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ERECTILE DYSFUNCTION IN UZBEKISTAN: EPIDEMIOLOGY, RISK FACTORS, AND MODERN TREATMENT APPROACHES

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Qo'ldoshev Shoxrux Shavkat o'gli
3rd-year student, Faculty of General Medicine No.1, TDTU, Tashkent, Uzbekistan, Researcher, shoxruxhac@gmail.com , https://orcid.org/0009-0001-8930-550X
Shamsuddinov Yorqin Muzaffarovich
4th-year student, Faculty of General Medicine No.1, TDTU, Tashkent, Uzbekistan, Researcher, shamsuddinovyorqin7@gmail.com , https://orcid.org/0009-0005-8471-3503
Scientific Advisor:
Salihov Mirilhom Usmonovich
Senior Lecturer, Department of Propaedeutics of Internal Diseases, Tashkent State Medical University, leading researcher and educator in the medical field.

Abstract

Erectile dysfunction is one of the most common, multifactorial, and clinically significant disorders of men's health. It not only reduces the quality of sexual life but also often manifests as an early clinical sign of cardiovascular, endocrine, metabolic, and psychogenic problems. The purpose of this literature review is to systematize the available scientific evidence on erectile dysfunction in Uzbekistan, highlight epidemiological gaps, identify key risk factors, and analyze modern treatment approaches based on scientific evidence. The analysis shows that while local literature contains some clinical observations and methodological works on ED, standardized nationwide epidemiological studies are still insufficient. International guidelines recommend a stepwise approach to diagnosing and treating ED, including lifestyle modification, PDE5 inhibitors, vacuum devices, intracavernosal therapy, and penile prostheses. Therefore, in the context of Uzbekistan, early detection of ED, active management of risk factors, and the implementation of a multidisciplinary clinical model remain priority directions.

Keywords

erectile dysfunction, risk factors, diabetes, cardiovascular diseases, PDE5 inhibitors, vacuum therapy, penile prosthesis

Introduction

Erectile dysfunction is a clinical condition characterized by the persistent difficulty in achieving or maintaining an erection sufficient for satisfactory sexual

intercourse [11,13,21]. According to current views, ED is not a separate local problem but often manifests as a clinical "signal" of vascular endothelial dysfunction, diabetes, arterial hypertension, dyslipidemia, obesity, hormonal imbalances, and psychological stress [11–13,21–25]. The EAU guidelines recommend considering ED not as a "disease" but rather as a "symptom" for a good reason: it often reveals an underlying, latent somatic pathology [12].

The relevance of this topic in the context of Uzbekistan is heightened for two reasons. First, local sources particularly emphasize the lack of reliable, nationally representative epidemiological data on ED [1–4]. Second, the burden of risk factors associated with ED, such as diabetes, metabolic syndrome, obesity, smoking, and psycho-emotional stress, is high in the country, which provides a basis for assuming that the burden of ED will increase in the coming years [1,4,8–10]. Therefore, it is necessary to consider this topic not only from a urological perspective but also at the intersection of public health, cardiology, endocrinology, and psychology.

Results

1. Epidemiological Situation in Uzbekistan

Analysis of local literature indicates that the main problem concerning ED in Uzbekistan is the lack of precise statistical data. A 2025 methodological paper notes the absence of reliable epidemiological data on ED in Uzbekistan, attributing this to the lack of validated questionnaires and large-scale screening approaches [1]. Works from 2025 on adapting and validating the IIEF for the Uzbek context are specifically aimed at filling this gap [2,3]. Therefore, for now, the epidemiology of ED in Uzbekistan must be assessed not through precise national indicators but through available clinical observations and the spectrum of risk factors [1–4].

Nevertheless, some clinical observations yield important results. In a study by Ashurmetov conducted among inpatients, 648 questionnaires were analyzed, and ED symptoms were identified in 587 cases, i.e., 90.6% of cases [7]. While this figure does not represent the general population, as the sample included hospitalized men with comorbid conditions, it nevertheless shows that ED is quite common in clinical practice and highlights the need for active screening [7]. The author also notes that many patients in Uzbekistan are not specifically asked about ED, and in some cases, they may be managed for years under other diagnoses [7].

Local reviews note that the frequency of ED increases with age, with the risk sharply rising, especially after the age of 40 [6,10]. Another local study found that among urological patients over 40 years old with voiding disorders and ED, 55.6% had circulatory disorders in the iliac arteries; this indicates the importance of the vascular factor in Uzbek clinical practice as well [9]. Therefore, it is scientifically

and practically correct to view ED not just as a "sexual problem" but as a marker of vascular-metabolic risk [1,7,9,10].

2. Key Risk Factors

Foreign and local literature confirm the multifactorial nature of ED. The EAU guidelines list diabetes mellitus, metabolic syndrome, hypogonadism, chronic renal and hepatic failure, neurological diseases, pelvic organ surgery, radiotherapy, and psychogenic factors as significant etiological blocks [12]. The StatPearls source emphasizes that ED is closely associated with cardiovascular diseases, diabetes mellitus, hyperlipidemia, and arterial hypertension [13].

Diabetes is one of the most powerful risk factors. A 2024 meta-analysis showed that the burden of ED in the diabetic population is very high, with some estimates suggesting that nearly two-thirds of patients experience ED [14]. Another 2024 study noted age, smoking, medications, education level, and other clinical factors as significant determinants of ED in the context of diabetes [15]. Local sources also consider ED in men with type 2 diabetes as a separate clinical problem; some works note the lack of data on the prevalence of ED in Uzbekistan and that ED in the context of diabetes requires more attention in clinical practice [8,10].

Obesity, physical inactivity, and metabolic syndrome are also of great importance. According to EAU data, a decrease in BMI and regular physical activity can improve erectile function [12]. A 2024 systematic review shows a positive effect of physical activity on ED; although there are differences regarding the type and intensity of exercise, the overall trend is positive [16]. NIDDK and the NHS also recommend healthy eating, weight control, smoking cessation, and stress reduction as primary conservative measures [21–23].

Psychogenic factors should not be underestimated. According to NIDDK data, anxiety, stress, and other psycho-emotional factors can exacerbate ED or manifest as an independent cause [22]. The NHS also notes the role of stress, fatigue, and alcohol in the case of occasional erection problems [23]. In this regard, stigma in Uzbekistan, late consultation of men with doctors, and limited open communication about sexual health may negatively affect the early diagnosis of ED; this conclusion aligns with the emphasis on the need for screening in local methodological works [1–3].

2. Modern Diagnostic Approaches

Modern guidelines advocate a stepwise approach to diagnosing ED. According to EAU, the first step is gathering a detailed medical and sexual history, followed by physical examination and the use of validated questionnaires, including IIEF or SHIM [12]. If necessary, hormonal evaluation, metabolic screening, blood pressure measurement, lipid profile, and glucose assessment are

recommended [12,21,22]. NIDDK also indicates that history, physical examination, and laboratory tests are the basis for an accurate diagnosis [21].

This point is particularly relevant for Uzbekistan. Local articles from 2025 highlight the cultural and ethical adaptation of the IIEF into Uzbek, as well as its validation for clinical use, as an important step [2,3]. This means that the methodological groundwork is being laid for conducting multicenter, standardized epidemiological studies on ED in Uzbekistan in the near future [1–3].

3. Modern Treatment Approaches

The main principle of treatment is managing the complex of causes, not just the symptom. NIDDK and EAU sources cite lifestyle modification: smoking cessation, alcohol restriction, increased physical activity, weight normalization, and rational nutrition as necessary components of the first step [12,22,23]. Therefore, ED therapy should include elements of cardiometabolic rehabilitation before pharmacological prescription.

PDE5 inhibitors are recognized as first-line treatment [12,17]. NIDDK notes that they improve penile blood flow [22]. EAU specifies that PDE5 inhibitors do not significantly impair exercise tolerance in men with stable angina but are an absolute contraindication in patients receiving organic nitrates or nitric oxide donors [12]. A 2025 meta-analysis showed that PDE5 inhibitors are effective and relatively safe in diabetic ED, but individual differences and side effects must be considered [17].

If a patient has hypogonadism, correction of testosterone deficiency may be beneficial in combination with PDE5 inhibitors [11,22]. Local sources report some clinical improvements with long-term use of L-arginine [6], but it would be more appropriate to evaluate this method not as standard first-line therapy but as an adjunctive approach in individual cases. Similarly, local reviews on Tribulus terrestris discuss its phytotherapeutic potential, but the clinical evidence is heterogeneous and limited [10].

Second- and third-line approaches include vacuum erectile devices, intracavernosal agents, and surgery. NIDDK describes vacuum devices as a practical method that requires practice and adaptation [22]. A 2025 systematic review indicates that vacuum devices may be beneficial in refractory ED [18]. For severe or refractory cases, penile prostheses remain an effective option; EAU notes their high long-term viability and patient satisfaction but mentions infection and mechanical failure as main complications [12]. 2025 reviews also associate penile prostheses with high satisfaction [19,20].

Regenerative methods – PRP, stem cell therapy, and other biological technologies – are generating scientific interest. However, according to EAU

guidelines, evidence for PRP is currently insufficient for a clinical practice recommendation; regarding stem cell injections, although initial safety data are positive, no firm conclusions on efficacy can be drawn [12]. 2025 reviews also evaluate these approaches as "promising, but still experimental" [19].

Discussion

The analysis results indicate that tackling the ED problem in Uzbekistan requires a three-step approach. The first step addresses the epidemiological gap. While ED is recognized as an existing and relevant problem in the local scientific space, its prevalence in the general population, age gradient, and regional differences have not yet been measured with sufficient accuracy [1–4]. Therefore, the most important scientific task at this stage is to launch a multicenter, representative national study based on the validated IIEF-5, stratified by age and comorbid conditions [1–3].

The second step concerns the high concentration of risk factors. Local and international evidence shows that diabetes, metabolic syndrome, obesity, vascular pathology, smoking, and psychogenic factors play a central role in ED [9,12–16]. This indicates that combating ED in Uzbekistan should not be confined solely to a urological problem. Instead, a multidisciplinary model involving family physicians, endocrinologists, cardiologists, and psychologists would be more effective [12,13,21,22].

The third step involves disparities in treatment. Based on available evidence, a standard, stepwise algorithm is clear: risk factor modification → PDE5 inhibitors → VED/intracavernosal therapy → penile prosthesis [12,17,18,20,22]. Nevertheless, local observations note that some patients may receive incorrect or insufficient treatment for a long time [7]. This indicates a need to localize clinical protocols, retrain physicians, and reduce the level of stigma surrounding sexual health [1,7].

Practical Problems and Their Solutions

1. Insufficient precise epidemiological data on erectile dysfunction in Uzbekistan

Currently, reliable statistical data on the overall prevalence of erectile dysfunction, age group differences, regional indicators, and risk groups in Uzbekistan are not sufficiently developed. This makes it difficult to assess the true scale of the problem and negatively impacts planning within the healthcare system. If the actual frequency of the disease is not known, it is difficult to properly organize prevention, early detection, and treatment measures [1-3].

To solve this problem, it is necessary, first of all, to create a national registry for erectile dysfunction. Such a registry would systematically collect patient data and monitor the prevalence and dynamics of the disease. The second important direction is the implementation of multicenter screening programs, meaning

examinations conducted using the same criteria, not in just one hospital or region, but across different regions of the republic. Thirdly, the validated Uzbek version of IIEF-5 should be widely introduced into practice, as it is difficult to assess a patient's condition using the same criteria without a standardized and adapted questionnaire. Furthermore, targeted screening is recommended in primary care, especially among men over 40, aiding in early detection and prevention of complications [1-3].

2. Erectile dysfunction is often detected only when the patient complains

In practice, erectile dysfunction is often only inquired about if the patient himself mentions the problem. However, not all men are ready to speak openly about this topic. Some patients are embarrassed, some think the condition is temporary, and others do not tell the doctor at all. As a result, ED may go undetected for a long time. This not only reduces the quality of sexual life but also leads to delayed detection of underlying problems such as diabetes, cardiovascular diseases, or metabolic syndrome that may be behind it [7,12,13]. Therefore, erectile dysfunction needs to be actively sought, not just based on complaints. Men with diabetes, hypertension, obesity, dyslipidemia, smoking habits, and physical inactivity are at particularly high risk. Doctors should regularly assess erectile function in such patients using a brief, standardized questionnaire. This approach allows for early detection of ED. Furthermore, it is important to recognize ED not just as a sexual problem but as an early sign of cardiovascular risk, as many studies show that erectile dysfunction is associated with deteriorating vascular health [7,12,13]. Thus, when ED is detected, a more in-depth assessment of cardiometabolic risk is necessary.

3. High probability of incorrect or dangerous medication use

In practice, some men try to self-treat erectile dysfunction without consulting a doctor. They may trust online advertisements, take medication based on a friend's recommendation, or purchase products of unknown composition. This approach is dangerous because medications used for ED, particularly PDE5 inhibitors, are not suitable for all patients equally. Incorrect use in some cases can lead to serious side effects [12,22].

Therefore, PDE5 inhibitors should only be prescribed after a clinical evaluation. The patient's cardiovascular status, other medications they are taking, blood pressure, general health, and contraindications must be checked. The use of PDE5 inhibitors is strictly prohibited in patients taking nitrates, as this can cause a sharp drop in arterial blood pressure and life-threatening conditions [12,22]. Additionally, public education efforts regarding uncontrolled preparations sold online, dietary

supplements, and "quick-acting" products need to be strengthened. Thus, not only clinical control but also medical education is crucial in this area [12,22].

4. Misguided expectations regarding modern invasive and regenerative methods

Currently, much information is circulating about vacuum erectile devices, penile prostheses, PRP, stem cell therapy, and other modern methods for treating erectile dysfunction. However, patients often perceive these methods as an overly idealized, quick, and guaranteed solution. In reality, each of these methods has specific indications, limitations, and levels of evidence. Not every method is suitable for every patient, and some methods have not yet been fully approved as standard treatment [12,18-20].

Therefore, it is necessary to provide patients with realistic, scientifically sound, and understandable information about each method. For example, vacuum erectile devices may be beneficial for some patients, but their use requires training. Penile prostheses are effective for severe, medication-refractory cases, but being a surgical approach, they also carry risks and complications. Regenerative methods, including PRP and stem cell therapy, although currently evaluated as promising, do not yet have sufficient evidence for routine recommendation to all patients [12,18-20]. Hence, such methods should be considered only within research settings, or in strictly selected patients under the supervision of an experienced specialist. The most important thing is not to create unfounded hope in the patient but rather to honestly explain the possibilities and limitations of the method.

Proposed Treatment Algorithm

A stepwise approach is considered optimal for treating erectile dysfunction. Initially, the patient undergoes assessment including history, IIEF-5/SHIM, blood pressure measurement, body mass index, glucose or HbA1c, lipid profile, testosterone level, and psychological status [1-3,12,21,22]. Subsequently, lifestyle modification measures such as smoking cessation, weight reduction, increased physical activity, stress management, and management of comorbid diseases are recommended [12,16,21-23]. In the absence of contraindications, PDE5 inhibitors, including sildenafil, tadalafil, vardenafil, and avanafil, are used as first-line pharmacotherapy [11,12,17,22]. If hypogonadism is detected, correction of testosterone status is considered [11,12]. In cases where oral medications are insufficiently effective, a vacuum erectile device or intracavernosal alprostadil is recommended [12,18,22]. For refractory severe cases unresponsive to other methods, a penile prosthesis is used as an effective third-line option [12,19,20]. PRP, stem cell, and other regenerative approaches are not yet part of standard practice and should mainly be considered within the framework of clinical trials [12,19].

Furthermore, prescribing PDE5 inhibitors is strictly prohibited in patients taking nitrate medications [12,22].

Conclusion

Erectile dysfunction remains a problem with a significant impact on men's health in Uzbekistan, yet it is currently insufficiently studied [1-4]. Although existing local research indicates the presence of a scientific gap in this area, recent work aimed at adapting assessment criteria and implementing standardized approaches is creating an important foundation to fill this gap [1-3]. International scientific evidence demonstrates the necessity of evaluating erectile dysfunction not merely as a sexual dysfunction but as a multifactorial clinical condition inextricably linked to diabetes, metabolic syndrome, cardiovascular diseases, obesity, smoking, and psychogenic factors [11-17]. Therefore, effective management of ED should not be limited to symptom relief but must rely on early identification of underlying causes, risk factor reduction, promotion of healthy lifestyle habits, and the application of evidence-based, stepwise treatment [12,17-20,22]. Most importantly, erectile dysfunction should be viewed not as a narrow clinical problem but as a significant indicator reflecting a man's overall somatic, psychological, and social health. Only such an approach can transform this problem in Uzbekistan from a latent and late-diagnosed condition into a public health issue focused on early diagnosis, effective prevention, and practical outcomes.

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