Cursed by Diabetes: The shadow of erectile dysfunction and its impact on male well-being

Jheffany Yazid[1], Suzana Yusof[1*] ,
Siti Khuzaimah Ahmad Sharoni[1],Angga Wilandika[2]
**Corresponding Author*

[1] Centre for Nursing Studies, Faculty of Health Sciences, University Teknologi MARA Puncak Alam Campus, Selangor, Malaysia, [2] Nursing Department, Faculty of Health Sciences, Universitas 'Aisyiyah Bandung, Bandung, Indonesia

jheffany1988@gmail.com; suzanay@uitm.edu.my; sitik123@uitm.edu.my and wiland.angga@unisa-bandung.ac.id
Tel: +601111474456

Abstract

Diabetes, with a prevalence of 18.3% in Malaysia in 2019, is significantly linked to Erectile Dysfunction (ED) in males. This systematic review followed PRISMA guidelines, analysing literature from 2018 to 2024. Study quality was appraised using the Joanna Briggs Institute checklist, covering a combined sample size of 3,928 diabetic males. Of 172 articles screened, 11 met the inclusion criteria. ED prevalence ranged from 28.1% to 94.7%, influenced by age, education, glycaemic control, and complications. ED profoundly impacts Quality of Life (QoL), including self-esteem and relationships. The review underscores the need for comprehensive care and localized research to address diabetes-related sexual health challenges in Malaysia.

Keywords: Prevalence; Risk Factors; Quality of Life; Erectile Dysfunction; Male with diabetes

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1.0 Introduction

Diabetes mellitus is a global health concern, with 463 million individuals affected in 2019, projected to reach 578 million by 2030 (International Diabetes Federation, 2023). In Malaysia, diabetes prevalence surged from 11.2% in 2011 to 18.3% in 2019, highlighting a growing public health crisis (Akhtar et al., 2022). Among diabetic males, Erectile Dysfunction (ED)—the inability to maintain an erection for satisfactory sexual activity—has emerged as a significant issue linked to vascular, hormonal, and psychological factors. ED not only diminishes sexual health but also impacts overall Quality of Life (QoL), contributing to psychological distress, relationship issues, and social isolation.

While ED prevalence among diabetic males is higher than in the general population, localized studies in Malaysia remain scarce. This systematic review addresses this gap by synthesizing evidence on ED prevalence, associated factors, and its impact on QoL among diabetic males, with implications for culturally relevant public health strategies.

2.0 Literature Review

Global studies report ED prevalence among diabetic males ranging from 28.1% to 94.7%, influenced by glycaemic control, age, diabetes duration, and complications such as neuropathy and retinopathy (Hylmarova et al., 2020; Ugwumba et al., 2018). Poor glycaemic control exacerbates vascular and neurological impairments, while advanced age and prolonged diabetes duration compound these effects (Fang et al., 2023).

Sociodemographic factors such as education and income levels also play a role. Lower educational attainment correlates with limited healthcare access and higher ED prevalence (Bekele et al., 2022). Psychological factors, including anxiety and depression, further amplify ED's impact, emphasizing the importance of a biopsychosocial approach (Barnard-Kelly et al., 2019).

ED significantly compromises QoL, affecting self-esteem, intimacy, and mental health, often leading to social isolation and depressive symptoms (Thongtang et al., 2020). Interventions should address not only the clinical but also psychological and social dimensions of ED.

Despite robust international findings, Malaysia lacks context-specific research. This review aims to provide localized insights and guiding interventions to improve diabetic males' sexual health and QoL.

3.0 Methodology

3.1 Source

The current systematic review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Liberati et al., 2009). Each stage of the evaluation covered identification, screening, eligibility, and inclusion stages (Haddaway et al., 2022); this approach facilitated transparency, replicability, and global best practices.

3.2 Formulation of the Research Question

This study applies the PICO framework: Population (P) includes males with Type 1 or Type 2 diabetes, Intervention (I) examines diabetes with or without ED, and Outcome (O) assesses ED prevalence, associated factors, and QoL impacts (Stern et al., 2014). No Comparison (C) is included. The main research question is: "What is the prevalence of ED among diabetic males, what factors are associated with ED, and how does ED impact their QoL?"

3.3 Information Sources

The systematic exploration for pertinent literature in this research, probing the correlation between diabetes and male sexual health, was meticulously conducted through the scrutiny of seven distinguished electronic databases: Scopus, Science Direct, Web of Science, Google Scholar, PubMed, SAGE and ResearchGate.

3.4 Search Strategy

The research, conducted between January 2018 and 2024, focused on recent English language publications. Utilizing strategic keywords such as "T1DM or T2DM", "Erectile Function International Index of Erectile Function (IIEF) Questionnaire," "male sexual health," "erectile dysfunction," and "sexual well-being in diabetes," the search aimed at pinpointing and extracting highly relevant scholarly contributions. Inclusion criteria specified publication from 2018 onwards, the use of English, and the adoption of a cross-sectional quantitative study design (Table 1).

Table 1. Literature search strategy on seven databases

Database	Keyword	Results
Scopus	"TITLE-ABS-KEY ("erectile AND dysfunction AND diabetes AND prevalence OR quality AND of AND life) TITLE-ABS-KEY (“Prevalence” OR “Severity erectile dysfunction AND diabetes”) AND TITLE-ABS-KEY (“Factors associated” AND ““diabetes male" AND "Sexual Dysfunction”)	26
Science Direct	KEY (“erectile dysfunction” AND “male diabetes”) AND KEY (“Prevalence ED” OR “Risk Factor ED” OR "Quality of Life") AND KEY ("Prevalence Sexual dysfunction" OR "male diabetes") AND KEY ("quality of life ED" OR "factor associated ED")	30
WOS	KEY (“erectile dysfunction” AND “male diabetes”) AND KEY (“Prevalence ED” OR “Risk Factor ED” OR "Quality of Life") AND KEY ("Prevalence Sexual dysfunction" OR "male diabetes") AND KEY ("quality of life ED" OR "factor associated ED")	20
Google Scholar	("Prevalence Erectile Dysfunction" OR "International Index of erectile function International Index of Erectile Function (IIEF) Questionnaire" OR "Sexual Dysfunction Male Diabetes") ("Factor Associated male diabetes ED" AND "Sexual dysfunction male diabetes with ED") ("Quality of Life male diabetes ED" AND "Quality of Life male diabetes with sexual dysfunction")	50
PubMed	SEARCH (“erectile dysfunction” AND “male diabetes”), SEARCH (“Prevalence ED male diabetes” OR “Prevalence sexual dysfunction male diabetes”), SEARCH (“Factor associated ED male diabetes” OR “factor associated sexual dysfunction male	13

	diabetes") and SEARCH ("quality of life ED male diabetes" OR "quality of life sexual dysfunction male diabetes")	
SAGE	("Prevalence Erectile Dysfunction" OR "International Index of erectile function International Index of Erectile Function (IIEF) Questionnaire" OR "Sexual Dysfunction Male Diabetes") ("Factor Associated male diabetes ED" AND "Sexual dysfunction male diabetes with ED") ("Quality of Life male diabetes ED" AND "Quality of Life male diabetes with sexual dysfunction")	4
ResearchGate	Search ResearchGate ("Prevalence Erectile Dysfunction" OR "International Index of Erectile Function (IIEF) Questionnaire" OR "Sexual Dysfunction Male Diabetes"), Search ResearchGate ("Factor Associated male diabetes ED" AND "factor associated Sexual dysfunction male diabetes with ED") and Search ResearchGate ("Quality of Life male diabetes ED" AND "Quality of Life male diabetes with sexual dysfunction")	29

3.5 Selection Process

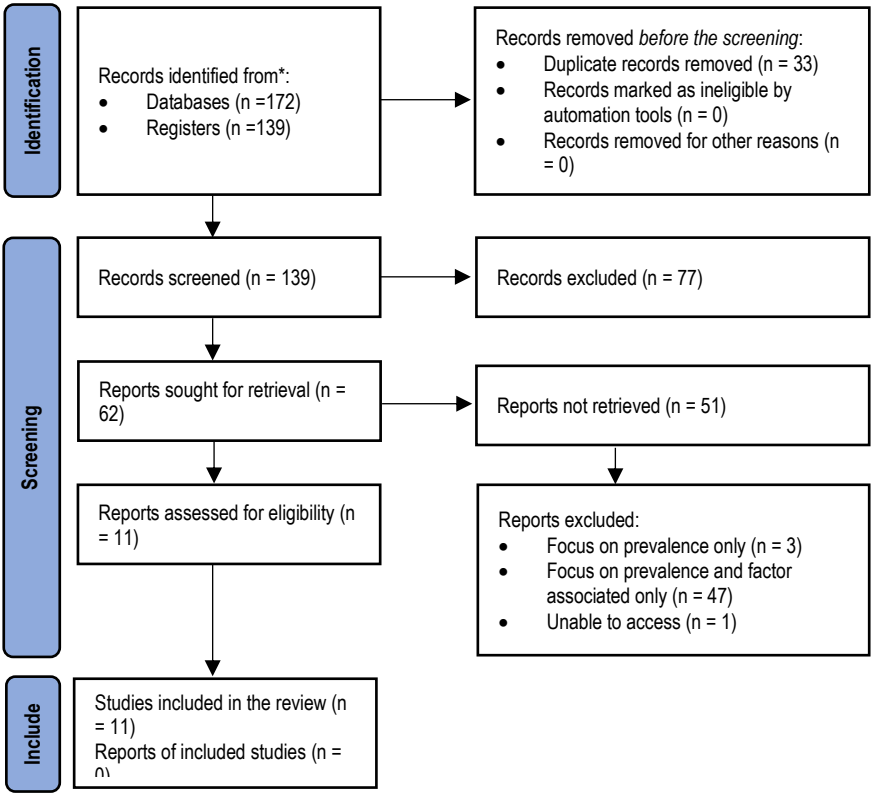

Figure 1: PRISMA 2009 Flow Diagram. Flow chart to summarise the selection of patent articles for the review adopted from Haddaway et al. (2022)

3.6 Eligibility Criteria

Criteria for article selection in this study include being published in the English language (Inclusion Criteria 1), prevalence using an IIEF-5 tool, associated factors (socio-demographic and clinical factors), and QoL related to ED (Inclusion Criteria 2), the male with diabetes population which is Type 1 diabetes mellites and Type 2 diabetes mellites (Inclusion Criteria 3), and being a cross-sectional quantitative study (Inclusion Criteria 4). This study selected articles available in English for publication purposes cause other inclusion criteria were included in answering the research question about the pattern of ED among male individuals with diabetes

Table 2 Numbers of excluded articles and reasons for exclusion for each database

Database	Total	Number of articles retrieved	Number of excluded articles	Reason Reject
Scopus	26	3	23	6: More than 6 years 1: Not cross-sectional 5: Out of scope 4: Not focus on males with diabetes 7: No QoL measurement available
ScienceDirect	30	2	28	5: Duplicate 2: Not cross-sectional 12: Out of scope 6: Not focus on male diabetes 3: No QoL measurement available 4: Duplicate
WOS	20	2	18	6: Not cross-sectional 2: Out of scope 4: Not focus on male diabetes 2: No QoL measurement available
Google Scholar	50	2	48	14: Duplicate 1: More than 6 years 7: Not cross-sectional 5: Out of scope 6: Not focus on male diabetes 15: No QoL measurement available 3: Duplicate
PUBMED	13	1	12	2: Out of scope 1: Not focus on male diabetes 1: Focus on prevalence only 5: No QoL measurement available
SAGE	4	1	3	1: More than 6 years 1: Not cross-sectional 1: Not focus on male diabetes
ResearchGate	29	0	29	7: Duplicate 1: More than 6 years 2: Sample <50 1: Out of scope 2: Focus on prevalence only 15: No QoL measurement available

Database	Total	Number of articles retrieved	Number of excluded articles	Reason Reject
				1: Unable to access

3.7 Quality Appraisal

A total of 11 articles were critically assessed using the "Joanna Briggs Institute (JBI) Critical Appraisal Checklist" as they matched all inclusion criteria. This evaluation wanted to assess the methodological quality of each study and to what extent they accounted for potential biases in their design, implementation and analysis (Moola et al., 2015). Scoring for critical appraisal was based on percentage: >75% = Good; 50–75% = Fair; <50% = Poor (Monnaatsie et al., 2021). JBI cross-sectional studies appraisal summary is shown in Table 3. The articles selected were critically appraised, and relevant outcomes were obtained (Table 4).

Table 3 Quality Appraisal

Author (year)	Inclusion criteria	Study subject and setting	Validity and reliability of the study	Risk of bias	Identify confounding factors	Strategies to deal with confounder	Outcome measure	Statistical analysis
Hylmarova et al. (2020)	Yes	Unclear	No	No	No	No	Yes	Yes
Torkamani et al. (2021)	Unclear	Yes	Yes	Yes	No	No	Yes	Yes
Silva et al. (2022)	Yes	Yes	No	No	No	No	Yes	Yes
Fang et al. (2023)	Yes	Yes	No	No	No	No	Yes	Yes
Ugwumba et al. (2018)	Yes	Yes	No	No	No	No	Yes	Yes
Defeudis et al. (2023)	Yes	Yes	No	No	No	No	Yes	Yes
Mushtaq et al. (2018)	Yes	Yes	No	No	No	No	Yes	Yes
Barnard-Kelly et al. (2019)	Yes	Yes	No	No	No	No	Yes	Yes
Thongtang et al. (2020)	Yes	Yes	No	No	No	No	Yes	Yes
Jombo et al. (2020)	Yes	Yes	Yes	No	Yes	Unclear	Yes	Yes
Bekele et al. (2022)	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes

4.0 Results

4.1 Overall findings

The review analysed 11 studies published between 2018 and 2023, encompassing a total sample of 3,928 participants across diverse geographical locations, including the Czech Republic, Iran, Sri Lanka, China, Nigeria, Italy, Pakistan, the United Kingdom, Thailand, and Ethiopia. These studies collectively addressed the prevalence, factors associated, and Quality of Life (QoL) impacts of Erectile Dysfunction (ED) in males with diabetes (Table 4). Demographic and clinical data, such as mean age, mean HbA1c levels, diabetes duration, and diabetes type, were reported where available.

ED prevalence rates ranged from 28.1% to 94.7%, influenced by clinical factors (e.g., glycaemic control, diabetes duration), sociodemographic factors (e.g., age, education, socioeconomic status), and psychological elements. Hormonal imbalances and relational challenges were also highlighted as significant contributors. QoL was notably impacted, with common themes including diminished self-esteem, strained relationships, reduced attractiveness, and experiences of loneliness and depression. These findings emphasize the interplay between clinical and psychosocial dimensions, aligning with the study's objectives to explore ED prevalence, associated factors, and QoL impacts in diabetic males.

4.2 Prevalence of Erectile Dysfunction in Males with Diabetes

ED prevalence exhibited significant variability, ranging from 28.1% in males with Type 1 diabetes (Hylmarova et al., 2020) to 94.7% in males with Type 2 diabetes (Ugwumba et al., 2018). In studies examining both diabetes types, prevalence was reported at 50.2% (Jombo et al., 2020). The higher prevalence of Type 2 diabetes reflects the cumulative effects of prolonged diabetes duration, poorer glycaemic control, and higher rates of obesity. These findings underscore the disproportionate burden of ED among males with Type 2 diabetes, aligning with the study's objective to determine ED prevalence and its underlying clinical and demographic factors.

4.2 Factors Associated with Erectile Dysfunction

The factors contributing to ED in males with diabetes were multifaceted and interconnected. Glycaemic control emerged as a pivotal determinant, with poor control significantly linked to higher prevalence rates (Hylmarova et al., 2020; Ugwumba et al., 2018). Diabetes duration, older age, and obesity were consistently associated with increased ED risk (Bekele et al., 2022). Broader sociodemographic factors, including education level, income, and comorbidities, were highlighted as contributing to ED occurrence (Fang et al., 2023).

Several studies offered unique insights. Mushtaq et al. (2018) found that severe ED was strongly associated with prolonged diabetes duration, while Defeudis et al. (2023) emphasized the role of treatment adherence and health literacy in mitigating ED risks. Psychological factors, such as depression and stress, were also prevalent (Barnard-Kelly

et al., 2019). These findings align with the study's objective to identify diverse predictors of ED and their implications for diabetic males.

4.3 The Quality of Life of Males with Diabetes

ED significantly compromised the QoL of diabetic males across physical, psychological, and social domains. Psychological effects included low self-esteem, depression, and reluctance to seek treatment (Silva et al., 2022), while social consequences involved strained relationships and isolation (Barnard-Kelly et al., 2019). Socioeconomic disparities were also influential, with higher income and education levels associated with better QoL outcomes (Fang et al., 2023).

Furthermore, clinical factors such as poor glycaemic control and comorbidities exacerbated QoL impairments. Mushtaq et al. (2018) noted that hypogonadism and hormonal imbalances further diminished sexual satisfaction, while Thongtang et al. (2020) highlighted the moderate QoL levels in social and physical domains. These findings reinforce the need for integrated interventions addressing both clinical and psychosocial aspects, aligning with the study's objective to evaluate the impact of ED on QoL in diabetic males.

Table 4: Results of the prevalence of ED, factors associated with ED, and the QoL among male diabetes

Author (year) Country	Study Objective	Sample size	Prevalence	Factor Associated	Quality of Life
Hylmarova et al. (2020) Czech Republic	Influence of T1DM on sexual function and hormones	57	28.1% (ED prevalence)	Diabetic nephropathy ($p = 0.008$), poor glycaemic control ($p = 0.041$)	T1DM lowers males' QoL with high rates of ED, reduced sexual satisfaction, and retrograde ejaculation.
Torkamani et al. (2021) Iran	Sexual function comparison in T2DM males	276	NA	BMI, age, significant impact on sexual function ($p < 0.05$)	No statistically significant differences in sexual function, including various aspects, between diabetic and non-diabetic infertile male diabetes.
Silva et al. (2022) Sri Lanka	ED prevalence and impact in diabetes clinic	212	79.2%	Longer diabetes duration, older age ($p < 0.001$), retinopathy ($p = 0.04$), neuropathy ($p = 0.041$)	QoL and Treatment Seeking: Despite 60.5% experiencing psychological and/or relationship effects due to ED, 85.6% did not disclose it to a health provider.

Author (year) Country	Study Objective	Sample size	Prevalence	Factor Associated	Quality of Life
Fang et al. (2023) China	ED and socioeconomic status	1,739	NA	Lower education, income ($p = 0.02$), obesity ($p < 0.0001$), smoking habits ($p = 0.04$)	Quality of sexual life: Participants with higher family income to poverty (PIR) were more likely to report good erectile function than those with lower PIR (p-value=0.005).
Ugwumba et al. (2018) Nigeria	ED predictors in T2DM males	325	94.7%	Poor glycaemic control ($p = 0.0001$), older age ($p = 0.02$), obesity ($p < 0.0001$)	Predicts poor QoL in males with T2DM, affecting their well-being and often accompanied by low treatment-seeking behaviour.
Defeudis et al. (2023) Italy	Health literacy and ED in T2DM males	167	86.5%	Adherence to treatment linked to physical activity, diet ($p < 0.01$), family diabetes history ($p = 0.03$)	Males with T2DM and ED, lower health literacy and higher BMI worsen QoL
Mushtaq et al. (2018) Pakistan	Hypogonadism and ED in T2DM males	160	62.5%	Severe ED linked to longer diabetes duration ($p < 0.0001$), subnormal testosterone ($p = 0.0001$)	Quality of sexual life: 40% of patients with ED suffered from some form of hypogonadism with subnormal testosterone levels. The difference in testosterone levels between patients with and without ED was statistically significant (p-value= 0.0001).
Barnard-Kelly et al. (2019) United Kingdom	Psychosocial impact of ED in diabetes	100	66%	Loss of self-esteem (49%), relationship issues (62%), loneliness (46%)	Diabetes and associated sexual health issues have a considerable negative psychosocial impact. Specific aspects affecting QoL include self-esteem, relationships, attractiveness, and feelings of loneliness.
Thongtang et al. (2020) Thailand	ED predictors in T2DM males	582	71.5%	Higher education linked to better QoL ($p < 0.05$)	Overall QoL was moderate (mean = 95.42 ± 11.39). Domain scores:

Author (year) Country	Study Objective	Sample size	Prevalence	Factor Associated	Quality of Life
					Psychological and Environmental were good (23.84 ± 3.42, 31.4 ± 3.98), while Social Relationships and Physical were moderate (10.77 ± 1.93, 24.9 ± 3.13).
Jombo et al. (2020) Nigeria	Diabetes with ED and QoL	103	50.2%	Diabetes duration (p = 0.04), poor glycaemic control (p = 0.02), depression (p = 0.002)	ED was found to be significantly associated with psychological (depression) impact (p-value = 0.002).
Bekele et al. (2022) Ethiopia	ED magnitude and QoL in T2DM males	307	82.1%	Older age (p = 0.023), comorbidities (p = 0.001), type of diabetes (p = 0.001)	Quality of sexual life: About half of the participants (48.2%) had difficulties with penetration after achieving an erection. Approximately 39.7% of participants reported never being satisfied with sexual intercourse.

5.0 Discussion

5.1 Prevalence of Erectile Dysfunction in Males with Diabetes

The prevalence of erectile dysfunction (ED) among males with diabetes, as reported in the reviewed studies, varied significantly, ranging from 28.1% to 94.7%. This wide variation can be attributed to differences in population demographics, study methodologies, and the use of diagnostic tools. Most studies employed the International Index of Erectile Function (IIEF) Questionnaire, which is widely recognized for its reliability (Rosen et al., 1997). However, differences in its administration and interpretation across regions may have contributed to inconsistencies in prevalence rates.

The highest prevalence, 94.7%, was reported among males with Type 2 diabetes (Ugwumba et al., 2018), highlighting the heightened vulnerability of this group to ED. Type 2 diabetes is commonly associated with obesity, poor glycaemic control, and longer disease duration, all of which exacerbate vascular and neurological complications, key factors in the pathogenesis of ED. In contrast, males with Type 1 diabetes exhibited a significantly lower prevalence of 28.1% (Hylmarova et al., 2020). This disparity suggests potential

pathophysiological differences between the diabetes subtypes, including differences in insulin resistance, metabolic profiles, and associated comorbidities.

Geographical differences also emerged as significant. Regions with limited healthcare access and lower awareness about diabetes management reported higher prevalence rates (Silva et al., 2022). In comparison, developed countries with better healthcare infrastructure, such as Italy and the United Kingdom, reported comparatively moderate prevalence rates (Barnard-Kelly et al., 2019; Defeudis et al., 2023). These findings underscore the importance of healthcare accessibility and socioeconomic factors in influencing the prevalence of ED.

Age and disease duration were consistent predictors of ED across all studies. Older males and those with prolonged diabetes histories were at higher risk, emphasizing the cumulative impact of aging and chronic hyperglycaemia on vascular health. This finding aligns with global studies that identify age and diabetes duration as significant risk factors for ED (Katsimardou et al., 2023). These insights highlight the need for early screening and targeted interventions, particularly for older diabetic males or those with long-standing diabetes.

5.2 Factors Associated with Erectile Dysfunction

The factors contributing to ED among diabetic males can be categorized into clinical, sociodemographic, and psychological domains.

5.2.1 Clinical Factors

Glycaemic control emerged as a critical determinant of ED. Poor glycaemic control exacerbates endothelial dysfunction and neuropathy, increasing the likelihood of ED (Ugwumba et al., 2018). Prolonged diabetes duration further compounds these effects, with studies showing a direct correlation between longer disease duration and increased ED risk (Mushtaq et al., 2018; Thongtang et al., 2020). Additionally, diabetes-related complications such as nephropathy, retinopathy, and peripheral neuropathy were consistently associated with ED (Silva et al., 2022; Hylmarova et al., 2020). These findings highlight the need for comprehensive diabetes management to mitigate these risks.

5.2.2 Sociodemographic Factors

Age is one of the most significant sociodemographic predictors of ED. Advanced age is associated with physiological changes, including reduced testosterone levels and vascular elasticity, which adversely affect erectile function. Lower educational attainment was also linked to higher ED prevalence (Bekele et al., 2022). Education levels influence health literacy, access to healthcare, and treatment adherence, thereby indirectly affecting ED outcomes. Socioeconomic status (SES) further compounds this issue, as individuals from lower SES backgrounds often face barriers to healthcare access, leading to delayed diagnosis and suboptimal management of diabetes and its complications (Fang et al., 2023).

5.2.3 Psychological Factors

ED imposes a significant psychological burden on affected individuals. Studies have shown that males with ED are more likely to experience depression, anxiety, and low self-esteem (Barnard-Kelly et al., 2019; Jombo et al., 2020). Psychological stress exacerbates the condition by increasing cortisol levels, which negatively affect vascular health and testosterone production. Addressing these psychosocial dimensions through integrated mental health and clinical care is essential for effective management.

Lifestyle factors such as obesity, smoking, and physical inactivity were also prominent contributors to ED. Obesity is particularly significant due to its association with insulin resistance, systemic inflammation, and vascular dysfunction (Moon et al., 2019). Encouraging healthy lifestyle behaviours, including regular physical activity, a balanced diet, and smoking cessation, is crucial for improving ED outcomes and overall health.

5.3 Quality of Life in Males with Diabetes and Erectile Dysfunction

ED profoundly affects the quality of life (QoL) of males with diabetes, impacting physical, psychological, and social dimensions. Physically, ED is often accompanied by other complications, such as hypogonadism and hormonal imbalances, further diminishing sexual satisfaction and overall well-being (Mushtaq et al., 2018). Effective glycaemic control and management of comorbidities are essential to mitigate these physical impacts.

Psychological distress, including depression, anxiety, and social isolation, is common among males with ED (Silva et al., 2022; Jombo et al., 2020). These issues significantly affect self-esteem and interpersonal relationships, with many individuals reporting feelings of inadequacy and decreased attractiveness (Barnard-Kelly et al., 2019). In Malaysia, where cultural sensitivities may further stigmatize ED, these psychological burdens are likely exacerbated, highlighting the need for culturally appropriate interventions. Mental health support, including counselling and peer support groups, can play a crucial role in alleviating these challenges.

Social factors, including income and SES, also influence QoL. Higher SES is positively associated with better QoL outcomes, likely due to improved access to healthcare and healthier lifestyle choices (Fang et al., 2023). Addressing socioeconomic disparities through public health policies and community-based programs is vital for enhancing QoL among diabetic males with ED. Additionally, health literacy and treatment adherence emerged as significant predictors of QoL. Males with higher health literacy are more likely to adhere to treatment plans, resulting in better glycaemic control and reduced ED prevalence (Defeudis et al., 2023).

Despite these challenges, the overall QoL for males with diabetes and ED is often reported as moderate (Thongtang et al., 2020). This suggests that while ED significantly impacts specific QoL domains, targeted interventions focusing on physical health, mental well-being, and social support can mitigate its overall effects. Future research should prioritize exploring the multifaceted relationship between ED and QoL, particularly in underrepresented populations.

6.0 Conclusion and Recommendation

This study explored the prevalence of erectile dysfunction (ED) among males with diabetes, its associated factors, and its impact on quality of life (QoL). The findings revealed significant variability in ED prevalence, influenced by factors such as diabetes type, glycaemic control, age, socioeconomic status, and education level. Type 2 diabetes, with its associated metabolic and vascular complications, demonstrated a higher prevalence of ED compared to Type 1 diabetes. These findings emphasize the necessity of addressing clinical and sociodemographic factors to improve health outcomes. ED's profound impact on QoL, particularly on psychological well-being, relationships, and life satisfaction, highlights the urgent need for integrated care approaches.

However, the study's limitations include its focus on English-language literature from 2018 to 2024, potentially excluding earlier or localized research. The broad inclusion criteria also introduced heterogeneity, warranting future studies to narrow their focus, particularly on Type 2 diabetes mellitus and specific sociodemographic variables.

To address these gaps, routine ED screening should be incorporated into diabetes management, especially for high-risk groups. Healthcare institutions should enhance access to multidisciplinary care, integrating clinical management with mental health support. Public health initiatives must raise awareness about ED, reduce stigma, and promote preventive strategies like weight management and smoking cessation.

Future research should prioritize localized studies in Malaysia, focusing on cultural and healthcare system nuances. Investigating mediator factors such as age, education, and socioeconomic status will provide deeper insights. By addressing these areas, interventions can be designed to improve QoL for diabetic males with ED effectively.

Article Contribution to Related Field of Study

This study significantly contributes to the field of diabetes management and sexual health by providing a comprehensive understanding of the prevalence, associated factors, and quality of life (QoL) impacts of erectile dysfunction (ED) among males with diabetes. The findings emphasize the intricate interplay of clinical, sociodemographic, and psychological factors, highlighting the urgent need for integrated care approaches. This research offers empirical evidence to guide healthcare practitioners and policymakers in enhancing diabetes care in Malaysia, addressing both clinical and psychosocial dimensions of ED. Furthermore, the study underscores critical gaps in localized research, advocating for future investigations to develop culturally sensitive interventions tailored to the unique needs and contexts of Malaysian communities. These insights aim to improve health outcomes and QoL for diabetic males, advancing the broader field of sexual health and chronic disease management.

Authors Declaration

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References

Akhtar, S., Nasir, J. A., Ali, A., Asghar, M., Majeed, R., & Sarwar, A. (2022). Prevalence of type-2 diabetes and prediabetes in Malaysia: A systematic review and meta-analysis. PLoS ONE, 17(1 January), 1–14. https://doi.org/10.1371/journal.pone.0263139

Barnard-Kelly, K., Meeking, D., Cummings, M., Reidy, C., Scibilia, R., Aldred, C., & Naranjo, D. (2019). Diabetes and male sexual health: an unmet challenge. Practical Diabetes, 36(6), 201–206. https://doi.org/10.1002/pdi.2246

Bekele, F., Fantahun, L., Garbessa, B., & Dekosa, F. (2022). Men's sexual desire, and why women often don't recognise it? Prevalence of erectile dysfunction and associated factors among diabetes mellitus patients attending Mettu Karl Comprehensive Specialized Hospital: A cross-sectional study. SAGE Open Medicine, 10. https://doi.org/10.1177/20503121221141803

Defeudis, G., Mazzilli, R., Scandurra, C., Di Tommaso, A. M., Cimadomo, D., Strollo, R., Faggiano, A., Migliaccio, S., & Napoli, N. (2023). Diabetes and erectile dysfunction: The relationships with health literacy, treatment adherence, unrealistic optimism, and glycaemic control. Diabetes/Metabolism Research and Reviews, 39(5). https://doi.org/10.1002/dmrr.3629

Fang, Y., Dong, Z., Huang, T., Wang, L., Fan, W., Wang, B., Yang, Q., Xu, M., Li, D., Fang, Y., & Xu, Z. (2023). The role of socioeconomic status and oxidative balance score in erectile dysfunction: A cross-sectional study. Heliyon, 9(11), e22233. https://doi.org/10.1016/j.heliyon.2023.e22233

Haddaway, N. R., Page, M. J., Pritchard, C. C., & McGuinness, L. A. (2022). PRISMA2020: An R package and Shiny app for producing PRISMA 2020-compliant flow diagrams, with interactivity for optimised digital transparency and Open Synthesis. Campbell Systematic Reviews, 18(2), 1–12. https://doi.org/10.1002/cl2.1230

Hylmarova, S., Stechova, K., Pavlinkova, G., Peknicova, J., Macek, M., & Kvapil, M. (2020). The impact of type 1 diabetes mellitus on male sexual functions and sex hormone levels. Endocrine Journal, 67(1), 59–71. https://doi.org/10.1507/endocrj.EJ19-0280

Jombo, H. E., Onung, S. I., Idung, A. U., & Iyanam, V. E. (2020). Erectile Dysfunction and Depression in Males with Type 2 Diabetes Mellitus in a Tertiary Healthcare Facility in Uyo, South-South Nigeria. Asian Journal of Medical Principles and Clinical Practice, 3(1), 9–17. https://journalajmpcp.com/index.php/AJMPCP/article/view/32

Katsimardou, A., Patoulias, D., Zografou, I., Tegou, Z., Imprialos, K., Stavropoulos, K., Toumpourleka, M., Karagiannis, A., Petidis, K., & Doumas, M. (2023). The Associations between Kidney Function and Sexual Dysfunction among Males and Females with Type 2 Diabetes Mellitus. Medicina (Lithuania), 59(5). https://doi.org/10.3390/medicina59050969

Liberati, A., Altman, D. G., Tetzlaff, J., Mulrow, C., Gøtzsche, P. C., Ioannidis, J. P. A., Clarke, M., Devereaux, P. J., Kleijnen, J., & Moher, D. (2009). The PRISMA statement for reporting systematic reviews and meta-analyses of studies that evaluate healthcare interventions: explanation and elaboration. BMJ (Clinical Research Ed.), 339. https://doi.org/10.1136/bmj.b2700

Monnaatsie, M., Biddle, S. J. H., Khan, S., & Kolbe-Alexander, T. (2021). Physical activity and sedentary behaviour in shift and non-shift workers: A systematic review and meta-analysis. Preventive Medicine Reports, 24, 101597. https://doi.org/10.1016/j.pmedr.2021.101597

Moola, S., Munn, Z., Sears, K., Sfetcu, R., Currie, M., Lisy, K., Tufanaru, C., Qureshi, R., Mattis, P., & Mu, P. (2015). Conducting systematic reviews of association (etiology): The Joanna Briggs Institute's approach. International Journal of Evidence-Based Healthcare, 13(3), 163–169. https://doi.org/10.1097/XEB.0000000000000064

Mushtaq, S., Khan, K., Abid, S., Umer, A., & Raza, T. (2018). Frequency of Hypogonadism and Erectile Dysfunction in Type-II Diabetic Patients. Cureus, 10(5). https://doi.org/10.7759/cureus.2654

Rosen, R. C., Riley, A., Wagner, G., Osterloh, I. H., Kirkpatrick, J., & Mishra, A. (1997). The International Index of erectile function (IIEF): A multidimensional scale for assessment of erectile dysfunction. Urology, 49(6), 822–830. https://doi.org/10.1016/S0090-4295(97)00238-0

Stern, C., Jordan, Z., & Mcarthur, A. (2014). Developing the review question and inclusion criteria. American Journal of Nursing, 114(4), 53–56. https://doi.org/10.1097/01.NAJ.0000445689.67800.86

Thongtang, P., Fongkaew, W., Lojanapiwat, B., Sansiriphun, N., & Chaloumsuk, N. (2020). Prevalence and factors associated with quality of life among diabetic men living with erectile dysfunction. Walailak Journal of Science and Technology, 17(9), 947–957. https://doi.org/10.48048/wjst.2020.5336

Torkamani, Z. J., Dolatian, M., Omani-Samani, R., Alizadeh, A., & Navid, B. (2021). Relationship between sexual function and type 2 diabetes in infertile men referred to Royan Institute. Journal of Renal Injury Prevention, 10(4), 1–7. https://doi.org/10.34172/jrip.2021.33

Silva, N. L., Athukorala, T., Gamage, J. L., Katulanda, G., de Silva, P., Sumanatilleke, M., & Somasundaram, N. (2022). Sexual dysfunction among men with diabetes; a cross-sectional study at a specialised diabetes clinic in Sri Lanka. BMC Endocrine Disorders, 22(1), 1–9. https://doi.org/10.1186/s12902-022-01108-1

Ugwumba, F. O., Okafor, C. I., Nnabugwu, I. I., Udeh, E. I., Echetabu, K. N., Okoh, A. D., & Okorie, J. C. (2018). Prevalence of, and risk factors for erectile dysfunction in male type 2 diabetic outpatient attendees in Enugu, Southeast Nigeria. Annals of African Medicine, 17(4), 215–220. https://doi.org/10.4103/aam.aam_3_18