ORIGINAL ARTICLE

Prevalence of Erectile Dysfunction and Its Associated Factors among Non-Diabetic Overweight & Obese Patients Attending Government Health Clinics in Kuantan, Pahang

Che' Man M[a], *Mohd Zainal AZAR*[a], *Yusof MZ*[b]

[a] Department of Family Medicine, Kulliyyah of Medicine, International Islamic University Malaysia, Kuantan, Pahang
[b] Department of Community Medicine, Kulliyyah of Medicine, International Islamic University Malaysia, Kuantan, Pahang

ABSTRACT

INTRODUCTION: In the clinical setting, erectile dysfunction (ED) is a significant issue that should not be neglected, as it can adversely impact the quality of life of patients and their partners, especially among overweight and obese populations. This study aims to determine the prevalence of ED and its associated factors among non-diabetic, overweight, and obese patients who attend a government health clinic in Kuantan, Pahang, Malaysia. **MATERIALS AND METHODS:** A six-month cross-sectional study was conducted from February 2024 to August 2024 at twelve health clinics in Kuantan, Pahang. The selected respondents were married men over 18 years old, and those with diabetes mellitus, cardiovascular disease, psychiatric illness, or illiteracy were excluded. Data were collected using the validated Malay version of the International Index of Erectile Function (IIEF-5). ED was defined as an IIEF-5 score of less than 22. Descriptive analysis and simple and multiple logistic regression were performed using SPSS. **RESULTS:** All 221 eligible patients in the study responded (100% response rate). The prevalence of ED was 66.1% (n=146). Multiple logistic regression showed that ED was significantly associated with dyslipidemia [AOR (95% CI): 2.42 (1.06–5.52); p-value=0.036], anxiety [AOR (95% CI): 3.99 (1.44–11.01); p-value=0.008] and older age [AOR (95% CI): 1.07 (1.02–1.12); p-value=0.009]. **CONCLUSION**: The study revealed a high prevalence of ED among non-diabetic overweight and obese patients, potentially linked to increasing age, dyslipidemia, and anxiety. Increasing awareness among the public and healthcare providers could improve detection rates in primary care.

Keywords:
Overweight & Obese, Erectile Dysfunction, Dyslipidaemia, Anxiety

Corresponding Author
Dr. Abdul Zaki Ar Rasyid Mohd Zainal
Family Health Clinic, Department of Family Medicine, Kulliyyah of Medicine, International Islamic University Malaysia, Kuantan, Pahang, Malaysia
Email : abdulzakiarrasyid.moh@gmail.com

Received: 1st July 2025; Accepted: 19th November 2025

Doi: https://doi.org/10.31436/imjm.v25i02.2897

INTRODUCTION

As defined by the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), erectile dysfunction (ED) is the inability to achieve and/or maintain an erection of sufficient quality for satisfactory sexual intercourse and performance. These symptoms must persist for at least six months and appear on nearly all occasions of sexual activity. Additionally, the condition must cause significant distress to the individual, and the dysfunction cannot be explained by another mental disorder, relationship issues, other stressors, or substances/ medications.[1]

It is estimated that in 1995 there were over 152 million men worldwide who experienced ED. The Massachusetts Male Aging Study reported a prevalence 52% in men aged 40 to 70.[2] In the Asian population, a recent meta-analysis reported an overall prevalence rate of 2.0%–81.8% throughout Asia. However, this study was limited by the fact that the included studies used different tools to evaluate the prevalence of ED.[3] In Malaysia, the Cross-National Prevalence Study on ED in 1998 showed that more than 16% of men aged 40 years and above had moderate to complete ED.[4] If the prevalence rates of ED in Malaysia were to include those with mild ED, more than 60% of Malaysian men aged 40 years and above would be said to have ED.[4] There are multiple factors associated with the development of ED. The disease

arises due to either local or central causes such as neurological factors, psychological factors, vascular diseases, endocrine, lifestyle, drugs related, and substances.[5]

A study done in January-March 2016 involving two major outpatient clinics in Johor Bahru and Segamat, Malaysia, found that the overall prevalence of ED among male outpatient clinic attendees was 81.5%, which was high.[6] This was significantly higher than the prevalence rates reported in other countries such as Singapore (2%–53%) and Thailand (29%–65%).[6] This may be due, in part, to the unexpectedly high rates of metabolic syndrome among Malaysians and the increasing epidemic of obesity. Indeed, Malaysia is currently described to have the highest obesity rate (45.3%) in Southeast Asia.[6] Various studies have investigated the prevalence of ED across different regions and populations in Malaysia. However, there is a lack of studies looking into the prevalence of ED among overweight and obese populations. Data from a host of clinical studies have indicated that there is an association between visceral obesity, androgen deficiency, endothelial dysfunction, and ED; however, the causal relationship between these variables remains unknown. Considerable evidence links obesity with reduced testosterone levels, resulting in a hypogonadal state, which is a risk factor for ED.[7]

In Malaysia, the overall prevalence of overweight and obesity in 2023 was 54.4 %, and it had increased by 10 % from 20-11-2023.[8] Obesity is a complex and chronic disease that has a heterogeneous presentation. Studies have shown that being overweight and obese reduces the quality of life and increase the risk of chronic health conditions, including type 2 diabetes mellitus (DM).[9] The presence of DM in a patient was a significant predictor of ED.[10] The risk of ED steadily increased with the duration of type 2 diabetes to a nearly two-fold greater risk compared with men without diabetes.[11]

ED is a significant sexual health concern among men that is frequently overlooked and insufficiently treated, particularly in outpatient settings. Therefore, this research aims to measure the prevalence of ED and its associated factors among non-diabetic overweight and obese patients attending government health clinics in Kuantan, Pahang, Malaysia.

MATERIALS AND METHODS

Study design and population

A six-month cross-sectional study was conducted from February 2024 to August 2024 at twelve health clinics in Kuantan, Pahang. The sample size was calculated based on the prevalence of ED among obese men in Denmark and added with a 20% non-response rate, and the final estimated sample size was 221.[12] Outpatient attendees aged 18 years old and above who could read Malay and married at least for the last six months were included in the study. Those who were illiterate, diagnosed with DM, had cardiovascular disease, or with any psychiatric illness or mental retardation were excluded. All male outpatients who attended the respective clinic on the day of data collection were selected through simple random sampling. Patients who met the inclusion criteria were recruited at the registration counter. The participating respondents were required to sign an informed consent form. All information were kept confidential.

Data collection

A self-administered questionnaire consisting of three sections. Section A: Sociodemographic and medical illness age, race, BMI, work status, education level, monthly income, alcohol status, caffeine and smoking status, dyslipidaemia, and hypertension. Section B assessed the psychological status by using the Depression Anxiety Stress Scale (DASS-21). The third section C is to screen for ED by using the International Index of Erectile Function (IIEF-5).

Malay version International Index of Erectile Function (IIEF-5)

The IIEF-5 questionnaire had a Cronbach's alpha coefficient of 0.86 for Bahasa Malaysia, demonstrating good test-retest reliability, high sensitivity, and specificity.[13] This instrument comprises five items across five domains. Classification of the Severity of ED based on total score: 1-7 (Severe), 8-11 (Moderate), 12-16 (Mild-

to-moderate), 17-21 (Mild), and 22-25 (No abnormality).

Malay version 21-item Depression Anxiety Stress Scale (DASS-21)

The DASS-21 Malay Version demonstrated satisfactory internal reliability with Cronbach's alpha coefficients of 0.75, 0.74, and 0.79 for depression, anxiety, and stress, respectively.[14] Responses were recorded on a 4-point scale, ranging from 0 (indicating the statement did not apply at all) to 3 (indicating the statement applied to the participant very much or most of the time). Subscale scores varied from 0 to 21 and were classified into normal, mild, moderate, severe, and extremely severe.

Data analysis

SPSS 29.0 software was used to analyse the data. The continuous data were not normally distributed; hence, median and interquartile ranges were used. Furthermore, descriptive statistics for categorical data employ frequency and percentage. The prevalence and severity of ED were calculated in percentages with a 95% confidence interval (CI). The relationship between ED and other variables, such as sociodemographic profile, medical illness, behavioural factors, and psychological factors, was analysed using simple logistic regression. A multiple logistic regression model using the Enter method was used to determine the factors associated with ED. All significant variables of known clinical relevance ($p < 0.25$) were included in the multivariate logistic regression.[15] The final model showed a significant value ($P < 0.05$), which was considered a statistically significant associated factor for ED.

RESULTS

Sociodemographic data

A total of 221 selected male patients responded, with a response rate of 100%. Table I shows the sociodemographic data of the subjects. The mean age was 45 years old, ranging from 18 to 59 years. The vast majority were Malays, accounting for 79.2% of the total, and the non-Malays 20.8%. Many respondents had a secondary education (43.0%), and 34.8% had university or college education. Most men were employed (90.5%), and about two-thirds were in the low-income category (B40) (78.2%). Non-smokers and smokers were nearly equal at 49.3% and 50.7%, respectively. The majority had a BMI category of overweight and obese class I, with each comprising 41.2% and 41.6%. A substantial proportion of respondents had dyslipidemia (45.7%) and hypertension (46.2%). Surprisingly, more than half of the people who participated in the survey did not experience any symptoms of stress (94.1%), anxiety (74.2%), or depression (92.3%).

Table I. Sociodemographic and Clinical Characteristics of Respondents

Variables	Characteristics	n	(%)	Median (IQ)
Age (years)		-	-	45.4 (16)
Ethnicity	Malay	175	79.2	
	Non-Malay	46	20.8	
Education Level	No Formal Education	5	2.3	
	Primary School	20	9.0	
	Secondary School	95	43.0	
	Vocational Institute	24	10.93	
	College/University	77	4.8	
Working Status	Unemployed	21	9.5	
	Employed	200	90.5	
Monthly Household Income	B40	173	78.2	
	M40/T20	48	21.8	
Body Mass Index	Overweight	91	41.2	
	Obese I	92	41.6	
	Obese II	25	11.3	
	Obese III	13	5.9	
Physical Activity	High	22	10.0	
	Moderate	58	26.2	
	Low	141	63.8	
Smoking Status	Yes	112	50.7	
	No	109	49.3	
Caffeine Status	Yes	127	57.5	
	No	94	42.5	
Dyslipidaemia	No	120	54.3	
	Yes	101	45.7	
Hypertension	No	119	53.8	
	Yes	102	46.2	
Stress	No	208	94.1	
	Yes	13	5.9	
Anxiety	No	164	74.2	
	Yes	57	25.8	
Alcohol Status	No	199	90.0	
	Yes	22	10.0	
Depression	No	204	92.3	
	Yes	17	7.7	

Prevalence of erectile dysfunction and severity

Figure I show that 66.1% of patients had ED. Looking into the severity domain, the results showed that 47% of patients reported having mild ED, 16.7% had mild to moderate ED, 1.8% had moderate ED, and 0.5% had a severe form of ED, as shown in Table II.

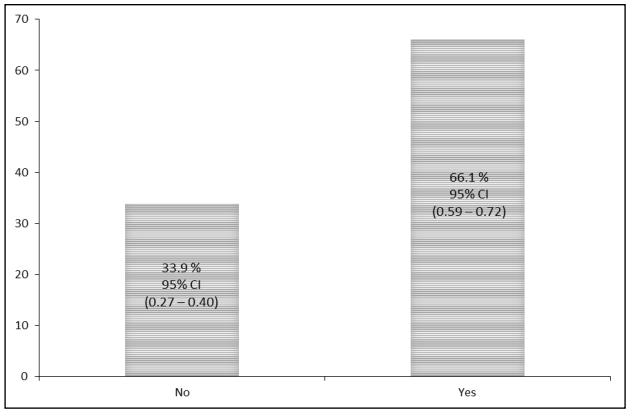

Figure I. Prevalence of Erectile Dysfunction

Table II. Severity of Erectile Dysfunction

Severity	n (%)	95% CI
Mild	104 (47.0)	0.40 – 0.54
Mild to Moderate	37 (16.7)	0.12 – 0.22
Moderate	4 (1.8)	0.01 – 0.05
Severe	1 (0.5)	0.11 – 0.19

Associated factors

Table III displays the results of simple and multiple logistic regression. From simple logistic regression, the associations with ED include age (OR=1.12, 95% CI 1.08–1.16), Malay ethnicity (OR=0.47, 95% CI 0.22–1.01), primary school (OR = 13.50, 95% CI 1.34–135.98), BMI obese III (OR=3.28, 95% CI 0.69–15.70), anxiety (OR=4.23, 95% CI 1.88–9.51), depression (OR=4.18, 95% CI 0.93–18.79), stress (OR=6.63, 95% CI 0.85–51.98), smoking (OR=0.52, 95% CI 0.29–0.92), employment (OR=0.085, 95% CI 0.011–0.647), hypertension (OR=6.611, 95% CI 3.39–12.90) and dyslipidaemia (OR=4.62, 95% CI 2.46–8.70). However, no significant correlation was found between ED and factors such as household income, physical activity, alcohol, and caffeine consumption.

According to Table III, certain factors significantly increase the likelihood of ED. Anxiety individuals were nearly four times more likely to report ED (AOR=3.99, 95% CI 1.44–11.02). Those individuals with increasing age (median age of 45) are more likely to report ED (AOR=1.07, 95% CI 1.02–1.13). Additionally, individuals with dyslipidaemia were twice as likely to develop ED (AOR=2.42, 95% CI 1.06–5.52). Although other factors were linked to an increased risk of ED, these associations were not statistically significant in this study.

Table III. Associated factors for erectile dysfunction

Variables	Simple Logistic Regression			Multiple Logistic Regression		
	Wald[a]	p-value[b]	Crude OR[c] (95% CI) [d]	Wald[a]	p-value[e]	Adjusted OR[f] (95% CI) [c]
Age	35.00	<0.001	1.12 (1.08 – 1.16)	6.77	0.009	1.070 (1.02 –1.13)
Ethnicity						
Non-Malay (ref.)						
Malay	3.74	0.053	0.47 (0.22 –1.01)	1.15	0.28	1.79 (0.62 – 5.18)
Physical Activity						
High (ref.)						
Moderate	0.01	0.919	1.05 (0.39-2.86)	-	-	-
Low	0.94	0.333	1.58 (0.63-3.96)	-	-	-
Employment						
No (ref.)						
Yes	5.66	0.017	0.09 (0.01-0.65)	2.05	0.153	0.20 (0.02-1.83)
Household Income						
B40 (ref.)						
M40/T20	0.35	0.56	0.82 (0.42-1.59)	-	-	-
Educations Level						
No Formal (ref.)						
Primary School	4.88	0.027	13.50 (1.34-135.98)	3.14	0.076	15.37 (0.75-316.0)
Secondary School	2.69	0.101	4.70 (0.74-29.89)	2.60	0.107	8.75 (0.63-22.24)
Institute Vocational	0.01	0.917	0.90 (0.13-6.46)	1.00	0.317	4.09 (0.26-64.22)
University/ College	0.63	0.428	2.11 (0.33-13.36)	2.08	0.150	6.81 (0.50 - 2.48)
Body Mass Index						
Overweight (ref.)						
Obese I	0.27	0.604	1.17 (0.64-2.15)	0.02	0.880	0.94 (0.43-2.05)
Obese II	0.24	0.622	1.27 (0.49-3.25)	0.09	0.764	0.82 (0.22-3.02)
Obese III	2.21	0.137	3.28 (0.69-15.69)	0.97	0.325	2.51 (0.40-15.69)
Alcohol Consumption						
No (ref.)						
Yes	0.48	0.488	1.41 (0.53-3.78)	-	-	-
Caffeine Consumption						
No (ref.)						
Yes	0.29	0.585	0.85 (0.48-1.50)	-	-	-
Smoking Status						
No (ref.)						
Yes	5.09	0.024	0.52 (0.29-0.92)	0.87	0.351	0.69 (0.33-1.49)
Dyslipidaemia						
No (ref.)						
Yes	22.51	<0.001*	4.62 (2.46-8.70)	4.38	0.036	2.42 (1.06-5.52)
Hypertension						
No (ref.)						
Yes	30.64	<0.001*	6.61 (3.39-12.90)	3.72	0.054	2.46 (0.98-6.15)
Stress						
No (ref.)						
Yes	3.24	0.072	6.63 (0.84-51.98)	1.78	0.183	4.86 (0.47-49.71)
Anxiety						
No (ref.)						
Yes	12.19	<0.001*	4.23 (1.88-9.51)	7.12	0.008*	3.99 (1.44-11.01)
Depression						
No (ref.)						
Yes	3.48	0.062	4.18 (0.93-18.79)	0.42	0.519	1.84 (0.29-11.79)

[a]Wald statistic; [b] p-value of Simple Logistic Regression; [c] Crude odd ratio; [d]Confidence Interval; [e]p-value of Multiple Logistic Regression; [f]Adjusted odd ratio; *significant at p value less than 0.05. The model of Nagelkerkr R square for this study was 0.459. This implies that only 46% of the variation in this study was explained in this model.

DISCUSSION

Prevalence of erectile dysfunction

Results in this study demonstrated that 66.1% of the participants reported experiencing ED, which closely matches the previous reported prevalence of ED in Malaysia.[16,17] However, the prevalence was slightly lower than the nationwide population study, with the overall prevalence of ED (78.7%).[18] However, the current study found a higher ED prevalence compared to primary care studies in other countries, highlighting significant variability. Reported ED rates include 55.1% in Nigeria and lower rates in Southeast Asia: Indonesia (11%), Singapore (2–53%), Thailand (29–65%), and the Philippines (33–65%).[3,19,20] The rise in ED appears to be linked to the growing burden of non-communicable diseases in the population over the past two decades.[18] There is a higher prevalence of metabolic syndrome among men.[21] The risk factors of metabolic syndrome are interconnected in contributing to the development of ED.[22,23]

Regarding obese populations, prevalence of ED in this study was also higher than the previous studies on obese men. For instance, the prevalence of ED in obese men varied by study and age group: 13% in men aged 20–45, 36.5% in men aged 26–70, and 22.3% in men over 20.[24] In addition, The European Male Ageing Study found that ED prevalence was higher in obese men (36.7%) compared to healthy weight men (24.8%).[24] Lastly, it was reported that 36% of men undergoing bariatric surgery experienced ED.[24]

Since our study focused on non-diabetic overweight and obese participants only, the other study with an almost similar population was a 5-year cohort regional study involving six primary care centres in Malaga, Spain, where they investigated the prevalence of ED in younger (age 18 – 49) non-diabetic obese men. The prevalence of ED in the whole cohort was 42.1%.[24] The findings were significantly lower than our study prevalence, even though our sample sizes were almost similar. This might be explained by the differences in the range of ages of participants included in the studies. In our study, we involved individuals beyond young ages which is those aged 18 to 59 years old. It was consistent with the Massachusetts Male Aging Studies revealed that the prevalence of ED increased with age, with complete ED rising from 5–15% between 40–70 years.[23] This was also supported by another local study that increasing age was associated with a higher prevalence of ED in the elderly (90.8%), followed by middle-aged (83.3%) and young (73.3%) men.[6]

Interestingly, we found this high ED prevalence despite the restrictive inclusion and exclusion criteria in our study: (i) Only participants under 60 were included to minimize the impact of age on ED prevalence; (ii) subjects with DM, cardiovascular diseases (conditions associated with increased prevalence of ED) were excluded; and (iii) Patients were recruited from primary care to avoid preselection bias from hospital or specialized care settings, as these patients could present more obesity-associated comorbidities (Berkson's bias).[25,26]

Severity of erectile dysfunction

In terms of ED severity, the study found that most ED cases (47%) were mild, aligning with Malaysian prevalence data showing 47.1% mild ED and 31.6% moderate to severe ED .[23] Aside from that, other studies reported comparable results, with 70% of men having ED and 48% experiencing mild severity.[24]

However, other Malaysian studies in the Johor Bahru and Segamat found 29.5% of respondents had severe ED, unlike our study, where only 0.5% had severe ED.[27] This can be explained by the recruitment age limit, wherein our study only limited up to 59 years old, whereas the other involved individuals were beyond 70 years old. Advanced age is significantly related to atherosclerosis due to impaired blood circulation to the sex organs.[22,27]

Associated factors

Three variables were shown to have a significant association with ED, which are anxiety, increasing age, and dyslipidaemia. Our study found that individuals with

anxiety were 4 times as likely to experience ED compared to those without anxiety. The present analysis demonstrates a robust correlation between anxiety and ED, which is consistent with a study in Kuantan, Malaysia, conducted in 2021, which found a similar association with ED, indicating a 2.85 likelihood of developing ED in men with anxiety.[28] Another study found that men with anxiety disorders faced a higher risk of ED, with resulting behavioural changes further fueling the vicious cycle between ED and anxiety.[29] This matter of distraction will to avoiding sexual situations or intimacy which in turn cause a poor relationship with the spouse. Consequently, men will have low self-confidence and even more anxiety. Spectrums of anxiety disorders include social anxiety disorder (SAD), panic disorder, obsessive-compulsive disorder (OCD), generalized anxiety disorder, and post-traumatic stress disorder (PTSD). The overall prevalence of ED in individuals with anxiety ranged from 0% to 85%, with rates varying by anxiety type: PTSD (3–85%), panic disorder (2–36.2%), and both SAD and OCD (0–20%).[29] The prevalence of anxiety and depression increases with the worsening severity of ED.[30] Most EDs are in the mild to moderate severity group.[29]

Increasing age has consistently been demonstrated as a significant predictor of ED.[31] Supporting evidence from both local and international studies has clearly established age as a significant, non-modifiable, and independent risk factor for ED.[32] Increasing age significantly raises ED risk due to physiological changes, including atherosclerosis, that limit blood flow to the sexual organs.[27] With increasing age, many acute and chronic conditions can emerge, acting as confounding factors that diminish sexual desire, lower self-esteem, and introduce medications that may worsen ED.[33] This was consistent with our study, which showed that on multivariate analysis, significant predictors for erectile dysfunction were age (odds ratio (OR) 1.070, 95% confidence interval (CI) 1.017–1.125, p=0.009). They had a median age of 45 years (IQR 16; range 18–59). More than one-third (39.4%, n=87) are in the age range from 50 to 59 years old. Our findings were supported by a study done in Singapore, which reported that age above 50 is the single most significant risk factor in multivariate analysis when adjusted for all confounding factors.[2] The fact that, the strong association between age and ED has also been highlighted in other studies, particularly the Massachusetts Male Aging Study, which found that the prevalence of complete ED tripled from 5% to 15% between the ages of 40 and 70.[2]

Our study also showed that those individuals with dyslipidaemia were at risk twice as likely to develop ED as compared to those without dyslipidaemia. The present analysis shows a strong correlation between dyslipidaemia and ED, consistent with findings from a cross-sectional study in Spain. That survey, involving 121 family physicians from 64 primary care centres of the Madrid Region Health Service (SERMAS), reported higher rates of lipid-lowering drug use among individuals with ED compared to those without (OR: 4.0 [CI: 3.3–4.9]). It also found a stronger association of hypercholesterolemia (OR: 2.3) and hypertriglyceridemia (OR: 1.2) with ED.[34]

Another study comparing the prevalence of hyperlipidemia between individuals with and without ED found that hypercholesterolemia (TC >200 mg/dl or 5.17 mmol/l) was present in 70.6% of the ED group versus 52% of the non-ED group (p=0.06). After adjusting for confounding factors, logistic regression analysis identified HDL-C and the TC/HDL-C ratio as significant predictors of ED (p=0.011 and p=0.000, respectively).[35]

Finally, both our crude and adjusted analyses did not show a positive correlation between overweight or obesity and ED risk after controlling for confounding factors. Therefore, we cannot conclude that overweight or obesity was associated with ED risk in our study. This differs from findings that reported a significant association between the degree of obesity and ED in younger non-diabetic men (AOR 2.02; CI 1.336–5.068; p=0.005).[24] In their study, degree of obesity referred specifically to morbid obesity (obesity class III, BMI ≥ 40). Since we are using an Asian population cut-off value in this study, according to the WHO BMI classification for the Asian population, morbid obesity is defined as BMI≥37.5. In our study, only 5.9% (n=13) of

participants were morbidly obese (obesity class III), and 11.3% (n=25) were in obesity class II, both representing a small proportion. The majority of participants were either overweight (41.2%, n=91) or in obesity class I (41.6%, n=92). This limited number of class II and III obese individuals may have reduced the statistical power of our analysis. Moreover, unlike previous studies that recruited only obese participants, our research included both overweight and obese individuals. Supporting evidence from another cross-sectional study found a higher ED prevalence among obese men (67.3%) compared to overweight men (50.8%), with an overall prevalence of 53.1%.[36]

STRENGTHS AND LIMITATIONS

The strengths of our study lie in the careful design (including only non-diabetic overweight and obese subjects without T2DM or CVD) as well as the assessment of sexual function with the IIEF-5 validated test. Despite the findings, the study has several limitations, including its self-reported data, which may cause recall bias. Additionally, this study is cross-sectional, which limits the ability to establish the causality of ED, potential unmeasured confounding variables, and cultural factors influencing the results. Future research should address these limitations by addressing more diverse populations and comprehensive assessments of comorbidity, psychological, and physiological factors, including hormonal evaluation. The findings are specific to the Kuantan area and may not represent the entire state of Pahang, Malaysia.

CONCLUSION

This study found that the prevalence of erectile dysfunctions was found to be high among non-diabetic overweight and obese patients attending government health clinics in Kuantan, Pahang. Anxiety, age, and dyslipidaemia were significantly associated with ED. Raising awareness among the public and healthcare providers can help improve detection rates among our overweight and obese patients in primary care. Therefore, utilizing screening tools such as IIEF-5 and DASS-21 can effectively identify patients with undisclosed sexual health problems. These measures would support early diagnosis and intervention. Notably, ED serves as a valuable early indicator of future cardiovascular events, as ED and cardiovascular disease share underlying mechanisms such as endothelial dysfunction and inflammation.

CONFLICT OF INTEREST

The author discloses that they do not have any conflicts of interest.

INSTITUTIONAL REVIEW BOARD (ETHICS COMMITTEE)

This study obtained approval from the Department of Family Medicine and Kulliyyah Research Committee (KRC) of Kulliyyah of Medicine, International Islamic University Malaysia (IIUM) on 12th April 2023 with Research ID: 987. Furthermore, this study was registered with the National Medical Research Register (NMRR) and obtained approval from the Medical Research and Ethics Committee (MREC) with ID: NMRR ID-23-02856-L2P (IIR).

ACKNOWLEDGEMENT

The researchers express their profound appreciation to the Director General of the Ministry of Health Malaysia for authorizing the publication of this manuscript. Special thanks to the Pahang State Health Department and Kuantan District Health Office for allowing me to use government health clinics for data collection. Thank you to the staff for their cooperation and assistance in ensuring smooth data collection.

REFERENCES

1. American Psychiatric Association. Diagnostic and statistical manual of mental disorders (5th ed.) 2013
2. Tan JK, Hong CY, Png DJ, et al. Erectile dysfunction in Singapore: prevalence and its associated factors--a population-based study. Singapore Med J 2003; 44 (1):20-6.
3. Cheng, J. Y. W., Ng, et al. Prevalence of erectile dysfunction in Asian populations: a meta-analysis. 2007: 229–244.
4. Malaysian Urological Association, MEDACT. Clinical practice guide in erectile dysfunction.
5. Grant, P., Jackson, et al. Erectile dysfunction in

general medicine. 2013; 13(2):136–140.
6. Nordin RB, Soni T, Kaur A, et al. Prevalence and predictors of erectile dysfunction in adult male outpatient clinic attendees in Johor, Malaysia. Singapore Med J. 2019; 60(1):40-47.
7. Feeley RJ, Traish AM. Obesity and erectile dysfunction: is androgen deficiency the common link? ScientificWorldJournal. 2009; 9(6):76-84.
8. National Health and Morbidity Survey 2023 (NHMS 2023).
9. Ministry of Health Malaysia, Malaysian Endocrine & Metabolic Society, Malaysian Association for the Study of Obesity, Malaysian Dietitians' Association, Family Medicine Specialists Association of Malaysia. Clinical Practice Guidelines: Management of Obesity (2nd Edition, 2023).
10. Yap J, Tan FCL, Shen T, Teo TY, Yeo KK. Erectile dysfunction: A hidden epidemic. Proceedings of Singapore Healthcare. 2018; 27(3):211-213.
11. Bacon CG, Hu FB, Giovannucci E, et al. Association of type and duration of diabetes with erectile dysfunction in a large cohort of men. Diabetes Care 2002; 25(8):1458-63.
12. Andersen I, Heitmann BL, Wagner G. Obesity and sexual dysfunction in younger Danish men. J Sex Med 2008; 5(9):2053-60.
13. Lim TO, Das A, Rampal S, et al. Cross-cultural adaptation and validation of the English version of the International Index of Erectile Function (IIEF) for use in Malaysia. Int J Impot Res 2003; 15(5):329-36.
14. Musa R, Fadzil MA, Zain Z. Translation, validation and psychometric properties of Bahasa Malaysia version of the Depression Anxiety and Stress Scales (DASS). ASEAN Journal of Psychiatry 2007; 8(2).
15. Hosmer DW, Lemeshow S, Sturdivant RX. Applied Logistic Regression: Third Edition. 2013.
16. Hassan MR, Samsuri MF, Shah SA, et al. Prevalence of Premature Ejaculation and Erectile Dysfunction and their associated factors among urban and rural population of Malaysia. Malaysian Journal of Public Health Medicine 2017; 17(3):86–96.
17. Ab Rahman, A. A., Al-Sadat, et al. Prevalence of erectile dysfunction in primary care settings, Malaysia. Journal of Men's Health 2011; 8(1): S50–S53.
18. National Health and Morbidity Survey 2019 (NHMSS 2019).
19. Adebusoye, L. A., Olapade-olaopa, et al. Prevalence and Correlates of Erectile Dysfunction among Primary Care Clinic Attendees in Nigeria. 2012; 4 (4):107–117.
20. Ho, C. C., Singam, et al. Male sexual dysfunction in Asia. Asian Journal of Andrology 2011; 13(4):537–542.
21. Phing, C. H., Saad, et al. Determinants of metabolic syndrome among Malaysian government employees. International Medical Journal Malaysia 2018; 17 (1):87–92.
22. Gökçe, M. İ., & Yaman, Ö. Erectile dysfunction in the elderly male. Turkish Journal of Urology 2017; 43(3):247–251.
23. Somani, B., Khan, et al. Screening for metabolic syndrome and testosterone deficiency in patients with erectile dysfunction: Results from the first UK prospective study. BJU International 2010; 106 (5):688–690.
24. Molina-Vega M, Asenjo-Plaza M, Banderas-Donaire MJ, et al. Prevalence of and risk factors for erectile dysfunction in young nondiabetic obese men: results from a regional study. Asian J Androl. 2020; 22 (4):372-378.
25. Zarotsky V, Huang MY, Carman W, et al. Systematic literature review of the risk factors, comorbidities, and consequences of hypogonadism in men. Andrology 2014; 2(8):19–34.
26. Westreich D. Berkson's bias, selection bias, and missing data. Epidemiology 2012; 23(1):59–64.
27. Wang, J. C., & Bennett, M. Aging and atherosclerosis: Mechanisms, functional consequences, and potential therapeutics for cellular senescence. Circulation Research 2012; 111(2):245–259.
28. Wan Mahmud, W. F. S., Che Man, et al. Prevalence of Erectile Dysfunction and its Associated Factors among Men in Government Health Clinics in Kuantan, Pahang. IIUM Medical Journal Malaysia

2023; 22(4).
29. Velurajah, R., Brunckhorst, et al. Erectile dysfunction in patients with anxiety disorders: a systematic review. International Journal of Impotence Research 2022; 34(2):177–186.
30. Yang, Y., Song, et al. Associations between erectile dysfunction and psychological Disorder (depression and anxiety): Cross-sectional study of a Chinese population. Andrologia 2019; 51(10):1–8.
31. Wagle KC, Carrejo MH, Tan RS. The implications of increasing age on erectile dysfunction. Am J Mens Health 2012; 6:273-9.
32. Malavige LS, Levy JC. Erectile dysfunction in diabetes mellitus. J Sex Med 2009; 6(12):32-47.
33. Camacho ME, Reyes-Ortiz CA. Sexual dysfunction in the elderly: age or disease? Int J Impot Res 2005; 17(1): S52-6
34. Ruiz-García A, Arranz-Martínez E, Cabrera-Vélez R, et al. Prevalence of erectile dysfunction in Spanish primary care setting and its association with cardiovascular risk factors and cardiovascular diseases. SIMETAP-ED study. Clin Investig Arterioscler. 2019; 31(3):101-110.
35. Roumeguère Th, E Wespes, Y Carpentier, et al. Erectile Dysfunction Is Associated with a High Prevalence of Hyperlipidemia and Coronary Heart Disease Risk. European Urology 2003; 44(3): 355 – 359.
36. Liu Y, Hu X, Xiong M, et al. Association of BMI with erectile dysfunction: A cross-sectional study of men from an andrology clinic. Front Endocrinol (Lausanne). 2023; 14:1135024.