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Research Article

Knowledge, attitude, and awareness towards the use of steroids in Mangalore

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Abstract

Background and Objective: Steroids are synthetic hormones produced by the adrenal glands, mainly used to treat inflammation and conditions such as asthma, eczema, and certain forms of arthritis. This study is aimed at assessing the knowledge, attitude, and practices (KAP) about steroid use, focusing on usage patterns, perceptions, and associated risks in a community setting. Methodology: It is a cross-sectional online survey conducted among 510 participants who were aged 18–50 years, spanning over one month. A structured questionnaire was dispersed through Google Forms. Descriptive statistics, Chi-square test, and Pearson's correlation coefficient tests were applied in assessing associations among variables. Results: Of the total respondents, 79.6% were male, while the rest 20.4% were females. Among them, 84.1% respondents were aware of steroids, whereas 53.9% used steroids. Pearson's correlation indicates a strong correlation between awareness and belief in the widespread use in sports ($r = 0.63$, $p < 0.001$). The side effects from use (48.8%) are low, for only 45.9% consulted healthcare professionals before using steroids. Distributions were seen with regards to gender and steroid use ($p = 8.72e\text{-}41$) and age distribution ($p = 6.72e\text{-}29$). However, low correlation was seen between the perception of steroid dangers ($r = 0.29$). Conclusion: It shows that awareness of steroids is widespread, yet consultation is too low and the perception of risk varies. Improving educational techniques and more strict rules are needed to reduce misuse and health problems.

Introduction

Steroids, specifically corticosteroids and anabolic steroids, have played significant roles in both therapeutic medical treatments and in societal issues related to misuse and ethical concerns [1,2]. Corticosteroids are the critical therapeutic agents used widely in clinical practice to manage inflammation in all kinds of conditions, ranging from asthma and eczema to arthritis and autoimmune diseases. They are the primary tools in health care, used by doctors to treat acute as well as chronic conditions [3-5]. Another family of synthetic testosterone derivatives is referred to as anabolic steroids; these were also used for a legitimate medical purpose, but more recently have been associated with abuse, often in the service of athletic or bodybuilding goals where muscle mass and performance could be increased [6,7].

Widespread misuse of anabolic steroids has become an increasingly serious problem in public health. When used without proper medical supervision, these drugs lead to severe issues such as hormonal imbalances, heart disease, liver damage, and psychological distress manifested through aggression and mood swings [8,9]. Specifically, steroid use by athletes has raised significant ethical concerns regarding performance enhancement. Moreover, their use has highlighted serious long-term health risks associated with abuse. Therefore, easy access and the promise of quick results create a dangerous environment where immediate gains are prioritized over long-term health consequences [10,11].

Despite the abundant scientific literature regarding steroid misuse, a significant gap remains between scientific understanding and public knowledge, where many people depend on unreliable sources such as social media, internet forums, and oral testimonies. While the focus of most research has been on athletic populations and clinical use, little attention has been devoted to understanding perceptions of steroids in the general community. This knowledge gap, coupled with peer pressure towards certain body aesthetics and widespread misinformation, makes it difficult for an individual to take informed decisions regarding the use of steroids. This research aims to fill this gap by finding out the kind of knowledge about steroid types, medical applications, and risks associated that community members have, which eventually contributes to evidence-based interventions that can improve public awareness and facilitate responsible steroid use.

Methodology

Study Design and Setting

- **Study Site**: Mangalore, India
- **Study Type**: Cross-sectional online survey
- **Survey Tool**: Google Forms
- **Survey Duration**: 1 month
- **Sample Size**: 510 participants
- **Ethics Approval**: Obtained from the Institutional Ethics Committee

Participant Selection

- **Inclusion Criteria**: Individuals aged 18–50 years
- **Exclusion Criteria**: Individuals younger than 18 or older than 50 years
- **Sampling Method**: Convenience sampling through social media platforms

Data Collection

Participants completed a structured questionnaire assessing:

- Demographic information
- Knowledge about steroids
- Attitudes toward steroid use
- Usage patterns and practices
- Risk perception and awareness
- Healthcare consultation practices

Statistical Analysis

- **Software**: SPSS version 26.0

- **Significance Level**: $p < 0.05$ for all statistical tests
- **Analysis Methods**:
  - Descriptive statistics for demographic and KAP responses
  - Chi-square test for categorical variable associations
  - Pearson's correlation coefficient with 95% confidence intervals
  - Missing data handled through complete case analysis

Results

Demographic Characteristics

Table 1: Demographic Distribution of Study Participants (N=510)

Characteristic	Category	Percentage (n)	p-value	Correlation (r) [95% CI]
Age	18–20 years	33.0% (168)	6.72e-29*	0.58 [0.52-0.63]
	21–23 years	54.0% (276)		
	≥24 years	13.0% (66)		
Gender	Male	79.6% (406)	8.72e-41*	0.74 [0.70-0.78]
	Female	20.4% (104)		

*Statistically significant at $p < 0.05$

Knowledge, Attitude, and Practice Outcomes

Table 2: KAP Analysis Results (N=510**)**

Category	Response	Percentage (n)	p-value	Correlation (r) [95% CI]
Steroid Awareness	Aware	84.1% (429)	1.41e-53*	0.72 [0.68-0.76]
Steroid Use	Used	53.9% (274)	0.0924	0.21 [0.13-0.29]
Sports Use Perception	Widespread	64.3% (328)	1.01e-10*	0.63 [0.58-0.68]
Side Effects	Reported	48.8% (249)	0.595	0.18 [0.10-0.26]
Medical Consultation	Consulted	45.9% (234)	0.0629	0.29 [0.21-0.37]

*Statistically significant at $p < 0.05$

Route of Administration and Safety Perceptions

Table 3: Administration Routes and Safety Perceptions (N=510)

Category	Percentage (n)
Route of Administration	
Oral	58.4% (297)
Parenteral	5.9% (30)
Nasal sprays	9.8% (50)
Topical	7.6% (39)
Multiple routes	18.3% (93)
Safety Perceptions	
Reported adverse effects	39.8% (203)
Consider steroids dangerous	29.4% (150)
Uncertain about dangers	55.8% (284)

The demographic characteristics of the respondents are shown in Table 1. It shows that most respondents were males at 79.6% (n=406), while females were only at 20.4% (n=104). Most respondents were aged 21–23 years at 54.0% (n=276), followed by 18–20 years at 33.0% (n=168), while the smallest age group was 24 years and above at 13.0% (n=66). Both age and gender distributions showed statistically significant associations with high correlation coefficients at r-age=0.58, p=6.72e-29; r-gender=0.74, p=8.72e-41.

As shown in Table 2, a large percentage of participants responded that they know steroids (84.1%, n=429), with good correlation (r=0.72, p=1.41e-53). Even at such a high response rate, over half of them admitted to the use of steroids (53.9%, n=274). The correlation, however, is weak (r=0.21) and not significant, p=0.0924. On a related question asking whether steroid use is common in sports, 64.3% agreed (n=328), again a statistically significant finding (r=0.63, p=1.01e-10). Among steroid users, 48.8% (n=249) reported side effects, a finding with weak correlation (r=0.18) and no statistical significance (p=0.595). Furthermore, only 45.9% (n=234) consulted a doctor before use, with moderate correlation (r=0.29) but no statistical significance (p=0.0629).

The route of administration most often used, which was shown in Table 3, was oral (58.4%, n=297), multiple routes (18.3%, n=93), nasal sprays, 9.8% (n=50), topical application, 7.6% (n=39), and parenteral, 5.9% (n=30). Concerning safety perceptions, 39.8% (n=203) reported adverse effects, 29.4% (n=150) believed steroids to be dangerous, and a critical proportion of 55.8% (n=284) were uncertain about the dangers of steroid use. These findings reveal a trend of broad awareness with minimal risk perception, high usage with inadequate medical supervision, and an urgent requirement for targeted educational efforts on steroid risks and safe use.

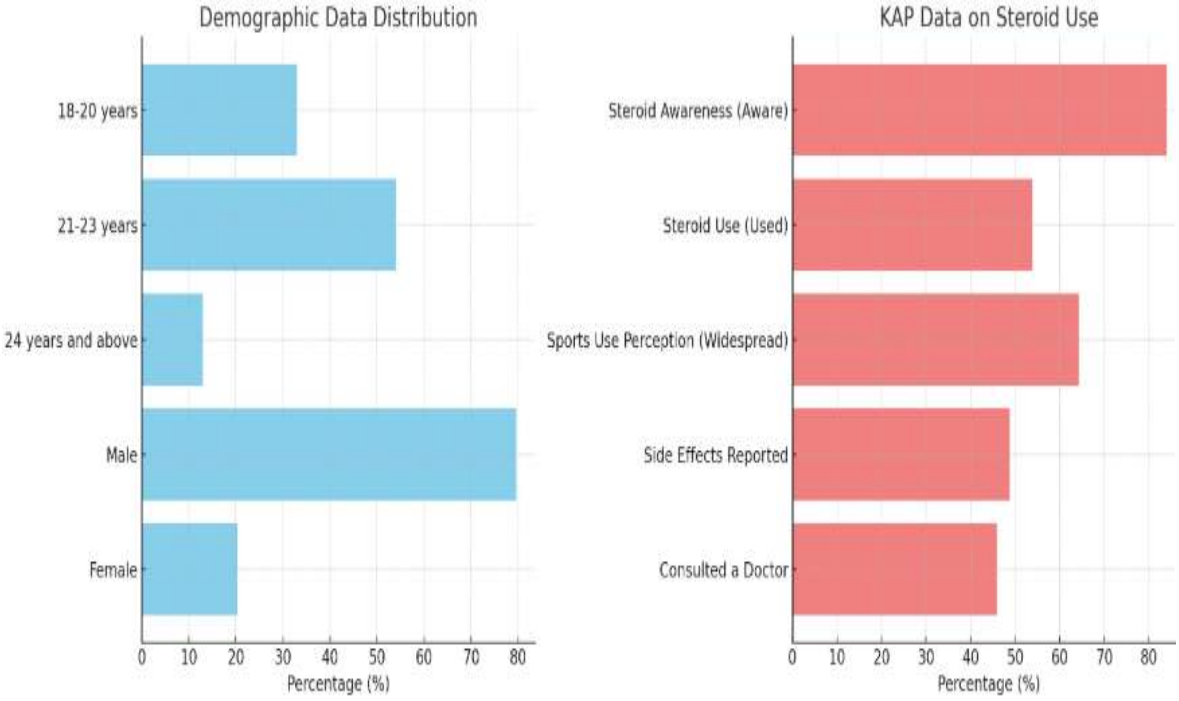

Fig.1: Demographic and KAP Data Distribution on Steroid Use

Discussion

The present study found several crucial information regarding steroid awareness and usage patterns in the population. Although a significant majority of participants were aware of steroids (84.1%), more than half of them claimed to have used steroids at least once in their lifetime

(53.9%), which reflects the widespread practice despite its possible health risks. Common side effects reported are muscle pain, pimples, and hair loss. A concerning observation is the huge gap in risk perception, whereby only 29.4% of participants felt that steroids are dangerous, while 55.8% had no idea what risks were associated with them. This is where education and medical supervision are really needed.

Marripalli et al. (2024) focused on topical corticosteroids only, and at baseline, they had poor scores: Knowledge: 1.46±1.61, Attitude: 4.00±3.18, Perception: 1.46±1.61, which improved significantly after counseling. They included 100 participants and found that the adverse drug profiles were varied, mostly in the form of acne (31%), and they mentioned that pharmacists were the primary source of information for 51% of them [12].

Mahdy et al. (2017) conducted a more extensive study across UAE cities with 250 patients, showing poor overall knowledge and practice patterns regarding corticosteroid use. Their structured interview-based methodology emphasized the urgent need for continuous education and follow-up to minimize complications from steroid misuse [13].

Alamri et al. (2024) contributed further insight from the study of 397 participants in Saudi Arabia, where they identified a significant difference between genders based on knowledge, as indicated by higher scores for females ($p<0.001$). The authors applied the TOPICOP scale to understand age-related variability in corticophobia, where scores on younger subjects aged 18-25 years were lower compared to the older subjects who were 56+ years. This study particularly highlighted the importance of considering demographic factors in educational approaches, complementing the findings of the present study regarding awareness gaps [14].

The commonalities of these studies have a collective finding of a consistent trend within knowledge gaps and educational needs with regard to the use of steroids. The findings of the study point out awareness to be high but risk perception poor; though, Marripalli et al proved educational interventions to work, Mahdy et al pointed out continuous monitoring, while demographic considerations were found by Alamri and Al Satti. Overall, these studies reflect the importance of structured educational programs, improved medical supervision, and consideration of demographic factors in understanding awareness and safety regarding steroid use. Generally, the findings from these results indicate that even though general awareness might be prevalent, knowledge of appropriate use, risk, and safety measures is undoubtedly lacking in diverse groups of individuals, and there is a dire need for targeted interventions and further research into long-term health effects.

Future prospects

Future perspectives of controlled steroid use in society would encompass complete policy design, education, and inter/intra-disciplinary research initiatives. The process of policy building must involve enhanced controls on distribution, well-formulated prescription rules and monitoring schemes, and consistent standards for each health facility. Education initiatives at both levels can be made-from specific training among health professionals, to public educational campaigns and activities conducted at a community level with the integration of school-based curricula. Interdisciplinary research should both include clinical studies on long-term effects and social science research about the societal factors behind steroid use.

The changing landscape demands proactive pharmacists and healthcare providers who would ensure adequate counseling and proper monitoring. Such includes developing education materials for the patients, forming multidisciplinary care teams, and designing coordinated care protocols. These efforts can be complemented with digital solutions such as mobile applications for education and electronic monitoring systems. It will further require the maintenance of commitment, evaluation of

programmes, and community active involvement through their partnerships with local athletic organizations and educational institutions coupled with patient groups. Such implementations should be managed in a consistent manner and observed regularly to reflect their efficiency at promoting responsible usage of steroids and controlling misuse.

Limitations

The study has a number of significant limitations. A cross-sectional design only provides a snapshot view and is, therefore, not useful in establishing causal relationships or following change over time. Convenience sampling, which utilized the social media platform, could result in selection bias, potentially making the generalization of the results to the general population limited. This study is based only on self-reported data via an online questionnaire. Recall bias and social desirability bias could be a limitation of the data. Participants could have underreported or overreported their steroid use. The sample was also dominated by males with a strong predominance of 79.6%. This was a study carried out in only one geographical location, namely Mangalore, India, and results may not generalize to other places or cultural contexts.

Conclusion

This study reported several results on steroid awareness and usage behavior in the community. Although an elevated proportion of people had knowledge about steroids (84.1%), the relatively high usage rate (53.9%) but lower utilization of health care providers for consultation (45.9%) presents an alarming scenario. There is an urgent need in this area of risk perception as only 29.4% felt that steroids are risky, and 55.8% felt they could not understand the risks associated with steroids. These findings, therefore, demand appropriate intervention measures in educational programs, further regulatory measures, and improved input from healthcare professionals on steroid use. Future strategies may indeed be required to bridge the gap between knowledge and practice and promote responsible steroid use through evidence-based intervention.

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Ethical approval

Obtained from the Institutional Ethics Committee

Informed consent

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Conflict of interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper. The authors declare no conflict of interest among themselves. The authors alone are responsible for the content and writing of this article.

Financial interests

The authors declare they have no financial interests

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