

PREVALENCE OF ANABOLIC ANDROGENIC STEROIDS USAGE AMONG PAKISTANI ATHLETES AND ITS PSYCHOLOGICAL/ LEGAL CONSEQUENCES

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ABSTRACT

This study was conducted to investigate anger and hostility among anabolic androgenic steroid user athletes. The subjects included 60 AAS users and similar numbers were used to control. All subjects were assessed with the short version of Novaco anger inventory and Hostility scale (a subscale of Symptoms check list-90). AAS users scored high on anger ($M = 69.06$, $SD = 18.19$) as compared to non-users ($M = 30.20$, $SD = 1.91$) and the difference was significant [$t(118) = 38.86$, $p < .000$]. AAS users also showed high score on hostility ($M = 7.70$, $SD = 2.68$) as compared to non-users ($M = 6.26$, $SD = .78$) and the difference was significant [$t(118) = 1.44$, $p < .000$]. Bodybuilders (49.8%) were found the most vulnerable to AAS usage. Findings suggest that testosterone (58.4%) is the most commonly used steroid among athletes. Additionally, a significant proportion (53.3%) of athletes had used AAS on their friend's suggestion and injection was found to be a popular way of drug administration among the users. Findings also indicate that AAS is becoming popular drug among the athletes in enhancing their performance. It was explored that it is creating different psychological problems in general and anger and hostility in particular. Furthermore, there is a dire need to establish government policy regarding its supply and demand reduction.

Keywords: Anabolic androgenic steroid, anger, athletes, bodybuilders

Introduction:

Performance enhancement drugs (PED) are becoming popular among the athletes in general and particularly among bodybuilders throughout the world (Sagoe,

Molde, & Andreassen, 2014). Common PEDs include Anabolic Androgenic Steroids (AAS), human growth hormone (HGH) and insulin-like growth factor-1.

AAS is the exogenous synthetic chemical which work like endogenous testosterone (Van Hout, 2014; Socas et al., 2005). There are more than 60 types of AAS available in the market which helps in attaining muscle in the fastest and shortest way. Furthermore, in order to get competitive advantage (Morse, 2013), bigger muscle mass and gain strength athletes are found to be prone of drug (Kanayama, Hudson, & Pope, 2010). Body dissatisfaction and the perception of physical inadequacy are also the contributing factor toward the usage of drug (Van Hout, 2015).

Therapeutic use of anabolic steroids seems safe, because the medical physician administers the drug as per patient's condition and closely observe its adverse effect. However, athletes use these drugs mostly at their own, which may cause serious biological and psychosocial effect (Pope & Brower, 2009). People are generally unaware with the potential risk associated with the usage of AAS (Büttner & Thieme, 2010).

Athletes who are using anabolic androgenic steroids are vulnerable to psychiatric problems because the effects of AAS are

visible in the functioning of central nervous system (Mooradian, Morley & Korenman, 1987). Further, some behavioral and cognitive changes have been reported by some users which includes aggressiveness, irritability, mood swings, euphoria, altered libido, and psychosis (Clark & Henderson, 2003; Middleman & DuRant, 1996).

Anger is one of the primary emotions which is commonly provoked by the perception of being attacked or treated badly (Glancy & Siani, 2009). It can be destructive when it becomes out of control, and thus affects many aspects of a person's social life (American Psychological Association, 2003). The exhibition of anger is typically marked by faulty cognitions that trigger the physiological reactions and expressions which affect the social interactions of the person (Fehr, Baldwin, Collins, Patterson, & Benditt, 1999). The problem becomes more complicated when mental health practitioners ignore the uncontrolled anger by associating it with the comorbid entity of psychiatric illness.

The clinical population with depression, anxiety disorders, and post-traumatic stress dis-

order (PTSD) have commonly reported anger episodes or alternatively suppressed anger manifestation (Posternak & Zimmerman, 2002). The inappropriate expression of anger particularly the passive anger may cause serious hazards to health, which include the inner hostility. Furthermore, the inner hostility is associated with suicidal ideation (Nock & Marzuk, 2000). Anger and hostility are considered as health hazard behavior, which not only have the biological affect but also affect the interpersonal relationship (Staicu & Cuțov, 2010).

There is lack of proper legislation over the supply and demand of illicit drugs in general and particularly the anabolic androgenic steroid. Generally, people can buy them over the counter without medical advice. Consequently, in recent past AAS are being paid more attention in Pakistan not only by the young professional athletes but also by the non-professional athletes (Usman et al., 2015). Pakistani electronic media have reported few cases of athletes' death in last couple of years and this was suspected that the AAS was the contributing factor toward their

death (Babar, 2016; Reporter, 2016a; Reporter, 2016b).

Method:

The current study aims to understand the level of anger/aggression among those athletes who are using anabolic androgenic steroids. The study also aims to find differences on demographic indices related to usage of AAS.

Hypotheses

1. A significant difference exists in anger between anabolic androgenic steroid users and non-users.
2. AAS users have high hostility than non-users.

Sample

Cross sectional study design was applied for data collection through purposive sampling. Sixty male athletes, between 18 and 30 years of age were taken for this study. The two groups of male athletes were identified by considering those: (1) male athletes reporting no history of AAS use ($n = 60$); and (2) AAS users reporting significant history of AAS use ($n = 60$).

Instruments

Novaco anger inventory (Short Version, 1975). It is the short form of 90-items version of Novaco Provocation Inventory (Novaco, 1975). This has 25 items self-report inventory, which is five point likert scales to measure intensity of anger ranging from “not at all” to “very much”. In current study the translated version (Urdu) of Novaco anger inventory was administered (Naz & Khalily, 2015). The alpha coefficient reliability of NAI is 0.93.

Hostility scale. It is the sub scale of Symptoms check list-90, developed in the United States (Derogatis, 1992). It is five point likert scales ranging from 0 to 4. In current study the Urdu version of the scale was used to assess the hostility among the athletes (Shafique, Khalily & Mc-hugh, 2017).. The alpha reliability of hostility scale is 0.75.

Demographic sheet. It consists of basic demographic information regarding participant’s age, gender, education, profession, marital status and anabolic androgenic steroid usage details.

Procedure

The researcher visited gymnasiums, sport centers and sports supplement stores in Rawalpindi and Islamabad for selection of participants. All participants have provided written informed consent for the study, which was approved by the ethical committee of the International Islamic University Islamabad. Only those participants were taken who have given their written consent.

Results:**Table 1***Demographic Information of the Participants (N = 120)*

Variables	Categories	f (%)	Variables	Categories	f (%)
Gender	Male	120 (100)	Sports	Body builder**	49 (40.8)
Marital Status	Unmarried**	82 (68.3)		Weight Trainer	39 (32.5)
	Married	38 (31.7)		Cricket	14 (11.7)
Education	Matriculation	16 (13.3)		Volleyball	10 (8.3)
	Intermediate	24 (20)		Football	8 (6.7)
	Graduation	28 (23.3)	Socio economic status	Lower class**	74 (61.7)
	Master**	52 (43.3)		Middle class	24 (20.0)
Occupation	Unemployed*	98 (81.7)		Upper class	22 (18.3)
	Employed	22 (18.3)			

Note: ** shows maximum frequency and percentage of variable

Table-1 Shows that most of the usage of drug was found among the unmarried males 82 (68.3 %), where 100 (81.7 %) were the unemployed young age group who belonged to lower class 74 (61.7 %).

Table 2

Frequency and percentages of different types of anabolic androgenic steroid users (N= 60)

Variables	Categories	Frequency	Percent
Steroid type	Testosterone**	35	58.4
	Nandrolone	11	18.3
	Oxandrolone	5	8.3
	Stanozolol	4	6.7
	Methandienone	5	8.3
Steroid prescribe	Friend**	32	53.3
	Trainer	21	35.0
	Personal experience	7	11.7
Steroid pattern use	Injection	34	56.7
	Tablet	26	43.3
Steroid consumption purpose	Body builder**	34	56.7
	Weight trainers	4	6.6
	Competitive athlete	22	36.7

*Note: ** shows maximum frequency and percentage of anabolic androgenic steroid*

Table-2 Shows frequency and percentage of anabolic androgenic steroid usage. Results showed Testosterone 35 (58.4%) is the most commonly used steroid among athletes along with Nandrolone 11 (18.3%), Oxandrolone 5 (8.3%), and Stanozolol 4 (6.7%). Results revealed that participants mostly use medicine on their friend's suggestion 32 (53.3). Injection 34 (56.7%) and tablets 26 (43.3%) were mostly common way of drug administration among users. Participants mostly use anabolic androgenic steroid for Body building 34 (56.7%) and for competition 22 (36.7%).

Table 3:

Differences of anger and Hostility between Anabolic Users (n = 60) and Non-Users (n = 60)

Variable	Groups				<i>t</i>	<i>P</i>	95% CI		Cohens <i>d</i>
	Users		Non-Users				LL	UL	
	M	SD	M	SD					
NAI	69.06	18.19	30.20	1.91	11.63	.00	-	-	3.00
							45.69	32.04	
HS	7.70	2.68	6.26	.78	2.81	.00	-2.45	-.42	.78

Note. NAI = Novaco Anger Inventory; HS = Hostility Scale

Table 3, shows the mean scores, standard deviations of the score of AAS user and non-user on anger. The findings indicate that on average AAS users scored ($M = 69.06$, $SD = 18.19$) higher on anger evaluation as compared to the non-users ($M = 30.20$, $SD = 1.91$). The difference detected is significant as, $t(118) = 38.86$, $p < .0001$. Similarly, the findings further indicate that on average AAS users scored ($M = 7.70$, $SD = 2.68$) significantly higher on hostility comparatively to the non-users ($M = 6.26$, $SD = .78$). The difference detected is significant as, $t(118) = 1.44$, $p < .001$.

Discussion and Conclusion:

Anabolic androgenic steroid is widely used in athletes and it is associated with serious health hazards. However, the perception of physical inadequacy and pressure to give performance are appeared to be the motivating factor toward the usage of drug (Van Hout, & Kean, 2015). This study finding shows that mostly athletes try AAS on their friend sug-

gestion, moreover, injection is the popular way of drug administration in athletes particularly among bodybuilders, because they believe that AAS work more rapidly in injection form as compared to pills (Tahtamouni, 2013).

Findings of this study suggest that the athletes who are using anabolic androgenic steroids are significantly higher on anger score as compared to athletes who

are not using such drugs. These findings are consistent with the previous (Clark & Henderson, 2003; Middleman & DuRant, 1996) studies. Furthermore, AAS users also score high on hostility scale, which support hypothesis that that usage of AAS is associated with hostility. Hostility is an inappropriate expression of anger and it is associated with serious health hazard and interpersonal problems (Posternak & Zimmerman, 2002).

Anabolic androgenic steroids are easily available from gym centers and drug stores, due to the lack of legislation over the AAS drug use and its possession in Pakistan (Usman et al., 2015). However, the Jordan government noticed the irrational use of the steroid and established the Jordanian Anti-Doping Organization (JADO). Furthermore, JADO is mainly working on primary prevention principle. Additionally, they also involve in research, planning and monitoring strategy with the main aim that to reduce all activities in steroid demand reduction from the general population (Tahtamouni, 2013). JADO is a good policy model for Pakistan because Pakistan is suffering from same issue.

Gyms, sports centers and supplement stores are required to work under the close supervision of food and drug regularity authority. Because there is a mal-practice over the AAS supply and usage; people easily buy the prohibited drugs from the store, without medical prescription. Furthermore, the gym owners and their coaches are involved in the supply of AAS, without knowing the potential risk associated with AAS, similar finding reported in our study (Angell et al., 2012; Tahtamouni et al., 2008). Keeping in view the legal aspect of this issue and in order to minimize the easy availability of these drugs through medical practice, there is a dire need to introduce regulatory body grounded in constitutional and legal framework under the law of the land who may regulate the usage of these drugs.

Limitation and Suggestion:

The result of the current study is of interest to practitioners and researchers; however the findings may be interpreted within the context of the study limitation. Participants were selected from Rawalpindi and Islamabad; therefore, it may not be adequate representation of all anabolic andro-

genic steroid user athletes. Moreover, in Pakistan, sports are given less attention therefore, this study will be a landmark for future researches. Many areas are needed to be explored particularly the steroid's adverse effect on mental health.

References:

- American Psychological Association (2003). Guidelines on multicultural education, training, research, practice, and organizational change for psychologists. *American Psychologist*, 58, 377–402.
- Babar, M. (2016, July 15). Fifth body-builder dies in 4 months. *The Nation*. Retrieved from <http://nation.com.pk/sports/15-Jul-2016/fifth-body-builder-dies-in-4-months>
- Büttner, A., & Thieme, D. (2010). Side effects of anabolic androgenic steroids: pathological findings and structure–activity relationships. *Handbook of experimental pharmacology*, (195), 459–84.
- Clark, A. S., & Henderson, L. P. (2003). Behavioral and physiological responses to anabolic-androgenic steroids. *Neuroscience and bio behavior review*, 27(5), 413–436.
- Derogatis, L. R. (1992). SCL-90-R: Administration, scoring & procedures manual-II for the (revised) version and other instruments of the psychopathology rating scale series. *Clinical Psychometric Research*, 1–16.
- Fehr, B., Baldwin, M. W., Collins, N., Patterson, S., & Benditt, R. (1999). Anger in close relationship: An interpersonal script analysis. *Personality and social psychology Bulletin*, 25, 299–312.
- Glancy, G., & Siani, M. (2009). An evidence based review of psychological treatment of anger and aggression. *Brief Treat Crisis Interven*, 5, 229–248.
- Kanayama, G., Hudson, J. I., & Pope, H. G., Jr. (2010). Illicit anabolic-androgenic steroid use. *Hormones and Behavior*, 58, 111–121.
- Middleman, A. B., & DuRant, R. H. (1996). Anabolic steroid use and associated health risk behaviours. *Sports medicine*, 21(4), 251–255.
- Mooradian, A. D., Morley, J. E., & Korenman, S. G. (1987). Biological actions of androgens. *Endocrine review*, 8(1), 1–28.
- Morse, E. D. (2013). Substance use in athletes. In: Baron, D. A., Reardon, C. L., & Baron, S. H. (Eds.). *Clinical sports psychiatry: an international perspective*. John Wiley & Sons.
- Naz, S., & Khalily, M. T. (2015). Indigenous adoption of Novaco's model of anger management among individuals with psychiatric problems in Pakistan. *Journal of religion and health*, 55(2), 439–447.

- Nock, M. K., & Marzuk, P. M. (2000). Suicide and violence. In K. Hawton, & K. van Heeringen (Eds.), *The international handbook of suicide and attempted suicide* (pp. 437-456). London: Wiley.
- Pope, H. G., & Brower, K. J., (2009). Anabolic-androgenic steroid-related disorders. In B, Sadock, V, Sadock, (Eds.), *Comprehensive Textbook of Psychiatry*, (9th ed., pp. 1419-1431). Lippincott Williams & Wilkins, Philadelphia, PA.
- Posternak, M. A., & Zimmerman, M. (2002). Anger and aggression in psychiatric outpatients. *Journal of Clinical Psychiatry*, 63, 665-672.
- Reporter (2016a, July 15). 'Steroids' claim life of another bodybuilder. *The News international*. (<https://www.thenews.com.pk/print/135044-Gujranwala-City-News>)
- Reporter, S. (2016b, April 22). Bodybuilders' deaths spark calls for regulating clubs. *Dawn* Retrieved from <https://www.dawn.com/news/1253626>
- Sagoe, D., Molde, H., & Andreassen, C. S. (2014). The global epidemiology of anabolic- androgenic steroid use: A meta-analysis and meta-regression analysis. *Annals of Epidemiology*, 24, 383-398
- Shafique, N., Khalily, M. T., & Mchugh, L. (2017). Translation and Validation of Symptom Checklist-90. *Pakistan Journal of Psychological Research*, 32(2): 545-561.
- Socas, L., Zumbado, M., Perez-Luzardo, O., Ramos, A., Perez, C., Hernandez, J. R., & Boada, L. D. (2005). Hepatocellular adenomas associated with anabolic androgenic steroid abuse in bodybuilders: a report of two cases and a review of the literature. *British journal of sports medicine*, 39(5), e27-e27.
- Staicu, M. L., & Cuțov, M. (2010). Anger and health risk behaviors. *Journal of medicine and life*, 3(4), 372.
- Tahtamouni, L. H. (2013). Use of Anabolic Androgenic Steroids in Jordan: Mini Review. *Jordan Journal of Biological Sciences*, 6(1), 1-4.
- United Nations Office on Drugs and Crime (2013). Drug use in Pakistan 2013. Ministry of Interior and Narcotics Control Division, Government of Pakistan
- Van Hout, M. C. (2014). SMART: An Internet study of users experiences of synthetic tanning. *Performance Enhancement and Health*, 3, 3-14.
- Van Hout, M. C., & Kean, J. (2015). An exploratory study of image and performance enhancement drug use in a male British South Asian community. *International Journal of Drug Policy*, 26(9), 860-867.