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Exploring the Psychological and Social Dynamics of Steroid and Performance-Enhancing Drug (PED) Use Among Late Adolescents and Emerging Adults (16–22): A Thematic Analysis

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Abstract

Background: Performance-enhancing drug (PED) use has become increasingly prevalent among adolescents and emerging adults, not solely for athletic advantage but as a psychological and sociocultural coping mechanism. In Türkiye, where Westernized body ideals intersect with traditional values, the emotional and symbolic meanings of PED use among youth remain underexplored. Methods: This qualitative study employed semi-structured interviews and reflexive thematic analysis to examine the subjective experiences of 26 Turkish adolescents and emerging adults (19 males, 7 females; ages 16–22) in Istanbul who reported non-medical use of steroids or other PEDs. Participants were recruited through snowball sampling in gym-adjacent communities across six urban districts. Interviews were conducted online, recorded, transcribed, and analyzed to identify emergent psychological themes. Results: Six interconnected themes were identified: (1) body-based insecurity and the fantasy of reinvention; (2) emotional regulation through bodily control; (3) secrecy as autonomy; (4) compulsive enhancement and dissatisfaction; (5) psychological dependency and regret; and (6) PED use as agency and protest. While male and female participants differed in aesthetic goals and social narratives, both groups framed PED use as a means of identity construction, emotional survival, and social validation. Participants did not perceive themselves as deviant but as strategic actors navigating a performance-driven culture. Conclusions: PED use among youth in urban Türkiye emerges as a psychologically embedded coping mechanism rooted in emotional regulation, self-concept, and perceived control. Rather than a deviant behavior, it reflects an adaptive but precarious strategy for managing insecurity and achieving recognition during a critical developmental stage.

Keywords: performance-enhancing drugs; adolescence; body image; secrecy; emotion regulation

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1. Introduction

In recent years, the pursuit of an idealized body has become a defining concern for adolescents and emerging adults, shaped by the combined influence of social media, peer norms, fitness culture, and internalized appearance ideals [1]. This pursuit is no longer confined to elite athletes or professional performers [2]; it now extends to ordinary youth who engage in gym training, follow digital fitness influencers, or adopt restrictive dieting and supplementation routines [3]. Within this landscape, the non-medical use of PEDs, including anabolic-androgenic steroids (AAS), has quietly but steadily increased [4].

While traditionally associated with competitive sports, growing evidence indicates that many young people initiate PED use not to improve performance but to manage body image dissatisfaction, gain social visibility, or regulate emotional distress. In this sense, steroid use—once framed primarily as deviant or rule-breaking behavior—has increasingly emerged as a psychosocial coping strategy [5].

This issue is particularly salient in Türkiye, where Westernized fitness ideals intersect with collectivist and traditional values. The resulting tension between globalized body culture and local social norms creates a unique psychosocial environment in which adolescents and emerging adults navigate self-worth, belonging, and modern identity through the body. Understanding PED use within this setting thus provides a culturally grounded lens for exploring how body transformation functions as both emotional regulation and social adaptation among youth.

1.1. Changing Body Ideals and Pressures Among Adolescents and Emerging Adults

Across many cultural contexts, adolescence and emerging adulthood are marked by heightened sensitivity to body image and peer comparison [6]. During these developmental stages, individuals undergo not only biological transitions but also psychosocial transformations, seeking to construct identities validated by others [7]. The body thus becomes a primary medium through which self-worth, desirability, and control are negotiated [8].

This process has been intensified by the rise in visual media platforms and fitness-oriented online communities that promote hyper-visible, lean, and muscular physiques as aspirational norms [9]. Current ideals of male attractiveness emphasize muscularity, low body fat, and broad shoulders—often unattainable without extreme exercise, restrictive dieting, or pharmacological enhancement [10]. For young women, the "fit but feminine" ideal promotes a paradox of tone and curves, producing continuous self-monitoring and dissatisfaction [11]. Social media algorithms further amplify these pressures by glorifying transformation content and linking appearance with self-discipline and personal success [12–15]. These dynamics contribute to increased negative effects and engagement in risky body-change behaviors, including performance-enhancing drug use [16,17].

A growing body of research connects this pursuit of the "ideal" body to muscle dysmorphia (MD), a subtype of body dysmorphic disorder (BDD) characterized by obsessive preoccupation with muscularity and the belief of being insufficiently developed despite objectively large physique [18,19]. Adolescents and emerging adults who internalize the muscular ideal are significantly more likely to use appearance- and performance-enhancing substances to correct perceived inadequacy or gain social validation [20–22]. This distorted drive for muscularity reflects not mere aesthetic aspiration, but a form of compulsive body-centered regulation linked to anxiety, low self-esteem, and perfectionistic traits that often precede or accompany steroid initiation.

These pressures are particularly pronounced in urban environments, where gym culture, supplement marketing, and access to unregulated PEDs are widespread [23]. Within such contexts, adolescents and emerging adults frequently conceptualize the body as an ongoing project—a site of investment and optimization [24]. PED use, therefore, emerges not as deviance but as a strategy to attain perceived normalcy, self-control, and social belonging [25]. Far from simple vanity, it reflects deeper cultural scripts that equate physical enhancement with acceptance, masculinity, femininity, and self-efficacy.

Although adolescence and emerging adulthood differ chronologically, they share developmental features that render body image particularly salient. In both stages, individuals experience intense social comparison, peer evaluation, and striving for identity coherence, which amplify sensitivity to appearance feedback and internalized body ideals. This continuity justifies their joint examination in the present study.

Recent research indicates that MD is not confined to males, although prevalence remains higher among them. Italian studies demonstrate that both male and female adolescents experience body dysmorphic concerns centered on muscularity, with drive for muscularity emerging as a shared risk factor for MD and body dissatisfaction [26]. In both genders, perceived social comparison and evaluative pressure predict body-related alienation, yet the pathways differ: among males, muscularity is closely associated with dominance, control, and social status, whereas among females it aligns with ideals of balance, health, and aesthetic discipline.

Over the past decade, the female body ideal has undergone a marked transformation. Traditional thinness has increasingly been replaced by a "fit-but-feminine" aesthetic—emphasizing visible muscle tone, low body fat, and functional strength while preserving normative femininity. This shift, fueled by social media and influencer culture, reflects a paradox in which muscularity is celebrated but must remain within socially acceptable feminine boundaries. Consequently, many young women now pursue resistance training and, in some cases, performance-enhancing practices not to gain bulk but to achieve a sculpted, disciplined, and photogenic physique that conveys agency, control, and social legitimacy while avoiding stigmatized hyper-muscularity.

Across cultures influenced by Westernized media, the prototypical male body ideal is characterized by broad shoulders, hypertrophic muscle mass, a narrow waist, and visible definition, features that symbolize strength, discipline, and social dominance. Muscularity has become not only an aesthetic standard but also a cultural metaphor for control, power, and masculinity—traits historically valorized in patriarchal societies. As Fabris et al. note [27], muscularity functions as a salient dimension of male self-concept, often used to affirm heterosexual masculinity or protect against feelings of vulnerability and social marginalization. Within this symbolic framework, performance-enhancing drug (PED) use can be viewed as an extension of these values, reflecting a pursuit of embodied competence and invulnerability. The drive to achieve the muscular ideal thus transcends appearance concerns, operating as a psychosocial strategy to secure identity, confidence, and belonging within peer and digital fitness cultures.

Research consistently shows that muscle dysmorphia risk is heightened in sports that reward muscularity, definition, or body control, such as bodybuilding, powerlifting, weight training, wrestling, CrossFit, and mixed-martial arts. Comparable vulnerabilities have also been documented in certain aesthetic disciplines—for example, gymnastics, dance, and figure skating—where appearance and weight regulation are closely tied to performance and evaluation. Participation in these activities reinforces constant body monitoring, perfectionism, and social comparison, all of which can intensify drive for muscularity and dissatisfaction with body image.

1.2. The Hidden Onset of PED Use in Adolescents and Emerging Adults

Although often associated with elite athletes or competitive bodybuilders, the use of steroids and other PEDs frequently begins much earlier and under markedly different motivations [20]. Emerging research indicates that initiation typically occurs during mid-to-late adolescence—often between ages 15 and 19—and sometimes even earlier [28]. These substances, which include anabolic steroids, unregulated testosterone boosters, and peptide hormones, are commonly obtained through informal networks, online sources, or peers at gyms, without medical oversight or accurate knowledge of associated risks [29]. Among youth, use is typically concealed and driven less by performance enhancement than by appearance regulation [30], emotional distress [31], and a desire for control or mastery [32].

The clandestine nature of early PED use reflects several intersecting dynamics [33]. Many adolescents do not conceptualize themselves as "drug users" but rather as individuals pursuing self-improvement or self-discipline [34]. This distinction allows them to rationalize their behavior as a legitimate lifestyle choice rather than a health or psychological concern. A common pathway involves gradual gateway progression: legal supplements such as protein powders, creatine, and pre-workout products normalize the idea of pharmacological enhancement, eventually escalating to stronger and illicit substances [35].

Social learning further reinforces this pattern. Many young users report being introduced to PEDs by slightly older peers at gyms or through fitness-oriented online communities [36]. These unregulated environments often perpetuate misinformation and normalize risk-taking behaviors, while peer approval and modeling contribute to sustained use. In some instances, adolescents unknowingly consume banned or adulterated substances recommended by trusted acquaintances [37].

The early, concealed onset of PED use underscores a disconnect between perceived benefit and actual risk [38]. Despite growing global concern over the physical and psychological consequences of adolescent PED use—including hormonal disruption [39], psychiatric side effects (Windfeld-Mathiasen et al., 2022) [40], and irreversible developmental impacts [41]—many young people remain unaware of or dismissive toward these outcomes.

1.3. Understanding Steroids and Performance-Enhancing Drugs: Beyond Supplements and Shakes

Steroids and PEDs comprise a broad range of synthetic or biological substances designed to accelerate muscle growth, enhance performance, and alter body composition. The most widely used group, AAS, are synthetic derivatives of testosterone that stimulate protein synthesis and promote increases in muscle mass and strength [42]. Other common PEDs include human growth hormone (hGH), insulin, insulin-like growth factor-1 (IGF-1), selective androgen receptor modulators (SARMs), clenbuterol, and various peptide hormones [43].

Despite their potent physiological effects, these substances are frequently misidentified as harmless fitness aids—such as protein powders, creatine, or branched-chain amino acids [44]. This confusion is particularly common among adolescents and emerging adults, many of whom casually refer to all enhancement products as "supplements," blurring the distinction between nutritional support and pharmacological manipulation. In reality, anabolic steroids and most PEDs are powerful medical agents that require clinical supervision and are often illegal to use or obtain without prescription in many countries [45].

In non-clinical environments, particularly commercial gyms and online fitness forums, PEDs are routinely normalized and rebranded as "cycles," "stacks," or "cutting plans." Dosages are typically self-administered based on peer or internet advice, with little or no medical oversight [46]. This informal culture of use erases the boundary between fitness and pharmacology, creating a space where experimentation and self-medication are perceived as part of legitimate self-improvement. For young users, this normalization not only heightens health risks but also reinforces the broader psychosocial dynamic of control, discipline, and transformation central to PED engagement.

1.4. Physical and Psychological Impacts of Steroid and PED Use in Youth

The physiological effects of steroids and other PEDs—especially when used without medical supervision—are both potent and potentially dangerous [47]. While users often experience rapid increases in muscle size, strength, and vascularity, as well as reduced fat mass, these short-term gains carry substantial biological risks [48]. Anabolic steroids

can disrupt the body's hormonal axis, causing testicular atrophy, gynecomastia, erectile dysfunction, and infertility [49]. Misuse of hGH and insulin can lead to abnormal bone growth, insulin resistance, and life-threatening hypoglycemia [50]. Cardiovascular complications such as hypertension, left ventricular hypertrophy, and increased risk of myocardial infarction are also well documented [51–53], along with liver damage, acne, hair loss, and immune dysregulation [54,55].

A major contributor to these risks is the unregulated source of most substances used by adolescents and emerging adults. Except for testosterone, insulin, or hGH—occasionally obtained via prescription or diverted from medical supply—most PEDs circulating in gym culture originate from underground laboratories. These compounds are often produced without pharmaceutical standards, inconsistently dosed, or contaminated, and are typically distributed through informal networks or online marketplaces [56]. Consequently, users face elevated risks of toxicity, infection, and overdose, while relying primarily on peer advice or internet anecdotes for dosage guidance.

The psychological consequences of PED use are equally severe. Reported effects include mood swings [57], irritability [58], insomnia [59], paranoia [60], and depressive symptoms [61]. In more extreme cases, prolonged use or withdrawal can precipitate psychiatric disturbances such as aggression or suicidal ideation [62]. For individuals already struggling with low self-esteem, anxiety, or body image concerns, these substances may intensify emotional instability and reinforce compulsive behaviors [21]. The body—initially experienced as a controllable project of mastery and transformation—can become a fragile locus of dependency, fear, and loss of agency, particularly when physical results plateau or health complications arise [63].

1.5. Psychological and Emotional Drivers of Use

The decision to initiate PED use during adolescence or emerging adulthood is seldom driven by purely physical goals. More often, it represents a psychological strategy to cope with internal vulnerabilities and external pressures. These developmental stages—marked by heightened identity formation, peer comparison, and sensitivity to social evaluation—can evoke feelings of inadequacy, invisibility, or rejection. Within this context, PEDs offer more than muscle gain; they promise pathways to self-worth, social validation, and emotional control [64].

Recent qualitative research [65–67] reveals recurring themes of emotional compensation. Users frequently describe steroids and related substances as tools for "becoming someone," "earning respect," or "finally liking the mirror." Such narratives expose deeper psychological needs: the longing for recognition, mastery, and acceptance in social worlds that often feel judgmental or dismissive. For many young men, muscularity becomes synonymous with strength, resilience, and masculinity—attributes they perceive as lacking or unacknowledged within family or peer environments. In this way, PED use functions as a means of performing, protecting, or restoring a threatened identity [22].

Among emerging adults navigating uncertain educational or occupational pathways, PEDs may also serve as a stabilizing mechanism—a means of "fixing" one controllable domain (the body) when other areas of life feel chaotic or unpredictable. Although less frequently studied, young women report parallel emotional drivers: body dissatisfaction, comparison fatigue from social media exposure, and perfectionistic standards shaped by conflicting ideals of femininity and athleticism [68]. Across genders, anxiety, depressive symptoms, and low self-esteem are common psychological correlations, often unacknowledged or misattributed to appearance-related dissatisfaction rather than underlying distress [69].

Crucially, PED use is seldom discussed openly in clinical, familial, or educational contexts. This emotional silencing compounds the problem by preventing early recognition and reinforcing the belief that bodily transformation—and the pursuit of self-acceptance—must occur privately and at all costs.

1.6. Muscle Dysmorphia and Body Distortion

Among adolescent and emerging adult PED users—particularly males—a recurring psychological pattern parallels MD, a subtype of BDD marked by obsessive concern with insufficient muscularity. Although rarely diagnosed formally in youth, its core features are frequently observed: compulsive resistance training, excessive mirror checking or avoidance, distorted perceptions of muscularity, and a persistent sense of being too small or underdeveloped despite evident size. These behaviors reflect not merely aesthetic striving but a deeper emotional tension between the body as it is and the body as it is imagined or idealized [70].

For many young users, this distortion develops through prolonged exposure to cultural narratives equating muscularity with power, control, and visibility [71]. Adolescents who feel socially excluded, emotionally neglected, or insecure often channel their distress into sculpting the body—a domain where mastery appears attainable and measurable. The body thus becomes both the stage and the strategy for emotional expression and self-regulation [18]. Within this context, PED function not as mere enhancers but as corrective tools—attempts to repair a body perceived as inadequate, regardless of its objective form. In psychological terms, bodily transformation becomes a means of externalizing internal conflict: feelings of vulnerability, rejection, or loss of control are displaced onto the body, which can be reshaped, disciplined, and displayed. The enhanced body serves as visible evidence of mastery over emotion and circumstance, translating abstract distress into a tangible project of repair. This dynamic resonates with theories of embodiment and compensatory control, wherein altering one's physical form symbolizes the re-establishment of agency and coherence when emotional equilibrium feels threatened. Thus, PED use represents an embodied coping strategy—an effort to regulate affect and reconstruct a coherent sense of self through visible, controllable change.

Although MD is more frequently reported among males [72], young females experience parallel distortions shaped by ideals of leanness, symmetry, and "fit femininity" propagated by social media, influencers, and peer comparison. Their efforts may manifest in obsessive exercise, restrictive eating, or covert use of so-called "fat burners" and hormone-modulating agents. Across genders, these distortions transcend cosmetic concern; they carry significant emotional burden—marked by shame, secrecy, and a cyclical pattern of self-surveillance and self-punishment [19].

1.7. Limitations of Current Research and the Need for Qualitative Understanding

The existing literature on adolescent and emerging adult PED use is largely dominated by quantitative approaches emphasizing prevalence rates, demographic correlates, and physical health outcomes. While these studies have yielded important epidemiological insights, they often neglect the subjective, emotional, and developmental dimensions that drive engagement with PEDs. Surveys and cross-sectional models rarely capture the lived experiences of young users—their internal conflicts, emotional struggles, and the personal meanings they attach to body transformation.

This gap is particularly concerning given that PED use during adolescence and early adulthood is deeply intertwined with psychosocial development. These behaviors do not arise in isolation but unfold within complex narratives shaped by peer influence, familial expectations, cultural ideals, and emotional regulation patterns. Without direct access to

how youth themselves articulate these experiences, clinicians and educators are left with an incomplete understanding of the underlying psychological logic of PED use.

Furthermore, the majority of existing research is Western-centric, offering limited insight into non-Western societies where collectivist values, family structures, and gender norms shape body-related behavior in distinctive ways. Türkiye represents a particularly compelling yet understudied context—a country at the intersection of Westernized consumer culture and traditional communal values, where fitness trends, masculinity discourses, and youth anxieties converge in unique forms [73].

To date, no in-depth qualitative or thematic study has examined the lived experiences of steroid and PED use among Turkish adolescents and emerging adults. This absence extends beyond academic curiosity; it constrains the development of culturally informed prevention and intervention strategies. By foregrounding the voices of this underrepresented population, the present study aims to illuminate how Turkish youth understand, rationalize, and emotionally negotiate their engagement with body-enhancing substances.

1.8. Study Aim and Research Questions

This study aims to investigate the subjective and emotional dimensions of steroid and PED use among adolescents and emerging adults living in Istanbul. Rather than treating PED use as a mere behavioral outcome or public health statistic, the research adopts a qualitative, thematic lens to understand how young individuals make sense of their actions, identities, and emotional lives through the lens of bodily transformation. The goal is to uncover the psychological motivations, inner conflicts, and sociocultural meanings that shape their engagement with these substances.

This approach is especially important given the hidden and often stigmatized nature of PED use in youth populations. By privileging participants' voices and narratives, the study seeks to illuminate how PED use is not simply a matter of risk-taking, but a deeply embedded response to complex personal and environmental pressures. The focus is not only on "why" young people use these substances, but on "how" they emotionally relate to this use over time.

Guided by this aim, the study addresses the following research questions:

- What emotional and cognitive processes underlie the decision to engage in PED use among adolescents and emerging adults?
- How do young users construct meaning around their bodily goals, daily routines, and perceived transformations?
- In what ways do gender expectations, peer dynamics, and cultural narratives influence the initiation and continuation of PED use?
- How do participants retrospectively interpret the consequences—emotional, social, and physical—of their engagement with PEDs?

By attending to these questions, the study seeks to contribute a nuanced, culturally grounded understanding of a phenomenon that remains underexplored in Türkiye and beyond.

2. Method

2.1. Design

This study employed a qualitative, exploratory design using a thematic analysis framework to examine the personal experiences and emotional narratives of adolescents and emerging adults in Istanbul who use anabolic steroids and other PEDs. Given the hidden, stigmatized, and psychologically complex nature of PED use in youth populations, a qualitative approach was selected to capture the depth and nuance of individual experiences—elements often overlooked in quantitative surveys.

The research was grounded in an interpretivist paradigm [74], emphasizing how participants construct meaning in relation to their bodily practices and psychological states. Semi-structured, in-depth interviews were chosen as the primary data collection method to allow participants to speak openly about their experiences, motivations, and reflections in a flexible, participant-driven format. Thematic analysis, as outlined by Braun and Clarke (2006) [75], was employed to identify, analyze, and interpret patterns within the data. This method was deemed suitable for exploring the emotional, symbolic, and relational aspects of PED use as narrated by participants themselves.

The study prioritized trust, openness, and reflexivity throughout the research process. Ethical considerations—including informed consent, psychological safeguarding, and the confidentiality of participants' identities—were integral to the research design. Recruitment aimed for thematic saturation rather than numerical representation, reflecting the study's goal of capturing the diversity and richness of lived experience (See Supplementary File S1. Consolidated Criteria for Reporting Qualitative Research (COREQ) Checklist).

2.2. Participants

Participants were adolescents and emerging adults residing in Istanbul, aged between 16 and 22 years, who reported current or past use of anabolic steroids or other PEDs outside of medical supervision. Inclusion criteria required that participants (a) fell within the specified age range, (b) resided in Istanbul, (c) had used steroids and/or PEDs for non-medical purposes, (d) were willing to share their personal experiences in a recorded interview, and (e) provided informed consent both personally and—if under 18—via parental or guardian approval. Exclusion criteria included the presence of any formally diagnosed psychiatric disorder (e.g., major depressive disorder, psychosis, bipolar disorder, or substance dependence), as verified through self-report or existing medical documentation during screening; current use of prescription medications such as insulin or growth hormone for medical purposes; or any medical condition requiring steroid treatment.

Recruitment was conducted via snowball sampling across multiple districts of Istanbul—including Sarıyer, Beşiktaş, Bakırköy, Kadıköy, Kartal, and Beylikdüzü—to maximize diversity in socioeconomic background and lifestyle contexts. Outreach occurred primarily through fitness centers and gym communities.

While the initial sampling target was set at 35–50 individuals to allow thematic saturation and accommodate potential attrition, interviews were discontinued after the 31st participant when no new codes, subthemes, or meanings were emerging from additional interviews. This decision was made in accordance with established qualitative research standards emphasizing thematic saturation and information power [76,77], which determine adequacy by the richness and relevance of the data rather than numerical size. Given the relative homogeneity of the sample and the depth of disclosure achieved, 31 interviews were sufficient to capture the full thematic variation relevant to the research questions.

2.3. Procedure

Data collection was carried out with the aim of reaching adolescents and emerging adults (ages 16–22) residing in Istanbul who reported using steroids or other PEDs outside of medical supervision. Given the taboo and secrecy surrounding PED use in youth, especially among minors, recruitment was conducted face-to-face through direct outreach rather than online or institutional settings.

Two clinical psychology master's students, trained by the authors, conducted fieldwork across six diverse urban districts in Istanbul—Sarıyer, Beşiktaş, Bakırköy, Kadıköy, Kartal, and Beylikdüzü. They approached potential participants discreetly in areas adjacent to gyms and community spaces frequented by fitness-involved youth. No recruitment was

performed through online searches or gym management networks to preserve anonymity and minimize institutional pressure.

During first contact, the clinical psychology assistants provided detailed explanations of the study, obtained signed informed consent, and administered a sociodemographic screening form. For participants under 18, written parental consent was required as per ethical protocols. However, a significant barrier emerged: many minors—despite a willingness to participate—refused to involve their parents out of fear that disclosure of steroid use would result in family sanctions, including being forbidden from attending the gym. Based on field reports from the recruitment team, nearly 30% of otherwise eligible minors were excluded from participation for this reason.

Eligible participants were referred to the first author for individual, semi-structured interviews. Interviews were conducted online via Microsoft Teams, providing a confidential and accessible format for open dialog. Participants were asked to join the online interviews from a quiet and private location using a personal device with a stable internet connection. Before recording began, the interviewer confirmed that each participant was alone, that the environment was free from interruptions, and that the participant felt comfortable continuing. Headphones were recommended to enhance audio quality and privacy. These precautions were intended to maintain confidentiality, minimize environmental distractions, and promote a safe atmosphere for self-disclosure. Each interview lasted approximately 45 min and followed a flexible, narrative-based structure that allowed for deep exploration of PED use, emotional motivations, identity-related concerns, body image beliefs, peer dynamics, and retrospective reflections.

All interviews were audio-recorded with explicit permission, transcribed verbatim, and anonymized with pseudonyms. Identifying information was removed, and transcripts were stored securely for analysis. Interviews continued until thematic saturation was reached, with a final sample of 26 participants.

2.4. Interview Protocol

To investigate the subjective experiences and psychological dynamics of PED use among adolescents and emerging adults, we employed a semi-structured, narrative-driven interview approach [78]. Our goal was not solely to collect surface-level data, but to elicit emotionally rich, psychologically layered narratives that reflect the internal and social worlds of young users. This design was informed by principles of narrative inquiry [79] and interpretative phenomenological analysis [80], which emphasize the participant's meaning-making process, emotional language, and subjective interpretation of life events.

Interviews were conducted via Microsoft Teams to ensure accessibility and privacy across the diverse districts of Istanbul, and each session lasted approximately 45 min. The semi-structured format enabled flexibility in question sequencing and allowed participants to shape the direction of the conversation within defined thematic boundaries. The interview guide was designed collaboratively by three experts—two clinical psychology assistant professors with specialization in body image disorders (M.Ç., E.Y.) and one Medical Doctor with a PhD in psychology experienced in adolescent health and endocrinology (E.N.A.). It drew upon prior qualitative research on body image, masculinity, risk behavior, and PED use while also integrating clinical insights from the authors' practice and fieldwork.

The guide included nine thematic domains:

(1) Early bodily self-perception and body talk in adolescence;
(2) First encounters with fitness culture and body ideals;
(3) The onset of steroid or PED use and influencing factors;
(4) Emotional and psychological drivers such as anxiety, validation needs, or perfectionism;

(5) Secrecy, family dynamics, and avoidance of parental discovery;
(6) Evolving perceptions of the body and signs of dysmorphia;
(7) Gender-based and sociocultural narratives around appearance and masculinity;
(8) Perceived risks, regrets, and bodily harm;
(9) Future projections, identity formation, and meaning-making.

Before each interview commenced, the interviewer provided participants with a standardized explanation of what the study defined as PEDs. PEDs were described as pharmacological substances used to accelerate muscle growth, alter body composition, or enhance physical performance, including AAS, SARMs, hGH, insulin, peptide hormones, and related agents. The interviewer explicitly differentiated these from legal nutritional supplements such as protein powders, creatine, or amino acids.

During the initial screening, participants were asked to specify which substances they had used. Individuals who referred solely to dietary or nutritional supplementation without pharmacological agents were not enrolled. This clarification ensured that all participants shared a consistent understanding of PED use as defined in the study's conceptual framework.

Interviews began with rapport-building questions about personal identity and life context to foster comfort and openness. From there, participants were invited to tell their stories in their own words, focusing on emotional significance rather than clinical detail. This narrative emphasis allowed for deeper exploration of ambivalence, self-perception, and symbolic meanings associated with PED use. Follow-up questions were adapted in real time based on each participant's tone, language, and readiness, ensuring psychological safety and authenticity of disclosure.

This protocol enabled us to access the lived, affective textures of PED use—often hidden beneath layers of performance, stigma, and bodily idealization. It also created space for the exploration of self-concept, social comparison, risk normalization, and emerging adult identity negotiation, themes central to the aims of this study (See Supplementary File S2. Interview Protocol).

2.5. Data Analysis

The interviews were analyzed using reflexive thematic analysis to identify patterns of meaning across participants' narratives related to the emotional, cognitive, and social dimensions of PED use. Reflexive thematic analysis, as conceptualized by Braun and Clarke [75], is a flexible qualitative approach used to identify and interpret patterns of meaning across a dataset. Unlike mechanical coding frameworks, it emphasizes the researcher's active role in theme construction and interpretation rather than treating themes as objectively discovered entities. This approach is particularly suited to psychologically oriented research because it allows for the exploration of both explicit content and underlying emotional or conceptual meanings embedded in participants' narratives. The reflexive process involves continual engagement with the data, iterative interpretation, and transparency regarding the researchers' positionality and theoretical lens. This method was selected for its flexibility in capturing nuanced, subjective experiences and its alignment with the study's aim to explore how adolescents and emerging adults make sense of their behaviors within their sociocultural contexts.

Transcribed interviews were read multiple times to ensure familiarity with the content. Initial codes were generated inductively from the data, with attention to latent meanings as well as explicit content. Coding was carried out manually by the first author and verified by the second author, who independently reviewed a subset of transcripts to ensure coherence and consistency. Discrepancies in interpretation were discussed until

consensus was reached, maintaining an iterative and reflective approach throughout the analytic process.

Themes were constructed by grouping related codes and identifying patterns across cases, guided by the research questions. The analysis emphasized both convergences and divergences in participants' accounts, with special attention to the affective and identity-related dimensions of PED use. Memos and analytic notes were kept throughout the process to track evolving interpretations and maintain transparency in theme development.

The final themes were reviewed in relation to the entire dataset to ensure they were internally coherent, clearly distinct, and grounded in participants' lived narratives. Selected excerpts were then extracted to illustrate each theme, ensuring that participants' voices remained central to the analytic narrative. The analytic process was informed by the authors' clinical and cultural expertise in body image pathology, youth psychology, and steroid use, while remaining anchored in the participants' own constructions of their experiences (See Supplementary File S3. Saturation Documentation).

To enhance analytic transparency and rigor, the procedures followed the criteria outlined by Braun and Clarke [75] for reflexive thematic analysis, with additional attention to credibility and dependability as described by Nowell et al. [81]. The point of thematic saturation was determined in line with qualitative guidelines provided by Guest et al. [77].

2.6. Researcher Positionality and Reflexivity

The authors approached this study as clinical psychologists and health professionals with longstanding academic and therapeutic engagement in body image, youth mental health, and substance use. The first and second authors (male and female, both Turkish assistant professors in clinical psychology) occupy positions of relative professional privilege and academic authority within urban Turkish university settings. The third author (female, medical doctor and family practitioner) contributes a public-health and adolescent-care perspective grounded in everyday clinical encounters.

Our shared social locations—middle-class, educated professionals working within the metropolitan context of Istanbul—inevitably shaped how we interpreted the phenomenon of PED use. We were acutely aware that our professional backgrounds might position us as "outsiders" to gym-based youth culture while simultaneously affording us clinical empathy toward participants' struggles with self-esteem, visibility, and control.

Before data collection, we expected to encounter narratives of risk-taking, peer influence, and limited awareness of harm. Through reflexive engagement during interviewing and analysis, these assumptions were both affirmed and challenged. While participants did describe secrecy and misinformation, they also articulated deeply psychological motives—emotional regulation, self-reinvention, and protest against invisibility—that resonated with broader developmental and cultural tensions. This recognition shifted our analytic lens from a deficit-oriented view of "misuse" to a more compassionate understanding of PED use as a coping and identity-regulating strategy.

Throughout the analytic process, the research team engaged in iterative reflexive meetings to examine how our clinical and cultural assumptions influenced theme construction. Analytic memos were used to note moments of identification, surprise, or discomfort, ensuring transparency between our interpretive positions and participants' voices. By acknowledging our positionalities and emotional responses, we sought to maintain interpretive humility and represent participants' lived experiences with psychological depth and cultural sensitivity (See Supplementary File S4. Thematic Codebook).

2.7. Ethical Considerations

This study was approved by the Institutional Review Board for Social Sciences of İstanbul Nişantaşı University under the reference number SOSETKK2025-02, and all procedures complied with the ethical standards of the Declaration of Helsinki. Given the sensitive nature of steroid and PED use among minors and young adults, particular attention was paid to confidentiality, voluntariness, and psychological safeguarding.

Informed consent was obtained in two stages. At first contact, trained clinical psychology graduate students explained the purpose, scope, and confidentiality terms of the study in age-appropriate language. Written consent was secured from all participants prior to enrollment. For individuals under the age of 18, additional signed consent was obtained from at least one parent or legal guardian. Due to fears of disclosure and potential familial or social consequences, many minors declined participation when parental involvement was required. This ethical safeguard, though limiting sample size, was non-negotiable and prioritized participants' legal rights and protection.

Participants were explicitly informed of their right to withdraw at any point without consequence. All identifying information was anonymized, and pseudonyms were used in all transcripts and reporting. Audio recordings were securely stored on encrypted devices accessible only to the authors. Participants received no compensation, thereby reducing coercion and preserving voluntariness.

Given the potential for emotional discomfort during interviews, especially around themes of self-esteem, secrecy, and body image distress, participants were monitored for signs of distress. All data were handled in accordance with data protection laws and institutional policies. Ethical vigilance was maintained throughout the research process to ensure that participants' dignity, safety, and agency were respected at all times.

3. Results

Participant Characteristics

The final sample consisted of 26 adolescents and emerging adults (24 males, 7 females originally recruited; 26 included after exclusions) aged 16–22 years (M = 19.1, SD = 1.8). Participants represented six urban districts of Istanbul (Sarıyer, Beşiktaş, Bakırköy, Kadıköy, Kartal, and Beylikdüzü), reflecting a range of socioeconomic and educational backgrounds. Most were high school or early university students who trained regularly in commercial gyms. PED use duration ranged from 3 months to 3 years, and substances most frequently reported included anabolic-androgenic steroids (AAS; n = 20), selective androgen receptor modulators (SARMs; n = 4), and mixed or unclassified "stacks" (n = 2).

Analysis of the interviews revealed six major themes that capture the psychological, emotional, and sociocultural dynamics of steroid and PED use among adolescents and emerging adults (Figure 1). The narratives reflect a developmental stage marked by identity negotiation, social comparison, secrecy, and bodily investment. Although both male and female participants reported shared experiences of appearance pressure and emotional distress, their motivations, strategies, and perceived risks often diverged along gendered lines.

Theme 1: "I Wasn't Enough Until I Changed My Body"—Early Insecurity and the Fantasy of Reinvention

From a young age, many participants described feeling inadequate, invisible, or different. Their bodies were often labeled as "wrong," "weak," or "not seen," particularly in relation to peers and romantic attention. For males, this meant being "too skinny" or "too small," while females focused on dissatisfaction with thighs, waist, and overall "shape."

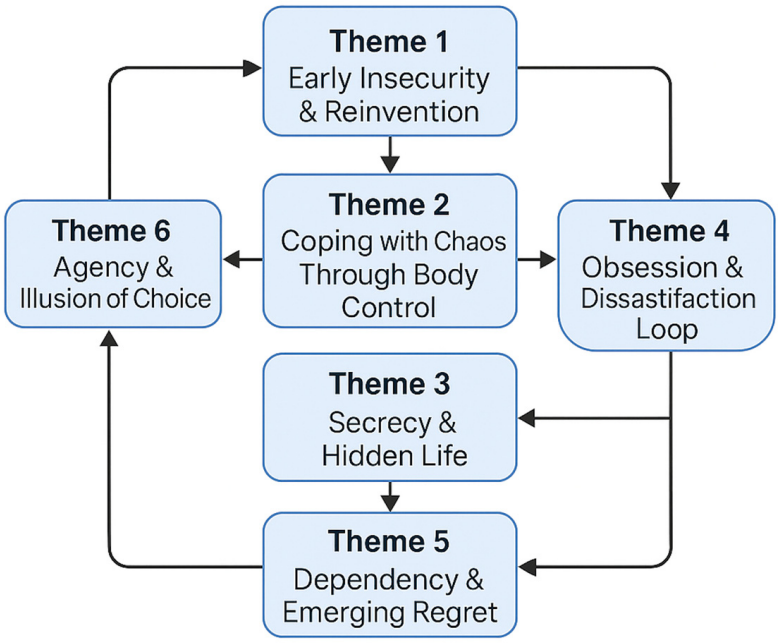


Figure 1. Conceptual model illustrating the psychological and developmental dynamics of PED use among adolescents and emerging adults.

Participants expressed a fantasy of transformation—believing that changing their body would earn them recognition, respect, or self-worth. This ideal often mirrored images seen on social media or admired gym figures.

"I wasn't bullied, but no one noticed me. After I started training and using [PED], even the way people said 'hi' changed."

"As a girl, being muscular is still judged. But being fit and slim with curves—that's the ideal. It's a never-ending struggle."

Theme 2: "The Gym Is My Therapy"—Emotional Coping Through Bodily Control

PED use was closely tied to emotional regulation. Participants described the gym as a refuge from chaos—academic stress, family conflict, loneliness, or rejection. Training and enhancement provided structure, predictability, and visible progress in an otherwise unstable environment.

"When everything else feels like a mess, at least I can control this—how I look, how I train."

"I felt ugly and stupid. But after I started using, people complimented me. It's not just muscle, it's emotional power."

While males often used PEDs to counter feelings of weakness or emasculation, females described them as a way to cope with comparison anxiety and body-related pressure intensified by social media.

Theme 3: "They Don't Know, and That's the Point"—Secrecy, Autonomy, and the Hidden Life

Most participants made deliberate efforts to hide their PED use from family, teachers, or non-gym friends. Concealment offered privacy and a sense of ownership over their bodies. For many, disclosure felt like losing control of something deeply personal.

"My parents and friends think I take vitamins. I just smile and say 'protein powder'—it's easier."

"If I told my parent, they would go insane. But this is my decision. I'm not a kid."

Female participants expressed greater concern about stigma and appearing "unnatural." Some described living "two lives" —one centered on gym identity and another shaped by family expectations.

Theme 4: "Bigger, Sharper, Better"—The Obsessive Pursuit and Dissatisfaction Loop

Across genders, participants shared a pattern of continual dissatisfaction. Each physical improvement quickly lost meaning as new goals emerged. PEDs became not just aids but necessities for sustaining self-image. Mirror-checking, measuring, and body monitoring became daily habits.

"You hit a goal, then the goal changes. First it was arms, then it was shoulders, now it's traps. There's no end to it."

"I knew I was lean. My abs were sharp. But I couldn't wear a bikini without checking ten times—something always felt off."

"I'd skip events, dinners, even dates—because I didn't want to lose definition. Every bite felt like a threat to my body."

Males tended to emphasize muscle size and fullness, while females focused on symmetry and abdominal leanness. Both described restrictive eating, self-criticism, and fatigue from the endless pursuit of "better."

Theme 5: "You Can't Just Stop"—Psychological Dependency and Emerging Regret

Few participants identified themselves as "addicted," yet many described emotional dependency and fear of stopping. PEDs were viewed as essential to maintaining progress and identity. While most recognized potential health risks, quitting felt like losing the only stable source of pride or control.

"I'm not stupid. I know it's not something you do forever. But right now? I'm finally proud of myself. Why would I ruin that?"

"One night out with friends, too much alcohol, and the next day I feel like I lost everything. It's not real, but it feels real."

"I know I've only been on for a few months. But when you finally see changes, it's like. . . stopping means going back to the person I hated."

Participants often described balancing satisfaction and anxiety—struggling between confidence in their transformation and fear of regression.

Theme 6: "This Is My Way Out"—Agency, Resistance, and the Illusion of Choice

Participants rejected the idea that they were misled or passive. PED use was often framed as a deliberate choice—a way to survive or advance in a competitive, appearance-driven culture. Many viewed it as proof of discipline and self-determination.

"In school, I was just average. But at the gym, I'm someone. People ask me for advice. That never happened before."

"My family doesn't get it. They think I should focus on university, but this—this is what makes me feel alive."

"I didn't grow up with much. This body is the only thing I've built with my own hands—and yeah, with some help."

Participants associated PED use with empowerment and achievement, though several hinted at ambivalence—acknowledging that the sense of freedom it offered was temporary and fragile.

Table 1 presents a conceptual model depicting the cyclical psychological process identified through reflexive thematic analysis. The sequence begins with early insecurity and the fantasy of reinvention (Theme 1), which motivates attempts to manage emotional distress through bodily control (Theme 2). These efforts evolve into secrecy and autonomy (Theme 3) as participants conceal their behaviors to preserve personal agency, followed by a spiral of obsession and dissatisfaction (Theme 4). Continued investment in the enhanced body leads to dependency and regret (Theme 5), culminating in a fragile sense of agency and the illusion of choice (Theme 6). Arrows illustrate the dynamic, recursive nature of this process, indicating that perceived control and empowerment ultimately reinforce the same insecurities that initiated PED use. The model visualizes how emotional regulation,

identity formation, and social validation become interwoven in adolescents' and emerging adults' engagement with performance-enhancing substances.

Table 1. Participant Characteristics.

Variable	Category/Range	*n* (%) or $M \pm SD$
Age (years)	16–22	$M = 19.1$ ($SD = 1.8$)
Gender	Male ($n = 19$); Female ($n = 7$)	26 (100%)
Education	High school ($n = 10$); University ($n = 16$)	—
Primary PED used	AAS ($n = 20$); SARMs ($n = 4$); Other ($n = 2$)	—
Duration of PED use	3 months–3 years	$M \approx 1.4$ years
Training frequency	4–6 sessions per week	—
District of residence	Sarıyer (5); Beşiktaş (4); Bakırköy (4); Kadıköy (5); Kartal (4); Beylikdüzü (4)	—

As summarized in Table 2, the six emergent themes reveal a developmental sequence that maps how body-centered practices such as PED use become embedded in the psychological lives of adolescents and emerging adults. Rather than representing isolated motives or linear decisions, these themes collectively illustrate a dynamic feedback loop—where early vulnerabilities (e.g., perceived inadequacy) give rise to compensatory behaviors (e.g., bodily control, secrecy) that evolve into persistent patterns of emotional regulation, identity construction, and symbolic self-empowerment. The themes also reflect critical tensions between autonomy and dependency, visibility and secrecy, as well as rebellion and conformity. Across gender lines, these experiences diverged in form but converged in function: PEDs were not merely chemical enhancers but tools for emotional survival, social legitimacy, and imagined escape. Thus, the table does not simply condense the findings; it offers a conceptual scaffold for understanding how body-focused enhancement becomes a psychologically coherent—if precarious—strategy for navigating the uncertainties of youth development in an image-saturated, performance-driven culture.

Table 2. Thematic Summary of PED Use Among Adolescents and Emerging Adults.

Theme	Definition/Core Meaning	Illustrative Quote
1. Early Insecurity & Reinvention	Feelings of inadequacy and invisibility drive the fantasy that bodily change will restore self-worth and social recognition.	"I wasn't bullied, but no one noticed me. After I started training and using, even the way people said 'hi' changed."
2. Coping with Chaos Through Body Control	PED use serves as an emotional regulation strategy—creating stability and control amid academic, family, or social stress.	"When everything else feels like a mess, at least I can control this—how I look, how I train."
3. Secrecy & Hidden Life	Concealing PED use provides autonomy and protection from judgment, allowing users to define progress on their own terms.	"My parents think I take vitamins. It's easier not to tell them—it's my decision, my body."
4. Obsession & the Dissatisfaction Loop	Bodily achievement never feels sufficient; constant comparison fuels compulsive training and self-criticism.	"You hit a goal, then the goal changes. There's no end to it."

Table 2. *Cont.*

Theme	Definition/Core Meaning	Illustrative Quote
5. Dependency & Emerging Regret	Emotional and identity-based dependence on PEDs develops; stopping use feels like losing control or self-worth.	"I know it's not forever, but right now it's the only thing that makes me proud of myself."
6. Agency & Illusion of Choice	PED use is framed as empowerment or protest against societal limits, yet this autonomy often reinforces dependency.	"In school I was average, but at the gym I'm someone. This body is the only thing I've built with my own hands."

4. Discussion

This study explored the psychological experiences and motivations underlying PED use among adolescents and emerging adults in urban Türkiye. Through in-depth, semi-structured interviews, six interrelated themes emerged, capturing how PED use functions not merely as a strategy for physical enhancement but as a complex developmental and emotional process. The findings reveal that PED use is embedded within a dynamic system of insecurity, body-based self-worth, emotional regulation, secrecy, identity exploration, and perceived empowerment. Participants did not position themselves as passive victims of substance use but rather as active agents navigating social pressures, internal conflicts, and future aspirations through their bodies. The themes also reflected important gendered distinctions and sociocultural tensions, offering insights into how young people negotiate appearance, autonomy, and recognition in a rapidly transforming aesthetic and performance-oriented culture. Rather than isolating PED use as a deviant or pathological behavior, the findings underscore its role as a coping mechanism and identity tool during a formative life stage.

4.1. Psychological and Developmental Interpretations

The thematic findings highlight the role of PED use as a mechanism for managing developmental tasks central to adolescence and emerging adulthood. Consistent with Erikson's theory of psychosocial development [82], many participants appeared to engage in body-centered behaviors as a means of resolving identity confusion and achieving social visibility. For these individuals, the body became a site of self-definition, offering tangible evidence of control, success, and worth in a period often marked by uncertainty and self-doubt. The use of PEDs thus functioned less as a substance-use issue and more as a psychologically organized response to unmet emotional needs, fractured self-concept, and perceived social inadequacy.

This behavioral strategy also aligns with models of emotion regulation, in which bodily transformation acts as a stabilizing anchor [83]. For participants who described chaotic family environments, emotional neglect, or relational loss, the gym and its associated routines offered not only structure but symbolic healing. PEDs enhanced this process, accelerating results and reinforcing the illusion of mastery over both the body and one's psychological state. Such compensatory strategies may reflect early internalizations of control as safety, particularly salient in adolescents navigating unstable or invalidating environments.

In addition, participants' narratives suggest the presence of self-discrepancy and objectification-based distress, as many experienced a constant tension between their current and idealized bodies. These discrepancies fueled obsessive thinking and emotional dysregulation, leading to cycles of guilt, hypervigilance, and ritualized behavior. The compulsive pursuit of muscularity or leanness, especially when interrupted by minor social deviations (e.g., a night of drinking, a cheat meal, a skipped workout), triggered feelings of regression and loss of identity. In this context, PEDs became both the tool and the trap:

they offered relief from distress while reinforcing the very anxieties they were used to suppress [27,71,81,84].

This paradox mirrors participants' broader struggle between autonomy and dependency. While PED use was narrated as an expression of control and determination, it also revealed how agency could become bound to the very mechanisms of performance culture. The illusion of choice—"I do this because it's my decision"—coexisted with a profound vulnerability to external ideals of success, masculinity, and desirability [26].

4.2. Gendered Experiences and Social Comparison

The findings of this study reveal distinct yet overlapping gendered experiences in how young individuals relate to their bodies and engage with PED use. Male participants frequently framed muscular development as a path to reclaim masculine status, often in response to early experiences of being overlooked, bullied, or deemed physically inadequate. For many, achieving a certain body type was not only about aesthetics but about gaining authority, recognition, and perceived dominance in both peer and online environments. PED use was thus rationalized as a necessary and even admirable step toward embodying strength and discipline—qualities traditionally associated with masculinity in Turkish and global contexts.

Female participants, in contrast, described subtler but equally intense pressures centered around achieving a narrowly defined "fit femininity." This ideal merged thinness with tone, emphasizing visibility without aggression, strength without masculinity. For young women, PEDs and supplement routines were often accompanied by restrictive eating, cardio rituals, and guilt over deviation. Many expressed a constant awareness of how their bodies would be evaluated, particularly through social media and a fear of losing control over a body that served as both personal and public currency. Unlike male users, who often described admiration and influence, female participants more often disclosed secrecy and shame, suggesting that social acceptance of PED use may remain gendered and stigmatized.

Gender also shaped the meaning of autonomy and protest. For male participants, PED use symbolized reclaiming denied masculinity and social authority—a means of embodying power and visibility in spaces where they felt overlooked. For females, it represented an effort to balance strength and attractiveness within conflicting standards of femininity. Thus, PED use became both resistance and conformity: a bid for control within norms that simultaneously constrained and defined them. This gendered duality underscores how autonomy in body modification is often negotiated within—rather than outside—existing cultural scripts.

These gendered dynamics reflect broader sociocultural patterns of algorithmic beauty norms, performance culture, and internalized social comparison, all of which are amplified in digital spaces. The pursuit of the ideal body, lean, fit, and aesthetically curated was framed by both genders as a form of competitive self-display, yet the stakes and expectations differed. While males more often sought expansion (bigger, stronger), females emphasized balance (slim, shaped), underscoring the gender-specific anxieties and aesthetic scripts that shape PED use trajectories. In both cases, the body emerged as a medium through which visibility, worth, and agency are negotiated.

4.3. Secrecy, Autonomy, and Agency

A central tension in the narratives was the role of secrecy not merely as concealment, but as a mechanism of autonomy and self-possession. Participants rarely described their PED use as driven by rebellion for its own sake. Rather, secrecy appeared as a protective boundary, a way to retain control over a practice that was deeply personal, emotionally

charged, and difficult to explain within traditional frameworks of adolescent behavior. This secrecy allowed individuals to sustain a private world where progress, discipline, and bodily change were on their own terms, away from parental oversight, institutional judgment, or peer interference.

This concealment, however, was double-edged. While it enabled self-governance and uninterrupted commitment to transformation, it also limited opportunities for support, reflection, and alternative coping strategies. Many participants expressed ambivalence, acknowledging that their use might not be "healthy," but simultaneously resisting any external intervention. This resistance often stemmed from a belief that outsiders parents, teachers, even health professionals would misunderstand or dismiss the emotional logic behind their use. In this way, secrecy served as both a defense mechanism and a declaration of personal agency.

Beyond concealment, participants' narratives revealed that secrecy and bodily control operated as acts of self-assertion and symbolic protest. PED use was often described as a way to reclaim agency in environments perceived as restrictive—whether within families, schools, or broader cultural expectations. For some, enhancing the body served as resistance against feelings of social invisibility or failure, transforming marginalization into mastery. Yet, this autonomy was ambivalent: the very practices that provided a sense of freedom simultaneously deepened dependency on external validation and bodily maintenance.

The narratives further suggest that PED use operates as a form of symbolic protest, particularly among youth who feel disillusioned, overlooked, or trapped in broader societal expectations. For some, the enhanced body was a way to rewrite personal narratives of failure or invisibility. For others, it became a rebellion against academic pressures, economic limitations, or familial disappointment. The muscular or aesthetic ideal was not always about beauty or performance per se, but about taking control where control had otherwise been denied. In this context, the use of PEDs represents not just risk behavior, but a calculated, emotionally grounded response to psychosocial constraints, a way of asserting visibility, worth, and narrative authorship in a culture that offers few alternatives for embodied self-empowerment.

4.4. Cultural Specificity and Socioeconomic Context

The psychological functions of PED use among adolescents and emerging adults in this study cannot be fully understood without acknowledging the cultural and socioeconomic context in which they unfold. Türkiye presents a unique intersection of traditional familial structures, rapid urbanization, and the increasing influence of globalized aesthetic ideals. Participants navigated these tensions by adopting practices—such as PED use—that allowed them to symbolically reconcile Westernized body norms with local expectations around discipline, success, and appearance. The gym emerged as a modern arena for visibility, progress, and escape—particularly in urban centers like Istanbul, where global fitness culture merges with class mobility aspirations.

Socioeconomic factors shaped not only access to PEDs but also the meanings attributed to them. For some participants, the ability to sustain supplement routines, protein-heavy diets, and training schedules was a marker of financial capacity, effort, and superiority. In contrast, others viewed PED use as a shortcut or necessity when resources were limited—offering faster results in highly competitive environments. This duality reflects broader class-based dynamics, where appearance becomes a compensatory or aspirational strategy in a society that increasingly rewards performative success and polished presentation.

Moreover, silence around PED use—particularly among youth—mirrors a wider societal reluctance to engage with body image distress, emotional vulnerability, or mental health needs in non-pathological populations. Discussions around appearance-enhancing drug use are often confined to extreme cases or adult athletic contexts, leaving adolescents unsupported in their struggles. The absence of public discourse, combined with aesthetic saturation via social media, fosters an underground normalization of PED use that is rarely addressed in schools, clinics, or family systems. In this way, the behavior remains culturally invisible while being psychologically central.

These findings call attention to the urgent need for culturally grounded, youth-specific approaches that address the symbolic and emotional weight of body modification practices—not merely their physical risks. Without such frameworks, efforts to prevent or reduce PED use risk missing its deeper developmental, cultural, and identity-related significance.

4.5. Implications for Clinical Practice, Prevention, and Policy

The findings underscore the need for developmentally informed and psychologically grounded approaches to PED use among adolescents and emerging adults. Rather than framing the behavior solely as a health risk or deviant act, interventions should acknowledge its roots in emotional regulation, identity construction, and social adaptation. Prevention efforts that rely on fear-based or moral messaging often fail to resonate with youth who experience PED use as a pathway to control and self-worth. Clinicians and educators should instead approach this behavior with empathy and curiosity, seeking to understand the underlying emotional logic rather than condemning the visible act.

In clinical contexts, practitioners working with appearance-focused or compulsive exercisers should routinely assess for covert PED use as part of broader explorations of self-esteem, coping, and belonging. Conversations must remain non-stigmatizing, particularly when secrecy serves as a defense against shame or loss of autonomy. Psychotherapeutic work should target the emotional narratives—invisibility, failure, and inadequacy—that sustain PED use and link body image distress to deeper identity conflicts.

From a preventive perspective, schools and community programs should emphasize emotional literacy, media literacy, and body acceptance, providing safe forums where young people can discuss appearance pressures and self-worth. Gender-responsive initiatives that challenge narrow ideals of masculinity and femininity without reinforcing binaries may serve as protective factors.

At a broader level, policy measures such as improved supplement regulation and responsible digital marketing can complement—but not replace—psychologically focused interventions. Sustainable impact will depend on recognizing that PED use among youth is not merely a behavioral risk, but a developmental response to emotional and cultural pressures that demand understanding rather than judgment.

4.6. Limitations

While this study offers valuable insight into the psychological dynamics of PED use among adolescents and emerging adults in Türkiye, several limitations should be acknowledged.

The sample—although modest in size—is consistent with qualitative designs that privilege depth and richness of meaning over numerical representation. Its relative homogeneity, drawn primarily from urban gym-goers with digital access, naturally confines the scope of interpretation to similar sociocultural settings. Rather than aiming for statistical generalizability, the study seeks transferable understanding that readers may relate to comparable contexts.

The reliance on self-reported narratives introduces potential recall and social-desirability biases, although the semi-structured format encouraged openness and reflexivity. The cross-sectional design further limits insights into developmental change, as participants reflected on past and current experiences rather than longitudinal trajectories.

Because no structured diagnostic screening was conducted, undiagnosed emotional difficulties—such as anxiety, low self-esteem, or perfectionism—may have influenced participants' motivations for PED use.

Finally, while the cultural focus on Türkiye provides valuable contextual and cultural depth, it also constrains cross-cultural transferability. Future comparative studies should examine how differing aesthetic ideals, gender norms, and family structures shape PED engagement across societies.

Furthermore, research on PED use faces unique methodological constraints due to the sensitivity of the topic. As Settanni et al. highlight [84], issues such as social desirability bias and perceived threat of disclosure can compromise data validity, as participants may minimize or conceal illicit behaviors even in confidential settings. These dynamics are particularly relevant in studies involving adolescents and emerging adults, where stigma, fear of judgment, and mistrust toward institutional oversight can limit full disclosure. Although anonymity and rapport were emphasized throughout data collection, the possibility of underreporting PED use or related emotional experiences cannot be ruled out. Consequently, the findings should be interpreted as reflecting participants' disclosable narratives rather than exhaustive accounts of their behavior.

4.7. Future Research Directions

Building on the current findings, future research should aim to extend, deepen, and diversify our understanding of PED use in youth populations. One key direction involves the quantitative validation of psychological constructs that emerged from this study, such as emotional regulation through bodily transformation, identity fusion with the enhanced body, or the symbolic role of secrecy. The development of psychometric tools capturing these constructs could facilitate larger-scale surveys and more precise risk assessments in clinical and educational contexts.

Longitudinal studies are also critically needed to explore how patterns of PED use evolve over time. Investigating the developmental trajectory from early insecurity and body image concerns to potential dependence, cessation, or psychological burnout would provide insight into when and how interventions could be most effective. Such studies could track the interaction between PED use and variables like mood regulation, peer relationships, academic functioning, and digital exposure.

Another promising direction involves expanding the sample to include underrepresented groups, such as LGBTQ+ youth, individuals from lower socioeconomic backgrounds, or those who engage in PED use outside of gym environments (e.g., home-based users influenced by online fitness culture). These populations may experience different forms of vulnerability or social pressure, which remain understudied in the existing literature.

Cross-cultural comparisons would also enhance the global relevance of these findings. Investigating how PED use is shaped by varying beauty standards, family dynamics, and healthcare access across countries could reveal both universal patterns and culturally specific drivers. In particular, comparisons between Western and non-Western contexts may uncover unique stressors and coping models relevant to local youth populations.

Finally, future research should explore intervention acceptability and responsiveness, testing what kinds of prevention, support, and therapeutic messaging resonate with youth who see their PED use not as pathology but as a means of self-construction. Studies that

foreground adolescents' own voices in designing and evaluating interventions will be essential in bridging the gap between risk reduction and developmental support.

5. Conclusions

This study offers a psychologically nuanced and culturally situated account of performance-enhancing drug (PED) use among adolescents and emerging adults in Türkiye. Rather than viewing PED use as a simple risk behavior or form of physical vanity, the findings reveal it as a deeply embedded strategy for navigating emotional distress, identity insecurity, and social invisibility. For many participants, the body became a battleground for self-worth, a canvas for control, and a means of achieving recognition in a world that often felt indifferent or hostile.

The six emergent themes underscore how PED use intersects with developmental needs for autonomy, belonging, and self-definition. These behaviors are not easily reduced to pathology or deviance; they are embedded within broader cultural scripts around appearance, performance, and gender. Secrecy, obsession, and ambivalence coexisted with pride, progress, and empowerment—highlighting the psychological ambivalence that characterizes many youth health behaviors.

Ultimately, this research calls for a shift in how clinicians, educators, and policymakers approach PED use in youth. Recognizing its emotional and symbolic significance allows for more compassionate, developmentally attuned, and culturally relevant interventions. Addressing the underlying vulnerabilities—rather than simply condemning the visible behavior—may offer a more sustainable path toward well-being and self-acceptance.

Supplementary Materials: The following supporting information can be downloaded at: https://www.mdpi.com/article/10.3390/adolescents5040063/s1, File S1: Consolidated Criteria for Reporting Qualitative Research (COREQ) Checklist; File S2: Interview Protocol: title; File S3: Saturation Documentation; File S4: Thematic Codebook.

Author Contributions: M.Ç., E.Y. and E.N.A. collaboratively designed the study and developed the interview protocol. E.Y. coordinated recruitment and supervised data collection. M.Ç. conducted the interviews, transcribed the data, and led the initial coding. E.Y. reviewed and refined the thematic analysis. E.N.A. contributed clinical insight and helped interpret the findings from a medical and developmental perspective. M.Ç. drafted the manuscript, which was critically revised and approved by E.Y. and E.N.A. All authors have read and agreed to the published version of the manuscript.

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Institutional Review Board Statement: This study was approved by the Institutional Review Board for Social Sciences of İstanbul Nişantaşı University (protocol code SOSETKK2025-02 and 7 February 2025 of approval), and all procedures complied with the ethical standards of the Declaration of Helsinki.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The original contributions presented in this study are included in the article and Supplementary Materials. Further inquiries can be directed to the corresponding author.

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Abbreviations

PED	Performance Enhancing Dru
AAS	Anabolic Androgenic Steroid
BDD	Body Dysmorphic Disorder
IGF1	Insulin Like Growth Factor 1
SARMs	Selective Androgen Receptor Modulators
hGH	Human Growth Hormone
MS	Teams Microsoft Teams
MD	Muscle Dysmorphia

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