Muscle Dysmorphia and Steroid Use in Turkey

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Abstract

The article sets out to illuminate the pressing mental health issue of muscle dysmorphia within the Turkish fitness and bodybuilding communities, paralleled by a concerning increase in the use of anabolic-androgenic steroids (AAS) and performance-enhancing drugs (PEDs). It seeks to unravel the depth of the knowledge gap that exists among Turkish medical professionals concerning this condition and its associated patterns of substance abuse. Through its exploration, the article identifies a notable deficiency in awareness and preparedness among healthcare providers in Turkey to effectively recognize and manage cases of muscle dysmorphia and steroid abuse. These deficiencies are further compounded by cultural attitudes, educational shortcomings, and systemic barriers that perpetuate a climate of silence and misinformation regarding these health concerns. In response to these findings, the article advocates for strategic interventions aimed at enhancing the understanding and capabilities of Turkish healthcare professionals. It calls for the development and implementation of comprehensive educational programs and the provision of adequate resources. Such measures are necessary to ensure that medical practitioners are well-equipped to detect and provide care for individuals grappling with the ramifications of muscle dysmorphia and the misuse of steroids and PEDs. The article's originality lies in its synthesis of global research insights with the localized context of the Turkish healthcare landscape, offering a unique vantage point from which to argue for transformative changes in the medical handling of muscle dysmorphia and associated substance use. It presents a pioneering analysis of the cultural and systemic dynamics that influence the healthcare sector's approach to these issues in Turkey, thereby contributing novel perspectives to the discourse and urging a shift towards a more knowledgeable and proactive healthcare system.

Keywords: Muscle Dysmorphia, Steroid Use, Medical Awareness

Türkiye'de Kas Dismorfisi ve Steroid Kullanımı

Öz

Bu makale, Türkiye'deki egzersiz ve vücut geliştirme toplulukları içinde artan bir sorun olan kas dismorfisi ve anabolik-androjenik steroidler (AAS) ile performans artırıcı ilaçların (PAİ) kullanımına dikkat çekmeyi amaçlamaktadır. Aynı zamanda, bu durum ve ilişkili madde kötüye kullanımı konusunda Türk tıp profesyonelleri arasındaki bilgi eksikliğini ele almayı hedeflemektedir. Araştırma, Türk tıp topluluğunda kas dismorfisi ve steroid kötüye kullanımını tanıma ve ele alma konusunda ciddi bir farkındalık ve hazırlık eksikliği olduğunu bulmuştur. Bu eksiklikler, bu sağlık sorunlarına ilişkin devam eden sessizlik ve yanlış bilgilendirmeyi sürdüren kültürel tutumlar, eğitimsel yetersizlikler ve sistemsel engeller tarafından daha da kötüleşmektedir. Bu bulgular ışığında, makale Türkiye'deki sağlık profesyonelleri arasında farkındalığı ve anlayışı artırmaya yönelik stratejiler önermektedir. Tıp uzmanlarının, kas dismorfisi ve steroid/PAİ kullanımından etkilenen bireyleri tanımlayabilecek ve tedavi edebilecek araçlarla donatılmasını sağlamak için kapsamlı eğitim programlarının geliştirilmesi ve yeterli kaynakların sağlanması çağrısında bulunmaktadır. Makalenin özgünlüğü, küresel araştırma iç görülerini Türkiye'nin sağlık hizmetleri manzarasının özgül bağlamıyla birleştirmesinden kaynaklanmaktadır. Bu, tıbbi yaklaşımın kas dismorfisi ve ilişkili madde kullanımı sorunlarına nasıl dönüşebileceğine

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dair farklı bir bakış açısı sunarak, konu üzerine tartışmaya yeni perspektifler katmakta ve Türkiye'de daha bilgili ve proaktif bir sağlık sistemi yönünde bir değişiklik yapılmasını savunmaktadır.

Anahtar Kelimeler: Kas Dismorfisi, Steroid Kullanımı, Tıbbi farkındalık

1. Introduction

Muscle dysmorphia (MD), a condition characterized by an obsessive preoccupation with not being sufficiently muscular or lean, is a subset of Body Dysmorphic Disorder (BDD) that presents a significant mental health concern. It goes beyond a mere fixation on appearance, as highlighted by Pope and colleagues in their seminal 1997 study, to represent a profound psychological distress that drives sufferers toward an unending pursuit of an elusive physical ideal. This disorder is often accompanied by risky behaviors, notably the consumption of anabolic-androgenic steroids and other PEDs, as individuals strive to achieve their idealized body image. In the context of Turkey, the fitness and bodybuilding sectors have seen a dramatic surge in popularity, a trend that has unfortunately been matched by a rise in the use of steroids and PEDs, driven by societal pressures to attain physical perfection, as noted by Grugan & Wright in 2023. Despite this growing phenomenon, there is a conspicuous silence within the healthcare community and a scarcity of discourse on the subject. The lack of comprehensive research and literature specific to Turkey's experience with these global trends results in a significant gap in understanding the prevalence of MD and the ability of medical professionals to manage it effectively. This article delves into the crux of MD and steroid use in the Turkish context, exploring the depth of the knowledge chasm within the medical field. It critically examines the cultural, educational, and institutional factors that contribute to this shortfall in awareness and education. By engaging with the current body of research and integrating new perspectives, this investigation seeks not only to illuminate the critical issues at hand but also to chart out paths for improved awareness, understanding, and clinical intervention. The objective is clear: to equip the Turkish medical community with the knowledge and tools necessary to identify, understand, and treat MD and associated steroid use. This entails addressing the hurdles that hinder awareness and education and evaluating their impact on patient care. The article aims to establish a foundation for a well-informed and proactive medical community in Turkey, one that is prepared to confront the emerging challenges of MD and the use of performance-enhancing substances with expertise and decisive action. Through this narrative, we strive to fill the existing void, fostering a culture of enhanced understanding and clinical proficiency that can effectively respond to the nuanced reality of these pressing mental health issues.

2. Global Understanding of Muscle Dysmorphia and Steroid Use

2.1. Muscle Dysmorphia: Definition and Diagnosis

Muscle dysmorphia, often known as "bigorexia" or "reverse anorexia," falls under the umbrella of BDD as delineated in the DSM-5, although it is not recognized as a distinct disorder (Sandgren & Lavallee, 2018). Individuals with MD are obsessively preoccupied with the notion that their bodies are too small or not muscular enough, even when they may actually have a normal or muscular build, with a particular focus on muscularity (Nieuwoudt et al., 2012). Symptoms include long hours dedicated to weightlifting and excessive exercise (Martenstyn et al., 2022), an overemphasis on diet and supplements (Sreshta et al., 2017), frequent mirror

checks paired with a persistent dissatisfaction with body size, and avoidance of situations that involve body exposure, like swimming (Cunningham et al., 2017).

This condition can cause significant distress and impair functioning in social or occupational contexts. Diagnosis aligns with BDD criteria in the DSM-5, with an emphasis on the preoccupation with muscularity.

2.2. Anabolic-Androgenic Steroids and Performance Enhancing Drugs Abuse In Muscle Dysmorhia

Anabolic-androgenic steroids (AAS) are synthetic derivatives of the male sex hormone testosterone, trenbolone, oxymetholone, methandrostenolone, nandrolone, stanozolol, boldenone, oxandrolone and dehydroepiandrosterone (DHEA), designed to promote muscle growth and enhance physical performance. PEDs encompass a broader category of substances, including AAS, that athletes and others use to improve strength, endurance, or appearance. PEDs can also include hormones like human growth hormone (HGH) and substances that affect how the body handles nutrients, such as insulin (Rohman, 2009a). Individuals with MD often turn to AAS and PEDs (Nagata et al., 2022) as a means to achieve the highly muscular and lean physique they desire. Their usage often involves 'cycles,' which are planned periods of AAS or PED use interspersed with periods of non-use or 'off-cycles.' These cycles can be complicated, involving multiple drugs in various combinations, dosages, and sequences. 'Stacking' is a common practice where several types of steroids or PEDs are used simultaneously to maximize their effects on muscle growth. 'Pyramiding' involves gradually increasing the dose or frequency of steroid use and then tapering off to give the body a break. Cycling, stacking, and pyramiding are believed by users to maximize the benefits of drugs while minimizing adverse effects, although there is limited scientific evidence to support these beliefs (Wroblewska, 1997). Users may also engage in 'post-cycle therapy' (PCT), which involves taking additional drugs like estrogen blockers to try to normalize the body's hormone levels following a cycle (Griffiths et al., 2017). These abusive strategies are risky and can lead to an array of health issues. The use of AAS and PEDs outside of medical supervision, particularly with the high doses and combinations used in cycles, can cause irreparable harm to the body's hormonal balance and organ function. Despite the perceived benefits for muscle growth, such practices place individuals with MD at significant risk for both acute and long-term health complications.

3. The Reason of AAS and PED Abuse

Individuals with MD often turn to steroids and PEDs to attain their idealized muscular physique, driven by profound dissatisfaction with their body size and an unrelenting quest for muscularity. The usage of these substances isn't solely for aesthetic improvement; many also seek to enhance their physical performance, strength, and endurance. Sociocultural influences, such as media portrayals of the 'ideal' body and celebrity culture, further normalize and fuel the desire for PED use. Additionally, peer influence and the relative ease of accessing steroids and PEDs—often through unregulated markets—significantly contribute to their usage. These factors collectively form a potent mix that propels individuals into the risky world of substance use in hopes of achieving their desired body image and performance goals (Rohman, 2009b).

3.1. Physical Impacts

The misuse of various substances in the quest for muscularity, as seen in individuals with Muscle Dysmorphia (MD), can result in numerous health risks. Growth Hormone (GH) misuse can cause cellular function disruptions and increase

cancer risks, notably colon and lung cancer, as well as cardiac hypertrophy (Boguszewski & Boguszewski, 2019). Misusing insulin to manipulate muscle growth can cause life-threatening hypoglycemia (Graham et al., 2008). Anabolic steroids, like trenbolone, oxymetholone, methandrostenolone, nandrolone, stanozolol, boldenone, and oxandrolone, mimic testosterone but can lead to natural hormone production shutdown, testicular shrinkage, and infertility, characterized by lower sperm count and quality (Hohl, van de Sande & Ronsoni, 2023). These steroids have other side effects as well, including mood swings, aggression, and liver damage. Fat loss drugs like Clenbuterol can enhance metabolism but may also cause severe liver toxicity and a heightened risk of non-viral hepatitis, potentially leading to liver failure (Cunningham, & Griffiths, 2021). Each of these substances, while offering certain performance or aesthetic enhancements, carry the risk of severe, sometimes irreversible, health consequences. Moreover, the extreme exercise routines often associated with MD can lead to a condition known as rhabdomyolysis (Godfrey & Quinlivan, 2016), where muscle fibers break down and release substances into the bloodstream, potentially leading to kidney failure (Dawes & Mankin, 2004). In the most severe cases, the strain of overtraining can contribute to sudden cardiac events (Finsterer, Stöllberger & Maeztu, 2016), especially when coupled with the use of stimulants or other drugs that stress the cardiovascular system. These risks underscore the importance of educating healthcare providers about the potential physical consequences of muscle dysmorphia. Recognizing the signs of substance misuse and providing appropriate interventions is critical to prevent these severe health outcomes. Furthermore, public health initiatives that promote healthy body image and safe training practices are essential to mitigate the prevalence of MD and its associated risks.

3.2. Psychological Impacts

The psychological impacts of MD and the misuse of AAS and PED's are multi-dimensional and can create a destructive cycle of mental health issues. Depression is a common psychological effect of MD and steroid use. The relentless pursuit of an unrealistic body image can lead to feelings of failure and hopelessness when the desired results are not achieved, or when the body does not maintain the hyper-muscular look without constant training and drug use. AAS and PEDs can also alter brain chemistry, leading to mood swings and dysphoria when not using the substances, which can exacerbate pre-existing depressive symptoms (Grieve & Shacklette, 2012). Low Self-Esteem is another critical issue, as individuals with MD often have a distorted view of their bodies, perceiving themselves as smaller or weaker than they are. This distorted self-image can persist regardless of their actual muscular development. The temporary improvements in body image that AAS and PEDs might provide do not address the underlying body image issues and can lead to a reliance on these substances to feel adequate or worthy (Chaney, 2008). Anxiety can stem from the constant pressure to maintain or enhance one's physique, which may result in an overwhelming fear of losing muscle mass or not being able to achieve certain physical standards. This anxiety can be compounded by the legal and health risks associated with AAS and PED use, including fear of potential side effects or getting caught if these substances are used illicitly (Zheng et al., 2021). Additionally, Social isolation often occurs as individuals with MD may avoid social situations due to a fear of negative evaluation of their bodies or because their strict exercise and dietary regimens make it difficult to engage in social activities. This isolation can lead to a lack of support systems, which are crucial in managing any psychological disorder (Schneider et al., 2017). Finally, the Behavioral Patterns associated with MD and AAS/PED use, such as constant mirror-checking, excessive exercise, and dietary control, can become compulsive, further entrenching the psychological impact. When the individual's life becomes increasingly centered around these behaviors, it can

lead to neglect of other areas of life, such as relationships and career, which in turn exacerbates the psychological distress (Waldorf et al., 2019). Understanding these psychological side effects is crucial for healthcare providers, as they may serve as indicators for the presence of MD or substance abuse issues. Addressing these symptoms holistically is important in treating the individual, as focusing on only the physical or psychological aspects may not be sufficient for recovery.

4. Prevalence and Demographic

The exact prevalence is hard to determine due to underreporting and lack of awareness. However, it is more commonly reported among men, particularly those involved in activities where size and strength are emphasized, such as bodybuilding, weightlifting, and certain sports. It's also seen in individuals who are frequent gym-goers or those exposed to idealized body images through media.

Studies and Findings

Research indicates that the condition can have a severe impact on quality of life and may co-occur with other disorders such as eating disorders and obsessive-compulsive disorder. Studies have also found a correlation between MD and the use of anabolic-androgenic steroids. A study by Pope and collegues (2005) is often cited, which found that individuals with MD have higher levels of functional impairment and are more likely to have co-occurring psychiatric disorders. In terms of demographics, although primarily affecting young men, MD has been reported across a range of ages and is increasingly recognized in women (Mitchison et al., 2022).

5. Treatment and Awareness Strategies

In addressing MD and the misuse of steroids and PEDs, a multifaceted approach involving treatment strategies and public health initiatives is crucial (Leone, Sedory & Gray, 2005). Here is an overview of these interventions:

Treatment Approaches for Muscle Dysmorphia

Cognitive Behavioral Therapy (CBT) is a primary treatment for BDD, targeting the psychological roots of the disorder. CBT is based on the principle that distorted self-image and obsessive preoccupation with perceived flaws can lead to negative emotions and maladaptive behaviors. In CBT, therapists assist individuals with BDD in recognizing and challenging their irrational beliefs about their body image. Taking the case of Paul, a 33-year-old physical therapist with concerns about his nose and jawline, CBT was critical in managing his symptoms. Paul's fixation on his appearance had significantly disrupted his social and professional life. Through CBT, he learned to identify and dispute the negative thought patterns contributing to his BDD, using cognitive restructuring and behavioral interventions like exposure therapy and response prevention to confront feared situations and reduce avoidance behaviors. Paul's case, as documented by Wilhelm et al. (2011), illustrates the effectiveness of CBT in reducing the distress associated with BDD. His treatment involved a combination of strategies, including challenging his negative thoughts, gradually facing situations he had avoided, and decreasing his ritualistic behaviors. This comprehensive approach led to an improvement in his social functioning and work performance. The success of CBT in treating BDD, as seen in Paul's case, is maximized when it is individualized and integrated with other treatment options, such as pharmacotherapy for coexisting conditions, which may be indicated as per Phillips and Hollander (2008). Paul's experience with CBT, detailed in the case study by Wilhelm et al. (2011), provides valuable insights into the treatment process and

the potential for significant improvement in the quality of life for those with BDD. It is important to note, however, that the journey through CBT is personal, and the duration and outcome of treatment can vary from one individual to another.

Pharmacological Intervention: In the absence of specialized medications for MD, medical doctors often prescribe drugs to mitigate the anxiety and depressive symptoms that typically accompany the condition. Among these, Selective Serotonin Reuptake Inhibitors (SSRIs) have shown promise. SSRIs operate by enhancing serotonin levels in the brain—serotonin being a key neurotransmitter involved in mood regulation. This mechanism can be particularly advantageous for individuals with MD, who often suffer from a distorted self-image and compulsive concerns over their musculature, leading to considerable psychological distress. Introducing an SSRI may reduce such distress, thereby facilitating the patient's participation in complementary therapeutic approaches like cognitive behavioral therapy. However, it's crucial to understand that SSRIs are not a cure for MD's underlying body image concerns, and their greatest benefit is seen when they form part of an integrated treatment program. SSRIs must be prescribed and managed carefully due to potential side effects and interactions with other substances, which necessitates regular medical oversight to ensure safe and effective treatment, as exemplified in the case report by Papazisis et al. (2007).

Group therapy and family therapy are recognized as effective modalities for providing psychological support to individuals struggling with issues like MD and substance abuse, including the misuse of steroids and PEDs. Group therapy sessions, as described by Bégin, Turcotte & Rodrigue (2019), offer a platform for individuals to share their experiences and challenges with others facing similar struggles. The collective experience of the group provides multiple perspectives and coping strategies, fostering a supportive environment where members can learn from one another. This shared journey can significantly reduce feelings of isolation, as members realize they are not alone in their experiences. The group setting also allows for the development of empathy, reinforces social skills, and provides a sense of community and belonging, which can be particularly empowering for individuals working through recovery. Family therapy, as suggested by Murray & Griffiths (2015), can be particularly beneficial for younger individuals who are grappling with these issues. This form of therapy addresses the complex family dynamics that may contribute to the development or perpetuation of disorders like muscle dysmorphia. It works by enhancing communication within the family unit, providing education about the disorder, and fostering a supportive environment at home. By involving the family, the therapy can help to build a stronger, more informed support system that is conducive to the individual’s recovery. For adolescents and young adults, family therapy may be critical, as family influence is a significant factor in their development and decision-making processes. Both group and family therapy underscore the importance of social support in the treatment of MD and related substance abuse. They recognize that recovery is not just about addressing individual symptoms but also about understanding and improving the social contexts in which these disorders occur. Integrating these therapeutic approaches can lead to a more comprehensive treatment plan, offering holistic support that can facilitate more effective and enduring recovery outcomes.

6. Public Health Strategies for Steroid and PED Use

Public health strategies for addressing steroid and PED use are crucial in mitigating the risks associated with these substances. Educational and prevention programs, as noted by Orrit (2019), are particularly effective at targeting at-risk populations such as athletes and regular gym-goers. These programs aim to raise awareness about the dangers of steroid and PED use, including potential legal consequences, health risks like hormonal imbalance, organ damage, and psychological addiction. They also emphasize the benefits of natural muscle building and performance enhancement techniques, such as nutrition and strength training, which do not carry the same health risks. Moreover, these educational initiatives often incorporate motivational components to encourage athletes and fitness enthusiasts to pursue their goals without resorting to substance use. They may include testimonies from former users about the long-term health consequences they've experienced, as well as input from health professionals about the physical and psychological impacts of these drugs. Regulation and enforcement, as discussed by McLaughlan (2022), are also key components of a robust public health strategy. Governments and sports organizations have a responsibility to uphold the integrity of sports and the health of its participants. This is often achieved through strict regulations on the availability of steroids and PEDs, as well as through regular drug testing, particularly for competitive athletes. These measures serve as a deterrent and also help to maintain a level playing field in competitive sports (Tangen & Møller, 2020). Such regulations are complemented by sanctions and educational programs for athletes found using these substances, focusing on rehabilitation and return to sport. Enforcement also extends to the suppliers of these drugs, with efforts made to disrupt the supply chain through legal action against manufacturers, distributors, and retailers operating outside the law. Together, these strategies create a comprehensive approach to addressing the issue of steroid and PED use. They not only aim to prevent use among new or potential users but also seek to provide support for those already affected by their use. The combination of education, prevention, regulation, and enforcement works synergistically to reduce the prevalence of these substances and protect the health and well-being of individuals, particularly those in the athletic and bodybuilding communities.

6.1. Media Campaigns

Media campaigns and public service announcements hold significant potential in reshaping societal views on body image and health. By strategically leveraging the widespread influence of the media, these campaigns can pivot the public's focus from an unrealistic, often unhealthy physical ideal to the importance of a balanced and healthy lifestyle. According to Hilkens et al. (2021), successful campaigns have utilized clear, relatable messaging that resonates with diverse audiences, promoting inclusivity and the appreciation of different body types. They underline the value of psychological well-being in conjunction with physical health, challenging the narrow, often damaging beauty standards perpetuated by conventional media and societal expectations. Such initiatives also incorporate robust methods to gauge their impact, assessing shifts in public attitudes and behaviors towards body image before and after the campaigns. This ongoing evaluation is crucial for refining approaches, ensuring that public service messages are not only heard but also heeded, leading to tangible improvements in community health and individual self-esteem. Despite facing skepticism and ethical considerations, these media efforts are instrumental in fostering a cultural shift towards valuing health over appearance, advocating for self-care, and recognizing the multifaceted nature of beauty.

6.2. Access to Treatment

Improving access to mental health services and substance abuse programs is a critical strategy in addressing the challenges posed by MD and steroid abuse, as highlighted by Bonnecaze, O'Connor & Aloi (2020). Such access is pivotal not only for treatment but also for early intervention, which can prevent the progression of MD and mitigate the risks associated with steroid abuse. MD, a disorder characterized by an obsessive preoccupation with one's muscularity, often leads individuals to engage in harmful behaviors, including the misuse of steroids. This disorder can significantly impact an individual's mental and physical health, social functioning, and overall quality of life. Providing accessible and effective mental health services can help individuals cope with the psychological aspects of the disorder, such as low self-esteem, body dissatisfaction, and obsessive-compulsive behaviors. Similarly, substance abuse programs that specifically address steroid abuse are crucial. These programs can provide medical, psychological, and social support for individuals trying to overcome their dependency on steroids. This includes detoxification services, counseling, and long-term strategies to prevent relapse. Such specialized programs can also educate individuals about the risks of steroid use, including hormonal imbalances, organ damage, and increased risk of cardiovascular diseases. The recommendation by Bonnecaze, O'Connor & Aloi emphasizes the need for an integrated approach to treatment, one that involves collaboration among psychologists, psychiatrists, endocrinologists, and primary care providers. This multidisciplinary team can offer a comprehensive treatment plan tailored to the needs of each individual, addressing both the physical and psychological components of these conditions. Furthermore, improving access to these services means addressing barriers such as cost, stigma, and lack of awareness. Efforts to increase funding for mental health and substance abuse services, along with public health campaigns to destigmatize these conditions, are essential steps forward. Additionally, training healthcare providers to recognize the signs of MD and steroid abuse can lead to more timely and effective referrals to treatment programs. The insights from Bonnecaze, O'Connor & Aloi also suggest the importance of creating supportive environments, both in the healthcare setting and within the community, that encourage individuals to seek help. This may involve peer support groups, online resources, and outreach initiatives that make it easier for individuals struggling with these issues to connect with the services they need. In conclusion, enhancing the availability and accessibility of mental health services and substance abuse programs is vital in the fight against MD and steroid abuse. It requires a concerted effort from all sectors of society, including healthcare, government, and community organizations, to ensure that those affected receive the care and support necessary to lead healthy and fulfilling lives.

7. Studies Focusing on Turkey

7.1. Muscle Dysmorphia in Bodybuilders

The exploration of MD within the context of bodybuilding in Turkey, specifically through the lens of the study by Çağlayan & Mitat (2020), provides a valuable insight into the psychological patterns that underpin this condition. Conducted in Samsun, the study's focus on 100 male volunteers, all of whom had been engaged in bodybuilding for a minimum of three years, brings forth a nuanced understanding of the prevalence of MD within this community. With 53% of participants scoring above the mean on the Drive for Muscularity Scale (DMS), the study uncovers a significant inclination towards MD symptoms among the bodybuilding population. The DMS is a tool designed to assess an individual's

concern with muscularity and the extent to which they engage in behaviors aimed at increasing muscle mass. The high scores observed suggest that more than half of the studied group exhibit a strong preoccupation with achieving and maintaining a muscular physique, a hallmark symptom of muscle dysmorphia. The study also reveals a compelling correlation between MD symptoms and the use of ergogenic aids, substances often employed to enhance physical performance and appearance. The observation that those with higher DMS scores are more likely to utilize such aids points to a possible behavioral pattern where individuals turn to substance use as a means to achieve their desired muscularity. This finding is critical as it connects the psychological aspects of MD with physical actions, such as the use of steroids or other performance-enhancing drugs. The implications of this study are profound, particularly when considering the potential health risks associated with the misuse of ergogenic aids. These substances can have serious adverse effects on physical health, including hormonal imbalances, cardiovascular issues, and psychological dependencies. The link between high DMS scores and increased substance use raises concerns about the well-being of individuals who may be silently struggling with MD and the pressures to conform to certain body image standards. Furthermore, the study by Çağlayan & Mitat (2020) spotlights the need for increased awareness and understanding of MD among healthcare providers. Recognition of the condition and its associated behaviors is the first step in providing appropriate support and intervention. For the bodybuilding community, in particular, this might involve tailored approaches that address both the mental health aspects and the physical health consequences of striving for hyper-muscularity. The study also accentuates the importance of culturally sensitive research, especially in societies where bodybuilding and muscularity might hold specific cultural significance. In the Turkish context, this could translate into a focused examination of how societal norms and expectations influence individual behavior and self-perception. Lastly, the findings from Samsun serve as a call to action for public health officials, gym owners, and the fitness community at large. There is a pressing need for educational campaigns that promote a balanced approach to bodybuilding, one that emphasizes health and well-being over extreme physical aesthetics. By addressing the psychological roots of MD and providing support for those affected, the adverse trend of substance use linked to the disorder can be mitigated, leading to healthier and more sustainable practices within the fitness community.

7.2. Anabolic Steroid Misuse

AAS, which are synthetic variations of the male sex hormone testosterone, are increasingly being misused for non-medical purposes, especially among young men driven by the desire to enhance their muscularity and physical performance. The pervasiveness of AAS misuse transcends borders, with research from a variety of international settings highlighting a concerning lifetime prevalence among young male demographics, with rates fluctuating between 3-12%. This misuse spans a spectrum of individuals, from professional athletes striving for competitive advantage to gym enthusiasts seeking aesthetic enhancement. The issue of AAS misuse represents a multifaceted challenge. On one hand, it involves the controlled and illegal acquisition and use of these substances, which underlines a significant public health concern. On the other hand, there is the less visible but equally pressing issue of the psychological implications that accompany the drive towards an idealized body image. The convergence of these issues points to a substantial gap in the understanding and management of AAS misuse within the healthcare sector. The scholarly work of Ünal (2022) and YİĞİTER & AKÇINAR (2023) not only sheds light on the prevalence of AAS misuse but also underscores the imperative for an escalated response from the medical community. There is a clear necessity for further investigative efforts to comprehend the full scope of AAS misuse, its determinants,

and its long-term consequences on both physical and mental health. Clinicians, therefore, must be equipped with the requisite awareness and tools to identify signs of AAS misuse. This includes an understanding of the psychological drivers behind such behaviors, such as body dysmorphic disorders, and the potential for co-morbidities, including dependency and withdrawal issues. Moreover, the medical fraternity must be prepared to engage with patients in discussions about the risks associated with AAS, including cardiovascular diseases, liver damage, endocrine disorders, and psychiatric symptoms. Increasing clinician awareness through targeted education can enable early detection and intervention, potentially curbing the adverse outcomes associated with these substances. Additionally, it may foster an environment where patients feel supported in discussing their use of AAS, leading to better outcomes in terms of treatment and rehabilitation. The call for amplified research is twofold: it aims to inform evidence-based clinical practice and to facilitate the development of robust public health policies. By examining the social, cultural, and individual factors that drive AAS misuse, researchers can contribute to the creation of interventions that are culturally competent and tailored to the needs of specific populations. In light of the evidence, professional medical bodies and regulatory agencies must take a proactive stance in addressing the issue. This could involve the implementation of stringent policies to regulate the distribution and prescription of AAS, the establishment of comprehensive drug monitoring programs, and the facilitation of community outreach initiatives to educate the public on the hazards of steroid misuse. As the article by Ünal (2022) and the subsequent work of Yiğiter & Akçinar (2023) highlight, the phenomenon of AAS misuse is not merely a fringe concern but a substantive issue that demands a coordinated, knowledgeable, and empathetic response from all stakeholders within the healthcare ecosystem. It is an imperative that, when met with resolve and resources, can lead to significant strides in safeguarding the health and well-being of individuals, particularly the youth, who may be vulnerable to the allure of these performance-enhancing substances.

7.3. Health Risks of Steroid Use

The health risks associated with non-medical steroid use, particularly testosterone supplements, have been a subject of concern in the sports and health communities. In research cited from the Turkish Sports and Exercise Journal, findings indicate that while testosterone production can naturally increase as a response to exercise, the exogenous administration of testosterone supplements, especially in the context of non-medical use, is linked to significant health risks. The study involving rats, which were subjected to swimming exercise, demonstrated that introducing additional testosterone led to detectable signs of heart and muscle damage, as evidenced by biomarkers in the blood. These findings by Ersöz (2021) and Keleş (2013) highlight the potential dangers of using testosterone supplements without medical supervision, suggesting that such practices can lead to detrimental effects on cardiovascular and muscular health, which could translate to serious implications for human athletes who might engage in similar practices in pursuit of enhanced physical performance or body image.

7.4. Prevalence and Cultural Influence

The prevalence of MD and steroid use in Turkey, while not fully quantified, can be understood within the broader context of cultural influences that shape body image ideals. Chung (2001) discusses the global shift in cultural values regarding body image, particularly noting the increasing valorization of muscular physiques in media and consumer products that began in the 1950s. This cultural evolution has had a profound impact on body image perception, contributing to a rise in behaviors aimed at achieving an idealized body shape. In this context, the pursuit of a muscular

figure is not merely a personal choice but is also deeply rooted in societal expectations and the portrayal of strength and attractiveness in popular culture. Such societal pressures can drive individuals toward the use of anabolic steroids, despite the risks, as a means to approximate the muscular ideal that has been steadily amplified by media representations over the decades. The relationship between these cultural ideals and the increased incidence of MD and steroid use suggests a need for a critical examination of how societal standards influence individual health choices and the potential consequences that arise from the pursuit of these imposed ideals.

7.5. Cultural and Societal Influences

In Turkey, the intersection of cultural norms and media influence profoundly impacts body image and masculinity. Social media's (Selvi, 2023) pervasive role, particularly through platforms like Instagram, parallels a rise in negative body image, accentuating appearance concerns. The concept of globalized beauty, propelled by media, creates unreachable beauty standards, trapping individuals in a cycle of media-induced pressure. Media consumption not only alters perceptions of beauty but also how individuals perceive themselves and are seen by others. Research highlights that exposure to traditional and social media correlates with body image issues across genders, exacerbated by the tendency to compare oneself with often altered and idealized images online. These portrayals typically emphasize extremely thin women and overly muscular men, leading to a warped sense of normality. Gender differences in media content also emerge, with young women often adopting sexualized online personas, while young men align with aggressive or macho cultural content. The cumulative effect of excessive media exposure is clear, linking body dissatisfaction and disordered eating patterns to the onslaught of idealized, yet manipulated, body images, fueling a deeper entrenchment into unrealistic physical expectations. This cultural backdrop sets the stage for the prevalence of conditions like MD and the associated use of performance-enhancing drugs, as individuals strive to emulate these unattainable body ideals.

7.6. Existing Research Gaps

The deficiency of comprehensive research on MD and steroid use in Turkey can be attributed to a confluence of factors. Primarily, there may be a general lack of awareness about MD as a significant health issue. Cultural factors may also play a role, as discussions on body image or substance use are often stigmatized or overlooked. Additionally, research funding is typically directed towards more recognized health concerns, which may result in fewer studies on these topics. Moreover, stigma surrounding mental health and substance use disorders can deter individuals from participating in studies or from reporting these issues, further contributing to the dearth of research. To bridge these gaps, it's essential to cultivate a more open dialogue around these subjects, improve resource allocation, and shift the research focus to encompass a broader spectrum of mental health and behavioral conditions.

8. Medical Professionals' Knowledge and Attitudes

8.1. Global Perspective

Globally, the medical community's knowledge and attitudes toward MD and steroid use are still developing. Research since 1997 has increased, but studies have primarily focused on nonclinical samples and are mostly confined to Western males. There remains a significant gap in comprehensive understanding, particularly regarding the condition's etiology, prevalence, prognosis, and treatment.

Misconceptions among medical professionals about the severity and nature of MD persist, often viewing it as a lifestyle choice rather than a mental health issue. There's a call for more diverse research methodologies and populations to enhance the knowledge base and improve clinical support for those affected by muscle dysmorphia (Khattab & Mills, 2021).

8.2. Comparative Analysis

The global understanding of MD (Mitchell et al., 2017) has been growing since the late 1990s, with research revealing that this condition involves an individual's belief of having insufficient muscularity. Such studies, however, have mostly been conducted within nonclinical populations and are primarily limited to Western countries. In contrast, within Turkey, the exploration into MD is less mature, with a focus emerging only in recent studies that address its psychological aspects and association with bodybuilding. There is a noted lack of in-depth research on the prevalence and treatment of MD among Turkish medical professionals, indicating a need for a greater understanding and a more standardized approach to diagnosis and treatment in the Turkish medical community.

8.3. Impact of Knowledge Gaps

When medical professionals lack knowledge about the use of PEDs, including anabolic steroids and growth hormones, it can lead to significant oversights in patient care. For example, these substances may not be detectable with standard blood tests, particularly if the user is employing masking agents or if the testing does not specifically screen for such substances. This can result in a failure to identify hormone abuse, leading to untreated physiological and psychological side effects, which could have been mitigated with early detection and appropriate intervention strategies. For example, a patient might present with elevated liver enzymes, which could be hastily attributed to a high-protein diet or supplement intake by a medical professional unfamiliar with the signs of PED use. However, this biochemical marker could indicate liver stress or damage often associated with the use of anabolic steroids or other PEDs. Without considering the broader context and potential for substance abuse, the underlying cause may go undiagnosed, leading to improper treatment and potentially severe long-term health consequences. This scenario underscores the need for medical professionals to be well-versed in the signs and implications of PED use (Ganson & Rodgers, 2022).

9. The Need for Comprehensive Research in Turkey

9.1. Call for Research

There is a crucial need for comprehensive and localized research in Turkey to fully comprehend the scope of MD and the use of steroids and PEDs. Such research would offer valuable insights into the prevalence, risk factors, and societal influences specific to the Turkish population. Understanding local patterns and healthcare needs is vital to developing targeted public health interventions, educational programs for healthcare providers, and support systems for individuals affected by these conditions. It would also help in shaping policies that address the health risks associated with PED use and the psychological impact of muscle dysmorphia.

9.2. Potential Research Avenues

Research should encompass epidemiological studies to ascertain prevalence and incidence rates. Investigating cultural influences on body image can offer insights into societal pressures that contribute to these disorders. Assessing the current training and knowledge of healthcare professionals is vital to improve diagnosis and treatment. Long-term studies are needed to understand the lasting

health impacts of these conditions. Finally, evaluating and enhancing public health campaigns can lead to more effective prevention and support for individuals struggling with MD and the ramifications of steroid use.

9.3. Knowledge Gap Among Medical Professionals

The understanding of MD and steroid use among Turkish medical professionals appears to be less extensive compared to countries like the United States and various European nations, where there is broader recognition and understanding of these issues. Specific data or research findings on the knowledge levels of Turkish medical professionals in this area are limited or not readily available. However, there is growing awareness in Turkey, as seen in academic discussions about muscle dysmorphia, its symptoms, prevalence, and treatment, as well as the acknowledgment of anabolic steroid use and its psychological effects. In contrast, medical professionals in the United States and Europe have access to more specialized training, resources, and research studies on these topics, along with inclusion in psychiatric diagnostic manuals and public health campaigns. This suggests a potential knowledge gap in Turkey that might need to be addressed through further research and training.

9.4. Original Perspectives

The knowledge gap in Turkey regarding MD and steroid use could be due to several factors. Firstly, cultural perceptions of mental health and body image issues may contribute to less recognition and discussion of these conditions. There might be a stigma associated with admitting to or treating such disorders, which could limit the amount of research and education dedicated to them. Secondly, MD is a relatively recent diagnostic entity and may not be as well-known or understood as more established conditions. This could result in a lack of specialized training for healthcare professionals. Additionally, the health care system's priorities might be focused on more pressing public health issues, leading to less attention being given to conditions like muscle dysmorphia. A possible lack of funding for research in psychiatric disorders that are not seen as widespread or life-threatening might also play a role. The potential consequences of this knowledge gap are significant. Individuals with MD may not receive the correct diagnosis or appropriate treatment, which can exacerbate their condition. The lack of understanding among medical professionals means these individuals might be dismissed or misunderstood, leading to further psychological distress. For those using steroids or PEDs, the consequences of a knowledge gap can also be severe. Without proper education on the risks and side effects, both healthcare providers and patients may not recognize the signs of dependency or the long-term health risks associated with these substances. This could result in increased rates of addiction, mental health issues, and physical health problems that go untreated. Overall, the knowledge gap can have broad implications for public health, including an increase in undiagnosed conditions, untreated disorders, and the potential for a rise in associated health risks. It highlights the need for enhanced educational programs, public health campaigns, and further research to close this gap.

10. Solutions and Recommendations

Improving awareness and understanding of MD and steroid use among medical professionals in Turkey involves a multi-faceted approach that includes educational programs, training initiatives, and policy reforms. Here are some strategies and recommendations:

- **Incorporate Education into Medical Curriculum**

Incorporating education on MD and the use of steroids and PEDs into the medical curriculum is essential for future healthcare providers. It is important to ensure that medical students receive comprehensive training that covers both the psychological and physiological facets of these conditions. This educational module should aim to provide a nuanced understanding of the reasons individuals may turn to steroids and PEDs, including the societal and psychological pressures that contribute to muscle dysmorphia. Furthermore, the curriculum should equip medical students with the skills to identify and manage these conditions effectively. This would include recognizing the signs of muscle dysmorphia, understanding the health risks associated with steroid and PED use, and developing strategies for intervention and support. By doing so, future medical practitioners will be better prepared to address these issues holistically, contributing to the well-being of their patients who may be affected by these increasingly prevalent concerns.

- **Continuing Medical Education (Cme) Programs**

Continuing Medical Education (CME) programs serve as a vital platform for updating current healthcare providers on the latest developments in medical research and practice. Developing CME programs specifically targeted at MD and the use of steroids and PEDs could significantly enhance the diagnostic and treatment capabilities of practitioners. These programs should focus on disseminating the latest research findings related to the epidemiology, pathophysiology, and psychological aspects of muscle dysmorphia. They should also introduce healthcare providers to the most current diagnostic tools and evidence-based treatment protocols. By staying informed about advancements in understanding and managing these conditions, healthcare providers can better support their patients in achieving optimal health outcomes while also addressing the underlying psychological components that contribute to the development of such disorders.

- **Specialized Training Workshops**

Specialized training workshops are an effective way to enhance the competency of medical professionals in dealing with specific health issues like MD and the management of steroid use and withdrawal. Such workshops, led by experts in sports medicine, psychiatry, and endocrinology, provide a multidisciplinary approach to education. They offer attendees a deep dive into the complexities of these conditions, combining theoretical knowledge with practical skills. These workshops could include interactive sessions on recognizing the subtle signs of muscle dysmorphia, which often go unnoticed. They would also cover the physiological and psychological effects of steroid use, ensuring that professionals are well-equipped to advise on safe usage and manage the potential side effects and withdrawal symptoms. By focusing on a combination of lecture-based learning, case studies, and interactive discussions, such workshops can provide a comprehensive learning experience, ultimately leading to better patient care and support.

- **Development of Clinical Guidelines**

The development and dissemination of clinical guidelines for the diagnosis and treatment of MD and steroid/performance-enhancing drug (PED) use is a critical step in standardizing care. It requires a collaborative effort among professional medical bodies, leveraging expertise across various specialties such as psychiatry, sports medicine, endocrinology, and primary care. These guidelines would serve as a framework for healthcare providers, outlining evidence-based practices for screening, diagnosing, and managing these conditions. The aim would be to ensure that patients receive informed and consistent care that not only addresses the

physical aspects of steroid use and MD but also the psychological implications. These guidelines would also need to be dynamic, updated regularly to reflect the latest scientific research and clinical best practices, ensuring that healthcare providers have access to current information to make the best decisions for their patients' health and well-being.

- **Research Funding and Support**

Allocating funds specifically for research on MD and steroid/performance-enhancing drug (PED) use is essential for advancing our understanding of these conditions. Government bodies and medical institutions play a pivotal role in this effort by providing the necessary financial support. Such funding would enable comprehensive studies that could explore the epidemiology, etiology, and optimal treatment strategies for MD and associated substance use. It would also allow for the development and testing of prevention programs and public health interventions. With dedicated resources, researchers can delve deeper into the physiological and psychological impacts of these conditions, ultimately leading to improved clinical guidelines and treatment outcomes. Therefore, targeted investment in this area is crucial for building a more substantial knowledge base from which medical professionals can draw, enhancing the quality of care for affected individuals.

- **Public Health Campaigns**

Launching public health campaigns to raise awareness about MD and the risks associated with steroid and performance-enhancing drug (PED) use is a crucial initiative that could significantly impact public health. The Ministry of Health, working in partnership with professional medical organizations, can design and implement such campaigns to educate the public on the signs and symptoms of muscle dysmorphia, the potential dangers of unsupervised steroid and PED use, and promote healthy, realistic body image standards. These campaigns could utilize various media outlets, including social media, television, and print media, to reach a broad audience. They can also include testimonies from individuals affected by these issues, input from medical experts, and information on where to seek help. By increasing public knowledge and understanding, such campaigns can encourage individuals to pursue safe and healthy practices regarding body image and exercise, potentially reducing the incidence of MD and unsafe enhancement practices.

- **Interdisciplinary Collaboration**

Encouraging interdisciplinary collaboration is key to providing comprehensive care for individuals with MD or those who use steroids/PEDs. By fostering a collaborative approach among psychologists, psychiatrists, endocrinologists, and general practitioners, patients can benefit from a holistic care plan that addresses all aspects of their condition. Such teamwork ensures that the psychological underpinnings of muscle dysmorphia, the potential hormonal imbalances due to steroid use, and the overall physical health are all taken into consideration. Through shared expertise and coordinated care, healthcare providers can offer more effective treatments, monitor patient progress more closely, and provide a supportive network that encourages recovery and well-being. This collaborative model is essential for developing and implementing individualized care strategies that are responsive to the complex needs of this patient population.

- **Policy Changes**

Implementing policy changes to regulate steroid prescriptions and create a national registry for tracking the usage patterns of PEDs can be a significant step in curbing the misuse of these substances. Such policies would mandate healthcare providers to report all steroid prescriptions, which would help in monitoring

prescription practices and preventing the diversion of steroids for non-medical use. A national registry would serve as a central database to record and analyze PED usage, providing valuable insights into trends, potential abuse, and the demographics most affected. These measures would not only help in preventing the health risks associated with unsupervised steroid and PED use but also contribute to the broader public health goal of reducing substance abuse. Additionally, these policies could aid law enforcement in identifying illegal distribution networks and help healthcare professionals in developing targeted intervention strategies.

- **Leverage Technology**

Leveraging technology to create e-learning modules and online resources presents a flexible and accessible approach for educating medical professionals about MD and related conditions. These digital tools can provide up-to-date information and training that can be easily integrated into the busy schedules of healthcare providers. E-learning platforms can offer a range of interactive content, such as video lectures, interactive case studies, and discussion forums, which can enhance learning and retention. Additionally, online resources allow for continuous updates as new research emerges, ensuring that medical professionals have access to the latest knowledge and best practices. This approach also facilitates a wider reach, ensuring that healthcare providers in various locations and with different levels of expertise can benefit from the training. The convenience and scalability of online education make it an effective strategy for advancing the knowledge base of medical professionals regarding MD and the safe management of steroids and PEDs.

- **Professional Body Involvement**

The active involvement of professional medical councils and associations is crucial in addressing MD and the misuse of steroids and PEDs. These professional bodies have a responsibility to lead the way in promoting awareness of these conditions, both within the medical community and the general public. They can offer a wealth of resources, including educational materials, research grants, and guidelines on best practices for diagnosis and treatment. By doing so, they can help bridge the knowledge gap that may exist among healthcare providers and ensure that individuals suffering from MD receive the comprehensive care they need. Furthermore, these organizations can support research by funding studies that explore the efficacy of various treatment modalities, the long-term effects of steroid/PED use, and the psychological aspects of muscle dysmorphia. Collaboration between the Turkish government, medical institutions, and professional bodies can lead to a more coordinated and effective response, ultimately improving health outcomes for affected individuals.

Conclusion

The journey through the labyrinthine challenges of MD and the hazards associated with steroid and PED use in Turkey has led to a stark revelation: there exists a profound deficit in understanding among medical professionals in this domain. As academic dialogues tentatively broach these subjects, indicating an emergent awareness, it is clear that the wider medical fraternity has yet to fully comprehend and internalize the severity of these concerns. This article has underscored the urgency of bridging this knowledge gap—a feat that promises to refine diagnostic precision, enrich treatment modalities, and bolster support mechanisms for those caught in the throes of these complex conditions.

Through the exposition of this topic, it becomes evident that education must be interwoven into the very essence of medical training and practice. The

recommendation for the incorporation of dedicated modules into medical curricula and the provision of continuous medical education reflects a commitment to equip healthcare practitioners with the knowledge and tools necessary to confront these issues adeptly. Specialized training workshops, proposed to be spearheaded by experts across relevant fields, aim to elevate the healthcare community's proficiency in identifying and managing the nuances of MD and the responsible handling of steroids and PEDs.

The article has also highlighted the pivotal role that governmental agencies, medical institutions, and professional associations play in steering the course of policy development, research initiatives, and interdisciplinary collaboration. Such entities are positioned to instigate meaningful reform, cultivate a fertile ground for research, and knit together the diverse threads of expertise necessary for a holistic approach to these medical and social challenges.

Public health campaigns emerge as a critical instrument in the arsenal of strategies, with the potential to reshape public perception and elevate the level of discourse on these topics. By disseminating knowledge and fostering an environment of informed decision-making, these initiatives can diminish the allure of the unattainable ideals perpetuated by societal and media influences.

The article contends that the cultivation of an environment conducive to research, particularly one that is financially supported by the government and medical institutions, is indispensable. Such a supportive backdrop would not only propel the frontiers of our understanding forward but also refine the approaches to treatment and prevention.

In navigating the complex interplay between cultural, psychological, and medical factors that influence MD and steroid/PED use, this exploration calls for a multidimensional approach. It encourages the development of clinical guidelines that are not static but evolve with ongoing research and clinical practice. The implementation of such guidelines by medical councils and associations can lead to a more standardized and effective approach to managing these conditions.

As the article draws to a close, it asserts the need for a sustained and dynamic dialogue among healthcare providers, policymakers, and academicians. This dialogue is crucial for crafting comprehensive strategies that address the multifaceted nature of MD and steroid/PED use. A proactive, informed, and collaborative response is essential to navigate the complexities of these issues effectively.

The clarion call for action is unambiguous and urgent. It demands a concerted effort from all stakeholders to amplify the understanding and management of MD and steroid use. Such an effort promises to not only enhance the healthcare response to these issues within the Turkish context but also to elevate the standard of care and improve health outcomes for those affected. As we stand at the cusp of this paradigm shift, it is incumbent upon the medical community to harness the collective wisdom, resources, and resolve to chart a new course—one that leads to a future where the specter of MD and the shadow of steroid misuse are met with competence, compassion, and comprehensive care.

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