98	-.41	0.69
General Severity Index	96.10	6.52	110.90	31.23	2.45	0.01*	-26.46	-3.13	0.65

*P< .05, **P< .01, ***P< .001.

M: Mean, SD: Standard Deviation, CI: Confidence interval, LL: Lower limit, UL: Upper limit.

Of the 60 subjects, there were 30(50%) in each of the two groups. The majority were aged 24-26 years 41(68.30%) (Table-1).

Unemployment and low household income increase steroid usage (p<0.05) (Table-2).

Group A scored significantly higher compared to group B on suicidal ideation, had more interpersonal problems, depression, hostility, paranoia and psychoticism (p<0.05) (Table-3).

Discussion

AAS usage is a growing health concern in Pakistan because it is available over the counter at drug stores and sports centres particularly in gyms. Gym-owners and trainers are involved in the supply of steroids despite its side-effects and most AAS suppliers deny the potential health risk and mental health issues associated with AAS.^{21,22} In 2016, Pakistani newspapers reported that AAS usage was increasing among Pakistani sportsman, particularly among the body-builders, and subsequently a few death cases were also reported among AAS users.^{13,23,24}

The findings of the current study revealed that AAS users scored significantly higher on suicidal ideation compared to non-users, indicating the significant association between AAS usage and suicide ideation. Although some case studies have demonstrated that AAS usage may be a potential factor contributing towards suicide,²¹ the association of AAS usage with suicide is scarcely investigated using rigorous scientific quantitative methods to elucidate the association. The evidence derived from the current study, which used rigorous scientific quantitative methods, has clarified the

relationship between the two and has increased the generalisability of the phenomenon.

Similarly, AAS users scored significantly higher on a range of psychiatric symptoms, including depression, hostility, paranoia and psychoticism compared to the non-users, which shows that AAS users were more vulnerable to psychological problems, which is in line with literature,^{12,25} and may be the contributing factors in suicidal ideation. These findings are beneficial in terms of devising effective policies in order to discourage the AAS usage, and to encourage the development of specified therapeutic intervention for a range of psychiatric symptoms associated with AAS usage history.

The current study has a number of limitations. The study was conducted using the cross-sectional survey research design. Therefore, causal interpretations were not applicable. Additionally, the individuals were categorized as users and non-users on the basis of verbal report. Future research should use more objective and sensitive ways to assess AAS usage, like gas chromatography-mass spectrometry (GC-MS) and liquid chromatography-mass spectrometry/mass spectrometry (LC-MS/MS) screening.

in the light of the findings, here is a dire need to regulate the use of such drugs through the drug regulatory authority in order to minimise their easy availability, and to minimise AAS supply.²⁵

Conclusion

Irrational use of AAS was found to be associated with mental health issues, particularly with suicidal ideation. Also, chronic steroid users need professional help to discontinue AAS use because sudden discontinuation may lead to withdrawal effects.

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Conflict of Interest: None.

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