

A Multidimensional Analysis of Erectile Dysfunction Etiology: The Interplay of Lifestyle, Comorbidity, and Age

James Success Odubia^{1*}, Comfort Ifeoluwa Olalere¹, Chidera Miracle Ukanwa², Lois Moyoyinoluwa Ogunjinmi², Fathia Oluwafunmilayo Adesina², Marvelous Oyeboade Oyedirani³, Oluwasola James Adeoti¹

¹Department of Health Promotion and Education, Faculty of Public Health, College of Medicine, University of Ibadan, Ibadan, Nigeria

²Department of Community Medicine (Reproductive and Family Health), Faculty of Public Health, College of Medicine, University of Ibadan, Ibadan, Nigeria

³Department of Environmental Health Sciences, Faculty of Public Health, College of Medicine, University of Ibadan, Ibadan, Nigeria.

*Correspondence e-mail: odubia.james@gmail.com

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Abstract

Background: Erectile dysfunction (ED) is increasingly recognised as a multifactorial condition that extends beyond the traditional narrative of age-related decline, reflecting the intersection of vascular, metabolic, psychological, and socio-behavioural determinants. Despite its high prevalence affecting nearly half of men over 40 ED remains underdiagnosed and undertreated, particularly in low-resource settings where cultural stigma and inadequate healthcare access exacerbate the burden. This review sought to critically examine the impact of lifestyle behaviours, comorbid conditions, and demographic factors on the etiology and progression of ED.

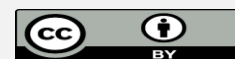
Methods: Following Arksey and O'Malley's scoping review framework, a systematic search was conducted across PubMed, PsycINFO, MedLine, and Embase Ovid for studies published between 2012 and 2024. Out of 2,000 records, 12 primary research articles met the inclusion criteria of examining ED in relation to obesity, hypertension, diabetes, lifestyle factors, and age. Data were synthesised thematically and appraised using the CASP checklist.

Findings: Findings reveal significant heterogeneity: prevalence rates ranged from 19.3% to 77.9%, with higher risk consistently associated with diabetes, cardiovascular disease, obesity, smoking, and sedentary behaviour. Age emerged as a dominant but insufficient explanation, as ethnicity, socioeconomic status, and lifestyle mediated outcomes. Notably, treatment rates lagged far behind prevalence, highlighting persistent stigma and limited integration of ED management into broader health services.

Conclusion: In conclusion, ED is best understood as a multidimensional condition shaped by biological, behavioural, and sociocultural forces. Addressing it requires not only pharmacological interventions but also targeted lifestyle modifications, early screening, and the dismantling of barriers to open discussion within healthcare systems.

Keywords: Erectile Dysfunction; Lifestyle Factors; Comorbidities; Obesity; Hypertension; Diabetes Mellitus; Ageing; Men's Health; Quality of Life; Scoping Review.

Keywords: Erectile Dysfunction, Lifestyle Factors, Comorbidities, Men's Health



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1. Introduction

Erectile dysfunction (ED) (as depicted in figure 1) is formerly referred to as impotence is a chronic disorder marked by the recurrent failure to obtain or maintain an

erection adequate for sexual activity, usually persisting for at least six months (Munee et al., 2014). The condition is most prevalent in men over forty, with both advancing age and the presence of chronic illnesses contributing to its

rising incidence (Shamloul & Ghanem, 2013). Research indicates that nearly half of men in this age group report some form of ED, which may present as reduced arousal, impaired ejaculation, or diminished sexual desire (Ismail, 2022). Clinicians typically distinguish between **primary ED**, in which erectile difficulties are present from the beginning of sexual life, and **secondary ED**, which develops after a period of normal function (Rew &

Heidelbaugh, 2016). Importantly, the origins of ED are not limited to a single pathway; instead, they stem from a complex interaction of vascular abnormalities, neurological deficits, metabolic and cardiovascular diseases, infections, inflammatory responses, structural issues, and side effects of medical interventions (Ismail & Hamed, 2023).

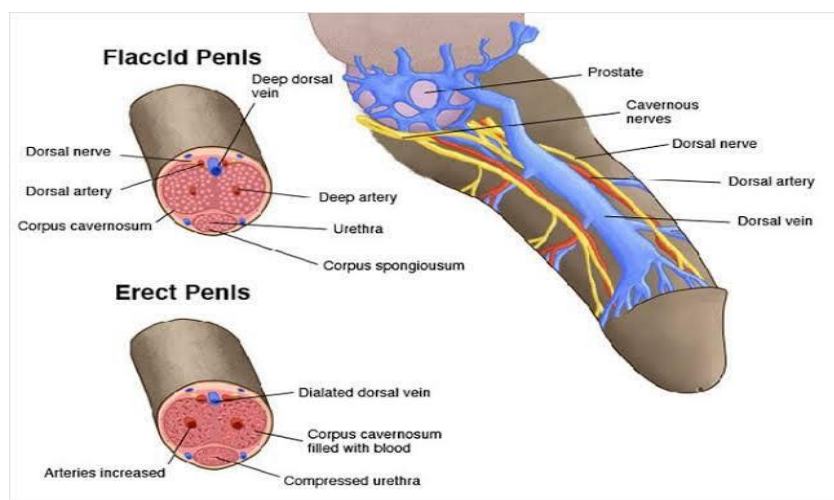


Figure 1: Diagram of Erectile Dysfunction (The University of California., 2024).

A number of health conditions are strongly implicated in the onset of erectile dysfunction (ED). Atherosclerosis and obesity, for instance, disrupt vascular integrity and interfere with neural signalling, thereby undermining erectile capacity (Aita et al., 2019). Additional contributors include neurological trauma, endocrine disturbances, and the side effects of certain therapeutic agents (Aita et al., 2019). Contemporary lifestyle patterns marked by physical inactivity, obesity, and lower urinary tract symptoms exacerbate these risks, particularly when compounded by hypertension and diabetes (Barbonetti et al., 2020). Among these factors, vascular disease is consistently highlighted as the most prominent determinant of ED in men over the age of forty (Yafi et al., 2017). Yet despite such evidence, ED remains shrouded in misconceptions: many men perceive it as shameful, while broader society often downplays its significance, treating it as uncommon or trivial. Cultural attitudes toward sexuality in later life, coupled with uneven access to sexual health services, further obstruct timely diagnosis and treatment. Against this backdrop, the present study seeks to disentangle these dynamics by critically analysing ED across different clinical and sociocultural settings.

The role of comorbid conditions in shaping ED severity cannot be overstated. Diabetes mellitus is particularly significant, as chronic hyperglycaemia impairs both vascular and neural function, with roughly half of diabetic men affected by ED (as seen in figure 2). Indeed, men with diabetes face nearly a threefold greater risk of developing ED compared to their non-diabetic counterparts (Aita et al., 2019). Cardiovascular pathology, especially atherosclerosis, further compromises penile blood supply and is implicated in up to 40% of ED cases among men above forty (Yafi et al., 2017). Hypertension exerts a similar vascular toll, while the use of some antihypertensive medications may intensify sexual dysfunction (Barbonetti et al., 2020). Likewise, obesity and associated hormonal dysregulation aggravate vascular damage and exacerbate both diabetes- and hypertension-related erectile problems (Aita et al., 2019). Collectively, these findings reinforce the need for a multifaceted management approach that addresses comorbidities alongside the sexual symptoms themselves.

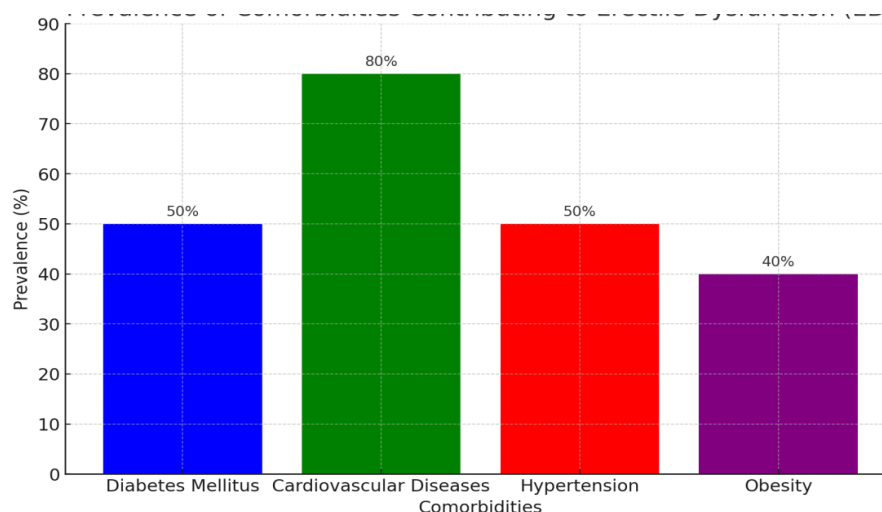


Figure 2: Prevalence of comorbidities contributing to erectile dysfunction (ED) (Computed from the study of (Yafi et al., 2017; Barbonetti et al., 2020))

Obesity, identified clinically by a body mass index (BMI) of 30 or above, represents one of the strongest predictors of erectile dysfunction (ED). Its influence operates through multiple pathways: excess body fat is often accompanied by reduced testosterone, which diminishes sexual desire and complicates erectile response (Aita, 2019). In addition, obesity accelerates atherosclerotic changes in penile blood vessels, narrowing and stiffening the arteries that supply erectile tissue. Chronic inflammation triggered by adiposity further damages vascular integrity and impairs erectile performance (Aita et al., 2019). These mechanisms highlight why obesity should be regarded not simply as a cofactor but as a central target in ED prevention and therapy, demanding integrated interventions that combine hormonal, vascular, and behavioural strategies.

Hypertension exerts a similarly destructive effect on sexual health. Persistent elevation of blood pressure places continuous stress on arterial walls, raising the risk of cardiac events while also disturbing penile circulation. Pharmacological treatment complicates the picture: several antihypertensive agents have been linked with reduced erectile capacity (Barbonetti et al., 2020). Moreover, high blood pressure induces endothelial dysfunction, impairing the ability of vessels to dilate and thereby weakening erections. Men with hypertension face approximately 50% higher odds of ED compared to normotensive men. For this reason, careful blood pressure regulation, alongside adjustments in medication regimens to minimise sexual side effects, is essential for maintaining both cardiovascular and reproductive well-being.

Lifestyle practices further shape the likelihood and course of ED. Excessive alcohol consumption damages vascular structures, disrupts neuroendocrine balance, and has been linked to erectile impairment in up to 70% of dependent users (Aita et al., 2019). Poor dietary patterns that promote obesity and diabetes compound the problem, whereas diets rich in fruits, vegetables, and whole grains have protective effects. Smoking remains another leading risk factor, as it accelerates vascular injury and reduces penile blood inflow, directly undermining erection quality (Johannes et al., 2005). Thus, lifestyle modification through improved nutrition, smoking cessation, and sustained physical activity should be seen not as optional but as a cornerstone in the management of ED.

Demographic influences, particularly age and ethnicity, also carry considerable weight in the epidemiology of ED. As depicted in Figure 3, the prevalence escalates with age, affecting nearly half of men between 40 and 70 years, largely due to vascular decline, hormonal changes, and the clustering of comorbidities such as diabetes and hypertension (Shamloul & Ghanem, 2013). Ethnic disparities further complicate the landscape: African American and Hispanic men display higher prevalence, a pattern shaped by genetic predispositions, cultural norms, and socioeconomic disadvantage (Aita et al., 2019). Low socioeconomic status (SES) often translates into restricted healthcare access, delayed diagnosis, and less effective treatment. Recognising the combined role of age, ethnicity, and SES is therefore crucial for tailoring public health

strategies and clinical interventions that address not only biological but also structural drivers of ED.

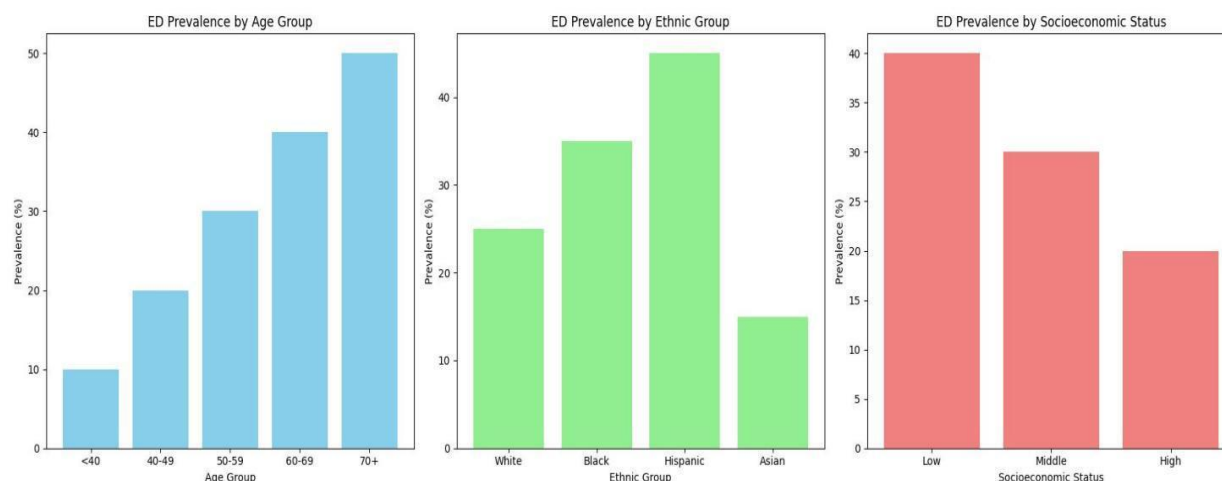


Figure 3: Prevalence and severity of erectile dysfunction (ED) (Computed from the study of Shamloul & Ghanem, 2013; Aita et al., 2019).

Research Aims

This scoping review aims to systematically explore and synthesise the existing literature on the impact of lifestyle factors, comorbidities, and age on erectile dysfunction (ED) from 2012 to 2024.

2. Methodology

This scoping review was conducted using the framework proposed by Arksey and O'Malley (2005), which provides a structured and transparent approach to synthesising existing evidence. The process unfolded in five sequential stages designed to ensure rigor and comprehensiveness. First, the research question was clearly defined to guide the scope of inquiry. This was followed by an extensive search for relevant literature across multiple databases. Retrieved studies were then screened and selected according to predetermined inclusion and exclusion criteria. The next step involved systematically charting key data from the eligible studies to capture essential details and patterns. Finally, the findings were collated, synthesised, and reported, enabling the review to critically map the multifactorial dimensions of erectile dysfunction (ED) and its links with medical comorbidities, lifestyle determinants, and demographic influences.

2.1 Exclusion and inclusion criteria

Search language: English

Time frame: 2012–2024

Publication types included: Academic and seminar papers

Excluded sources: Editorials, reviews, book chapters, and assessments

Factors not considered: Geographical context and open-access status

2.2 Search Strategy

A comprehensive search was conducted in several databases: PubMed, PsycINFO, MedLine, and Embase Ovid. Only articles published between 2012 and 2024 were considered to enhance the currency of the articles. Furthermore, only English-language publications were included. The search aimed to capture a wide range of material on the organisation and delivery of care for men with ED and comorbid conditions (Table 1).

2.3 Eligibility Criteria.

Type of publication: Journal articles

Time frame: 2012-2024

Language: English

Study population: Adults above 18

Comorbidities: Obesity, hypertension, and diabetes

Types of review articles: cross-sectional studies, primary research only

Table 1: Search strategy used in PubMed.

Search Component	Search Terms
Erectile Dysfunction and Obesity	(Erectile Dysfunction OR ED OR impotence) AND (Obesity OR overweight OR body mass index OR BMI) AND (Self-management OR Self Care OR Self-monitoring OR Service delivery OR Service organisation OR Quality Assessment OR Quality OR Quality Indicators OR Quality of life OR Disease Progression OR Behaviour OR Impact OR Severity of Illness OR Risk Factors OR Treatment outcome OR patient Experience))
Erectile Dysfunction and Lifestyle Choices	(Erectile Dysfunction OR ED OR impotence) AND (Lifestyle Choices OR diet OR exercise OR physical activity OR smoking OR alcohol consumption) AND (Self-management OR Self Care OR Self-monitoring OR Service delivery OR Service organisation OR Quality Assessment OR Quality OR Quality Indicators OR Quality of life OR Disease Progression OR Behaviour OR Impact OR Severity of Illness OR Risk Factors OR Treatment outcome OR patient Experience)
Erectile Dysfunction and Age	(Erectile Dysfunction OR ED OR impotence) AND (Age OR ageing OR elderly OR older adults OR middle-aged OR age-related changes) AND (Self-management OR Self Care OR Self-monitoring OR Service delivery OR Service organisation OR Quality Assessment OR Quality OR Quality Indicators OR Quality of life OR Disease Progression OR Behaviour OR Impact OR Severity of Illness OR Risk Factors OR Treatment outcome OR patient Experience)
Erectile Dysfunction and Hypertension	(Erectile Dysfunction OR ED OR impotence) AND (Hypertension OR high blood pressure) AND (Self-management OR Self Care OR Self-monitoring OR Service delivery OR Service organization OR Quality Assessment OR Quality OR Quality Indicators OR Quality of life OR Disease Progression OR Behaviour OR Impact OR Severity of Illness OR Risk Factors OR Treatment outcome OR patient Experience)
Erectile Dysfunction and Diabetes	(Erectile Dysfunction OR ED OR impotence) AND (Diabetes OR blood glucose self-monitoring OR hyperglycemia) AND (Self-management OR Self Care OR Self-monitoring OR Service delivery OR Service organization OR Quality Assessment OR Quality OR Quality Indicators OR Quality of life OR Disease Progression OR Behaviour OR Impact OR Severity of Illness OR Risk Factors OR Treatment outcome OR patient Experience))
Combined Search	#1 OR #2 OR #3 OR #4 OR #5

2.4 Selecting Studies and Data Charting

Figure 4 shows that about 2000 articles were found on PubMed, PsycINFO, MEDLINE and Embase Ovid. The PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) flowchart ensures a

transparent, systematic, and standardised approach to conducting literature reviews (Page *et al.*, 2021). This process guarantees the thorough documentation and selection of studies, thus reducing bias and enhancing reproducibility and transparency in reporting.

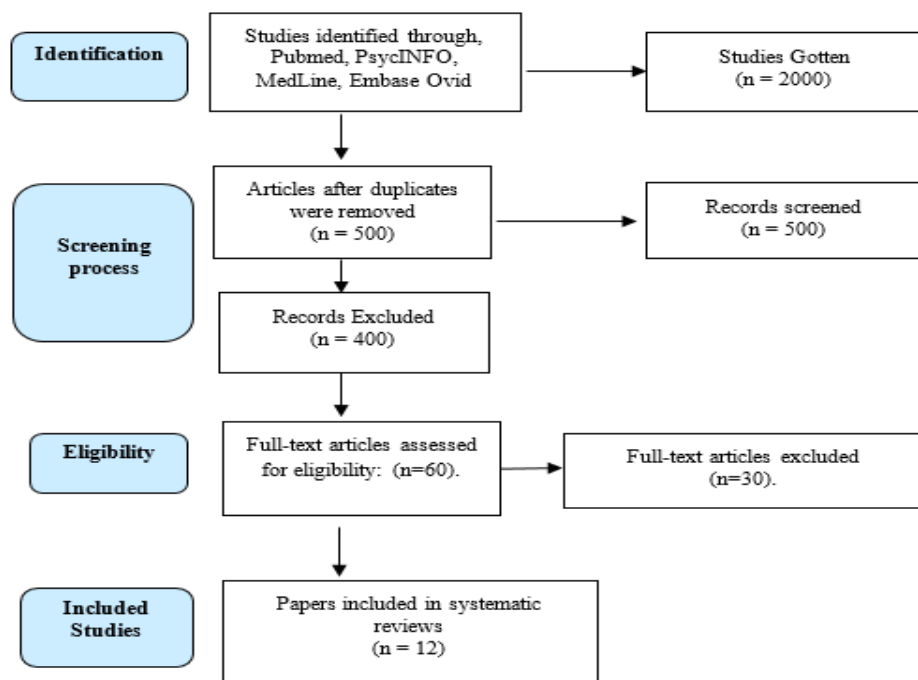


Figure 4: PRISMA flow chart.

Following the initial search, duplicate entries were systematically removed, leaving 500 distinct studies for consideration. The screening process began with an evaluation of titles and abstracts to determine relevance to the research question. At this stage, 400 articles were discarded 200 failed to satisfy the predefined inclusion criteria, while another 200 were judged unrelated to the central focus of the review. From the remaining 100 papers, a further 80 were excluded after closer appraisal, primarily because they did not align with the eligibility requirements. The eligibility review also led to the rejection of an additional eight articles: six were deemed off-topic and unrelated to erectile dysfunction, while two were secondary reviews rather than primary investigations. In the end, only 12 studies satisfied all criteria and were retained for qualitative synthesis, forming the evidential base of this review.

3. Results

This section report the findings from the included studies, show their characteristics, show the quality of the included articles using CASP checklist. Conclusively, this section show the themes drawn from the included studies

3.1 Reporting the Results

The evidence extracted from the eligible studies was organised and presented in a coherent manner. To ensure clarity, results were clustered into recurring themes, including the prevalence of erectile dysfunction (ED), its associated risk factors, the impact on quality of life (QoL), and patterns in treatment and discussion. Narrative synthesis was employed to integrate these findings, enabling comparisons across diverse studies while highlighting shared insights and divergences. This approach not only provided a clearer picture of the epidemiology and etiology of ED but also underscored its implications for healthcare planning particularly in the design of preventive and therapeutic strategies. Moreover, the review emphasised the importance of recognising ED as more than a sexual health concern, positioning it as an early marker for broader systemic conditions such as cardiovascular and metabolic disease. Ultimately, twelve studies met the inclusion criteria and formed the analytic base of this scoping review (Table 2).

3.2 Study Characteristics

This section provides key details of the included articles such as the aim of the study, method used, type of research approach used, the number and criteria of the participants included and the result from the study as to how it relate to this review.

Table 2: Summary of the Studies Included

Author	Year	Country	Aim	Method of Study	Type of Approach	Criteria	Results
Wagle Carrejo and Tan	2012	Multiple	To assess the prevalence and discussion rates of ED	Survey	Quantitative	Response rate >95%	The prevalence of ED was higher in older age groups. Many men with ED had not discussed it with any provider, and younger men were more likely to be treated than older men.
Rezali et al.	2023	Malaysia	To determine the prevalence and associated factors of ED in Malaysia	Cross-sectional study	Quantitative	2,403 men aged ≥ 18	The prevalence of moderate to severe ED was 31.6%. The mean IIEF-5 score was 18.16.
Pitta et al.	2022	Israel	To identify risk factors for ED	Cross-sectional study	Quantitative	20,789 men aged 40 years and over	ED was associated with older age, higher BMI, physical inactivity, hypertension, and diabetes. Physical activity was protective against ED.
Pitta et al.	2023	Multiple	To study ED in men aged 60 years and over	Cross-sectional study	Quantitative	2,436 men	ED was associated with older age, higher BMI, physical inactivity, hypertension, diabetes, and urinary symptoms.
Paulsen et al.	2020	Denmark	To determine the prevalence of ED and associated factors	Cross-sectional web-based study	Quantitative	22,198 men	The overall prevalence of ED was 19.3%. Associated with increasing age, smoking, high BMI, and poor physical fitness.
Li et al.	2022	UK	To investigate the prevalence and factors associated with ED	Cross-sectional study	Quantitative	12,490 men	41.5% reported ED. More prevalent in older men and associated with lifestyle risk factors and chronic conditions.
Herkommer et al.	2023	Multiple	To assess the prevalence of sexual dysfunctions among 50-year-old men	Population-based study	Quantitative	2,500 men	21% had ED, 5.2% had premature ejaculation, and 7.2% had low libido. ED risk increased with higher waist circumference, urinary symptoms, and was lower in those with partnerships.
Hallanzy et al.	2019	Germany	To evaluate the prevalence and risk factors of ED	Cross-sectional study	Quantitative	10,135 men aged 45 years	Prevalence of ED was 25.2%. Strongly associated with depression, poor self-perceived health status, urinary symptoms, and diabetes.
Foocharoen et al.	2012	Multiple	To study ED in patients with systemic sclerosis (SSc)	Prospective study	Quantitative	130 men from the EULAR Scleroderma Trial database	38% had severe ED. Associated with severe SSc symptoms. Treated in only 27.8% of men.
El-Shahawy et al.	2022	Multiple	To examine the association between ENDS use and ED	Analysis of existing data	Quantitative	Male participants aged ≥ 20 years	The prevalence of ED was 20.7% in the full sample and 10.2% in the restricted sample. Daily ENDS users were more likely to report ED.
Agaba et al.	2017	Multiple	To evaluate the prevalence of ED and its association with QoL among university employees	Cross-sectional study	Quantitative	508 men with a mean age of 43 ± 10 years	77.9% had IIEF5 scores < 22 . ED was associated with lower blood pressure and poor QoL in social activities and overall health.
Adebusoye et al.	2012	Nigeria	To determine the prevalence and risk factors of ED among male patients with non-ED complaints	Cross-sectional study	Quantitative	450 male patients aged 18-70 years	Prevalence of ED was 55.1%. Significant associations with age, marital status, income, social class, physical activities, and BMI. Higher ED among men with diabetes, hypertension, peptic ulcer, and previous prostate surgery.

The body of research on erectile dysfunction (ED) has grown steadily between 2012 and 2024, with publication rates peaking during the 2010–2020 period. Studies span diverse geographical contexts including Nigeria, Germany, the United Kingdom, Denmark, Israel, and Malaysia reflecting global interest in the condition. Methodologically, research is dominated by cross-sectional designs and population-based samples (each 33%), alongside laboratory investigations (17%), reports (8%), and surveys (8%). Most studies involved adult participants aged 18 and above, with some drawing on country-level ethnicity data. While 80% of the studies focused exclusively on men with ED, about 20% included mixed populations experiencing obesity, hypertension, or diabetes, emphasising the disorder's multifactorial etiology.

Thematically, six studies concentrated on ED prevalence, noting sharp increases with age and regional variation, while four explored the organisation of healthcare delivery, including patient pathways and integration of ED services. As shown in table 2, two additional studies examined patient and caregiver perspectives, identifying stigma, psychological distress, and barriers to care as major concerns. Most investigations were situated in hospital or outpatient settings (70%), with fewer in community (20%) and primary care (10%) environments—though the latter is increasingly recognised for its role in early detection. Comorbidities featured prominently across the literature, with diabetes emerging as the most frequently cited risk factor (12 studies), followed by cardiovascular disease, hypertension, obesity, and metabolic syndrome. Collectively, these findings highlight not only the diverse scope of ED research but also the pressing need for a holistic, patient-centred approach to management.

3.3 Critical Appraisal

This section evaluates the quality of the twelve identified studies in this review according to the CASP checklist (Table 3). It has been established that the CASP checklist enables all studies to be critically reviewed for design, methodology and results, thus increasing the review's dependability and credibility (Mgawadere and Shuaibu, 2021). It evaluates various parameters such as the clarity of the research question, the design of the study, participant selection, data collection methods, and the presentation and analysis of results.

During the quality assessment of the ten articles included in this research, the coding criteria were as follows: Yes = 2 (the article meets the criterion), I cannot tell = 1 (the criterion cannot be determined when reviewing the article), No = 0 (the article does not meet the criterion). As a result, this checklist succeeded in refining the search and making a list of sources for further qualitative systematic review. Drawing from Singh and Masuku (2014), the quality assurance calculation used the formula: Drawing from Odubia, Ayodele, et al. (2025), the quality assurance calculation used the formula: Score obtainable = Total number of questions multiplied by the total number of studies, i.e., $12 * 12 = 144$. If all items received a maximum score of 2, the total would be 288 (number of items * maximum score for each item = $144 * 2 = 288$). The quality score was then calculated by dividing the score obtained by the total possible score (285, as shown in Table 3) and multiplying by 100, resulting in 98%. This high-quality score indicates that most reviewed papers are reliable, valid, consistent, and dependable, enabling the researcher to achieve the set research goals and objectives

Table 3: Quality Assessment of the Studies Selected.

Author	Research Question/Objective	Rationale for Study	Study Design	Biases Addressed	Participants Recruitment	Sampling Method	Data Collection Methods	Analytical Methods	Clarity of Main Findings	Interpretation of Results	Discussion of Limitations	Generalizability	Total
Wagle Carrejo and Tan (2012)	2	2	2	2	2	2	2	2	2	2	2	2	24
Rezali et al. (2023)	2	2	2	2	2	2	2	2	2	2	2	2	24
Pitta et al. (2023)	2	2	2	2	2	2	2	2	2	2	2	1	23
Pitta et al. (2022)	2	2	2	2	2	2	2	2	2	2	2	2	24
Paulsen et al. (2020)	2	2	2	2	2	2	2	2	2	2	2	2	24
Li et al. (2022)	2	2	2	2	2	2	2	2	2	2	2	2	24
Herkommer et al. (2023)	2	2	2	2	2	2	2	2	2	2	2	2	24
Hallanzy et al. (2019)	2	2	2	2	2	2	2	2	2	2	2	1	23
Foocharoen et al. (2012)	2	2	2	2	2	2	2	2	2	2	2	2	24
El-Shahawy et al. (2022)	2	2	2	2	2	2	2	2	2	2	2	1	23
Agaba et al. (2017)	2	2	2	2	2	2	2	2	2	2	2	2	24
Adebusoye et al. (2012)	2	2	2	2	2	2	2	2	2	2	2	2	24
Total	24	24	24	24	24	24	24	24	24	24	24	21	285

Table 4: Themes Deduced from the Included Studies; Thematic Synthesis

Theme	Description	Articles and Results
Prevalence of Erectile Dysfunction (ED)	The proportion of the population affected by ED, which varies by age, location, and specific health conditions.	Adebusoye et al. (2012): Prevalence of ED was 55.1%, Agaba et al. (2017): 77.9% had IIEF5 scores <22. El-Shahawy et al. (2022): Prevalence of ED was 20.7% in the full sample. Foocharoen et al. (2012): 38% had severe ED. Hallanzy et al. (2019): Prevalence of ED was 25.2%. Herkommer et al. (2023): 21% had ED. Li et al. (2022): 41.5% reported ED. Paulsen et al. (2020): Overall prevalence of ED was 19.3%. Pitta et al. (2022): Prevalence was associated with older age. Pitta et al. (2023): Prevalence in men aged 60+. Rezali et al. (2023): Prevalence of moderate to severe ED was 31.6%. Wagle Carrejo and Tan (2012): Higher prevalence in older age groups.
Associated Risk Factors	Various factors that contribute to the likelihood of developing ED, including age, lifestyle, comorbidities, and psychological conditions.	Adebusoye et al. (2012): Significant associations with age, marital status, income, social class, physical activities, BMI, diabetes, hypertension, peptic ulcer, previous prostate surgery. Agaba et al. (2017): Associated with lower blood pressure. El-Shahawy et al. (2022): Daily ENDS users were more likely to report ED. Hallanzy et al. (2019): Strongly associated with depression, poor health status, urinary symptoms, diabetes. Herkommer et al. (2023): Increased risk with higher waist circumference, urinary symptoms. Li et al. (2022): Associated with older age, lifestyle risk factors, chronic conditions. Paulsen et al. (2020): Associated with increasing age, smoking, high BMI, poor fitness. Pitta et al. (2022): Associated with older age, higher BMI, physical inactivity, hypertension, diabetes. Pitta et al. (2023): Associated with older age, higher BMI, physical inactivity, hypertension, diabetes, urinary symptoms. Rezali et al. (2023): Mean IIEF-5 score was 18.16. Wagle Carrejo and Tan (2012): Many men had not discussed ED with providers.
Impact on Quality of Life (QoL)	The effect of ED on various aspects of life, including mental health, social activities, and overall well-being.	Agaba et al. (2017): ED associated with poor QoL in social activities and overall health. El-Shahawy et al. (2022): Impact on daily users of ENDS. Hallanzy et al. (2019): Associated with depression, poor health status. Herkommer et al. (2023): Impact on overall health and relationships. Paulsen et al. (2020): Poor physical fitness associated with ED. Rezali et al. (2023): Impact on men aged ≥ 18 .
Discussion and Treatment Rates	The frequency of patients discussing ED with healthcare providers and receiving treatment, highlighting the gap between prevalence and treatment.	Adebusoye et al. (2012): ED treatment rates. Foocharoen et al. (2012): Only 27.8% treated for ED. Herkommer et al. (2023): Lower treatment rates in older men. Wagle Carrejo and Tan (2012): Many men with ED had not discussed it with providers, younger men more likely to be treated.

4. Discussion

Reported prevalence rates of erectile dysfunction (ED) vary widely, ranging from 19.3% to 77.9% across studies. This disparity reflects differences in study populations, diagnostic definitions, and methodological rigor. For instance, Agaba et al. (2017) documented prevalence as high as 77.9% using IIEF-5 scores <22, a threshold that may have captured milder dysfunction. By contrast, Paulsen et al. (2020) reported a considerably lower rate of 19.3%, which likely reflects stricter criteria or a healthier cohort. Other large-scale investigations fall between these extremes: Li et al. (2022) observed a prevalence of 41.5%, a figure consistent with Rezali et al. (2023), who reported 31.6%. Such findings suggest that nearly half of middle-aged and older men experience some level of ED. Foocharoen et al. (2012), however, emphasised that when severity is considered, 38% of cases qualify as “severe,” underscoring how the classification system used dramatically alters prevalence estimates. These inconsistencies highlight a pressing need for consensus on diagnostic thresholds and methodological standards; without them, cross-study comparisons remain problematic and the true global burden of ED cannot be reliably quantified.

Risk factor analyses consistently converge on a set of common determinants, with age emerging as the most consistent predictor. Older men are more likely to present with ED due to declining physiological reserve and accumulation of comorbid conditions, as shown by Adebuseye et al. (2012), Li et al. (2022), and Pitta et al. (2022, 2023). Yet, advancing age is not a sufficient explanation. Lifestyle choices such as smoking, physical inactivity, and elevated BMI also play critical roles, with evidence from Paulsen et al. (2020) and Pitta et al. (2022) showing that healthy diet and regular activity serve as protective factors. Beyond lifestyle, chronic illnesses amplify the risk: diabetes, hypertension, and depression are consistently implicated (Adebuseye et al., 2012; Hallanzy et al., 2019; Pitta et al., 2022). More recently, El-Shahawy et al. (2022) identified e-cigarette use (ENDS) as a novel correlate, with daily users showing markedly higher odds of ED compared to both non-smokers and conventional cigarette users. Given the increasing popularity of ENDS, further inquiry is needed to clarify their independent contribution. Taken together, these findings reaffirm the multifactorial nature of ED, where biological, lifestyle, and psychosocial determinants intersect. Targeted public health interventions and patient-specific management strategies are therefore critical to reducing both prevalence and severity.

The impact of ED extends beyond physical symptoms, exerting profound effects on quality of life (QoL). Multiple studies including those of Agaba et al. (2017) and Hallanzy et al. (2019) link ED with diminished QoL, poorer health perception, and higher rates of depression. The psychosocial

toll is substantial: men often report feelings of inadequacy and loss of confidence, which in turn amplify relational stress. Herkommer et al. (2023) further highlight the relational dimension, showing that ED disrupts intimacy and contributes to marital conflict or, in some cases, dissolution. As sexual health is integral to overall well-being, these findings demonstrate that ED should not be treated solely as a physiological dysfunction but also as a psychosocial condition with consequences that ripple across personal identity, emotional health, and partner relationships.

Paulsen et al. (2020) highlight the strong association between low physical fitness and erectile dysfunction (ED), a link that also illuminates the broader relationship between overall health and quality of life (QoL). Their findings suggest that men with poor fitness not only face a higher risk of developing ED but also experience compounded declines in vitality and well-being once ED is present. This aligns with a broader body of evidence indicating that obesity, diabetes, and cardiovascular disease all of which are disproportionately observed in men with ED negatively affect QoL (Rezali et al., 2023). Importantly, Rezali and colleagues extend the discussion by demonstrating that ED is not confined to older populations; younger men, too, can be affected, often with severe psychosocial consequences such as anxiety about relationships and self-esteem. As men age, the co-existence of ED with chronic illnesses further complicates management, making it necessary to treat ED not as an isolated disorder but as a lifelong health issue. Thus, effective management must move beyond pharmacological solutions to include psychological support, such as counselling, as well as lifestyle interventions like exercise, dietary improvements, and smoking cessation. These multidimensional strategies not only restore erectile function but also enhance broader aspects of health and QoL.

The disparity between prevalence rates and treatment uptake illustrates one of the most pressing challenges in ED management. Foocharoen et al. (2012) found that only a small fraction of men with severe ED about 8% received treatment, underscoring a substantial care gap. Similarly, Herkommer et al. (2023) documented even lower treatment rates among older men, suggesting barriers such as limited access to care or diminished willingness to seek help. Wagle Carrejo and Tan (2012) attribute this silence to stigma, noting that many men, particularly older cohorts, avoid disclosing ED to healthcare providers. Younger men, however, are more likely to seek treatment, reflecting generational shifts in sexual health awareness. Adebuseye et al. (2012) emphasise the need for targeted awareness campaigns, both to educate the public and to encourage healthcare providers to normalise discussions of sexual health. Public health interventions, including media engagement, can reduce stigma, improve awareness, and

motivate men to pursue timely care. Ultimately, bridging the gap between ED prevalence and treatment requires dismantling cultural silence, integrating ED management into routine healthcare, and promoting open patient-provider communication steps that would significantly improve both sexual and overall health outcomes.

5. Conclusion

This review reaffirms that erectile dysfunction (ED) is not a singular condition but a complex, multifactorial disorder with profound implications for men's health and overall quality of life. The wide variation in reported prevalence ranging from modest to extremely high estimates largely reflects inconsistencies in diagnostic thresholds, study designs, and sample populations. Nevertheless, the evidence consistently highlights age, comorbidities such as diabetes and cardiovascular disease, lifestyle behaviours, and psychological distress as central drivers of ED. Beyond its physical manifestations, ED imposes a heavy psychological and social toll, contributing to depression, diminished self-esteem, and strained interpersonal relationships. The association between physical health and erectile function further underscores the importance of viewing ED as a systemic health indicator rather than merely a sexual complaint.

Recommendations for Research

Future investigations should first address the absence of a standardised definition of ED, as inconsistent diagnostic frameworks hinder cross-study comparability and distort prevalence estimates. Longitudinal studies are urgently needed to clarify how ED develops over time and to disentangle the causal relationships between lifestyle, comorbidities, and psychological factors. Randomised controlled trials should also evaluate the relative effectiveness of different interventions, including lifestyle modification, psychological therapies, and pharmacological options. Importantly, research must expand beyond homogenous populations by incorporating diverse perspectives shaped by ethnicity, socioeconomic status, and geographical context, thereby ensuring findings are globally relevant. Finally, greater attention should be given to the impact of ED on quality of life, with studies assessing how different management approaches can restore not only sexual function but also psychological well-being and relational stability. Taken together, these priorities will advance a more holistic understanding of ED and inform interventions that improve both clinical outcomes and broader aspects of men's health.

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