

A Cross-Sectional Study on the Prevalence and Risk Factors of Erectile Dysfunction Among Young and Middle-Aged Male Patients with Diabetes Mellitus at a Tertiary Hospital in Manila



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ABSTRACT

This study aims to determine the prevalence of erectile dysfunction (ED) and identify its associated risk factors among young and middle-aged Filipino male patients diagnosed with diabetes mellitus. This study utilized a cross-sectional design to investigate the prevalence and associated factors of ED among male patients with diabetes. A total of 423 participants were recruited from clinical settings using purposive sampling. Data were collected using structured interviews and medical records, including demographics, comorbidities and laboratory results. Among 423 male diabetic patients, 78% were found to have ED. Patients with ED were significantly

older (median: 49.5 versus 42 years, $p < 0.001$), had higher body mass index (BMI), longer diabetes duration and more comorbidities. Univariable logistic regression showed that age (OR: 1.06, $p < 0.001$), diabetes duration (OR: 1.11, $p < 0.001$), hypertension (OR: 1.62, $p = 0.042$), dyslipidemia (OR: 1.75, $p = 0.022$), elevated HbA1c ($>9.0\%$; OR: 3.43, $p = 0.034$) and serum creatinine (OR: 1.01, $p = 0.008$) were significantly associated with ED. However, none remained significant in the multivariable model. Male Filipino patients with diabetes have a significant burden of ED. Results of the univariable models show that age, duration of diabetes, hypertension, dyslipidemia, HbA1c and serum creatinine are significant individual predictors of ED.

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INTRODUCTION

The prevalence of diabetes is increasing globally, and its complications, such as erectile dysfunction (ED), are becoming more common. ED can significantly affect the quality of life and psychological well-being of patients with diabetes. However, the prevalence

and risk factors for ED among male patients with diabetes in the Philippines are not well-established.

Understanding the prevalence and underlying risk factors of ED among male patients with diabetes mellitus (DM) is crucial for informing clinical management and improving patient outcomes. ED, a condition characterized by persistent inability of achieving and maintaining an erection for sufficient sexual performance has been frequently reported in men presenting with diabetes. The clinical significance of ED lies not only on its impact on sexual health, but also in its association with cardiovascular disease, reduced quality of life and psychological distress. In diabetic populations, ED may serve as an early marker of vascular complications, as ED affects between 35% and 75% of men with diabetes globally, a proportion that is significantly higher when compared with the general male population,[1] emphasizing the need for timely identification and intervention.

The pathophysiology linking DM and ED has been well established in literature; chronic hyperglycemia leads to endothelial dysfunction, neuropathy, reduced penile blood flow, hormonal imbalances and psychological distress.[2,3] Globally, ED affects a substantial proportion of the population of men, especially those with diabetes. Estimates indicate that men with diabetes are three times more likely to develop ED in comparison to non-diabetic males.[2] With studies showing strong correlations between ED severity and factors such as glycemic control, duration of diabetes, hypertension, obesity and testosterone levels.[4]

Despite robust global data, research regarding ED in the Filipino male population with diabetes is limited and yet to be explored extensively. In the Philippines, there is growing recognition of the need for localized data regarding ED among men with diabetes. A study assessing the prevalence of ED among diabetic men at the University of the Philippines – Philippine General Hospital (UP-PGH) Outpatient Department reported 99% percent of ED among diabetic men at UP-PGH, with 54% of subjects having severe ED.[5] In a more recent study, a cross-sectional survey was conducted involving 370 Filipino male social media users aged 18-78 years old and the International Index of Erectile Function-5 (IIEF-5) was utilized to assess the prevalence and severity of ED. Results showed that 65.9% of participants had mild to severe ED, while

stratification of results by age revealed that among young adults (18-39 years), 25% reported some degree of ED, while middle-aged participants had higher severity scores,[6] further underscoring the presence of ED even among younger Filipino males and suggesting that ED is not limited to older men or those with long-standing chronic disease.[6] In addition to prevalence data, studies have identified key predictors of ED among men with diabetes reporting that age, duration of diabetes, obesity, hypertension, smoking and poor glycemic control are significant factors associated with increased ED risk.[7,8]

However, a need for more focused research on younger and middle-aged Filipino men, a group that may experience relational and substantial psychological consequences from ED remains to be underrepresented in the current landscape of literature.

The prevalence of DM in the Philippines is continuing to rise, with an estimated 3.99 million Filipino adults living with diabetes, translating to approximately 6.3% of the adult population. [9] Despite this growing public health challenge, there remain limited studies focusing specifically on examining ED in Filipino males within the context of diabetes. Existing literature largely emphasizes older adults or the general male population, neglecting the distinct clinical and psychosocial profiles of younger and middle-aged men with diabetes. Moreover, cultural factors may influence how ED is perceived, reported and managed among Filipino men, underscoring the importance of context-specific investigation.

Thus, to address these concerns, this study aims to determine the prevalence of ED and identify its associated risk factors among young and middle-aged Filipino male patients diagnosed with DM. The study will be utilizing the IIEF-5 questionnaire for assessing erectile function severity to provide clinically meaningful data. By generating evidence regarding the burden and correlation of ED in this population, the study seeks to inform targeted screening strategies and patient-centered interventions.

The study's findings could provide valuable information for healthcare providers, policymakers and patients to improve sexual health and quality of life of male patients with diabetes in the Philippines. Identifying the risk factors for ED among this population could lead to the development of

targeted interventions to prevent and manage ED in patients with diabetes. Moreover, the study could provide insights into the need for earlier and more aggressive diabetes management to reduce the risk of ED in young male patients with diabetes.

METHODS

The study was approved by the University of Santo Tomas Hospital Ethics Regulatory Board. Informed consent was obtained from all participants, ensuring that they fully understood the study's purpose and procedures. Confidentiality of participants' personal and medical information was maintained at all times.

Selection and Description of Participants

This study utilized a cross-sectional analytical research design to estimate the prevalence of ED and identify the associated risk factors among young and middle-aged Filipino male patients with DM. The study was conducted across all University of Santo Tomas Hospital (USTH) departments. The target population included Filipino male patients aged between 18 and 59 years old with a confirmed diagnosis of type 1 or type 2 DM for at least six months prior to enrollment. Participants were selected using purposive sampling from all departments of the USTH. Participants considered eligible for inclusion were Filipino male patients aged 18 to 59 years old with a confirmed diagnosis of Type 1 or Type 2 diabetes for at least six months. Patients with prior diagnoses of major psychiatric illness, pelvic or prostate surgery, spinal cord injury, or hypogonadism were excluded.

Data collection for this study included the use of a baseline questionnaire to collect data regarding the demographic characteristics, medical history, diabetes management and lifestyle factors to describe the study population. The IIEF-5 questionnaire was utilized to assess the presence and severity of ED to provide quantitative data regarding erectile function for the estimation of ED prevalence in the sampling population. The relationship between long-term blood glucose control and ED was assessed using glycated hemoglobin (HbA1c) levels obtained from medical records of patients whenever available. Lastly, potential risk factors for ED were assessed using a combination of self-reported data, clinical measurements and medical record review.

Sample Size Estimation

The sample size for this study was computed using the formula for estimating population proportion. Based on estimated prevalence of ED among male patients with diabetes in Asia, which ranges from 35% to 75% a conservative estimate of 50% prevalence was used.[1] There is no existing institutional or national data available as of writing. Hence, the utilization of the cited study. The desired level of precision or margin of error is set at 5% and the level of confidence at 95%. Using these parameters, the calculated sample size is 384.

To account for potential non-response or incomplete data, a 10% contingency was added, resulting in a final sample size of 422 participants.

The sample was selected using a simple random sampling technique. The sampling frame was derived from a consolidated registry of all male patients within the age range diagnosed with DM, obtained from electronic medical records and outpatient census of the section of Endocrinology, and the Internal Medicine and Family Medicine departments of the participating hospital. The study was conducted in compliance with ethical principles for medical research involving human subjects and informed consent will be obtained from all participants.

Data Collection and Measurements

The study procedure for investigating the prevalence of ED and its associated risk factors among male Filipino patients with diabetes in the Philippines involved a comprehensive and systematic approach. This research aims to provide valuable insights into the sexual health and quality of life of this specific population.

To initiate the study, we have collaborated with all the departments of the University of Santo Tomas Hospital. They have served as recruitment centers for potential participants. The research team engaged in discussions with healthcare providers to identify eligible individuals based on the inclusion criteria. Eligible participants would then be approached by healthcare professionals who would explain the study's purpose, procedures, potential risks and benefits.

Once informed consent was obtained, participants were asked to complete a baseline questionnaire via

printed or online. This questionnaire encompassed a wide range of topics, including demographic information, medical history (type of diabetes, duration of diabetes, comorbidities, etc.), diabetes management strategies (medications, sugar control) and lifestyle factors (smoking). The baseline data provided a comprehensive overview of participants' characteristics and served as the foundation for subsequent analyses.

The IIEF-5 questionnaire was administered to assess erectile function. This validated tool consists of five questions that evaluate the severity of ED. Scores of 21 or lower on the IIEF-5 indicate the presence of ED. Participants are to complete this questionnaire to gauge the prevalence and severity of ED within the study population.

To explore the relationship between glycemic control and likelihood of ED, the research team obtained information on the participants' glycated hemoglobin (HbA1c) levels, if and when available. HbA1c is a reliable indicator of long-term blood sugar control in individuals with diabetes. This measurement helped determine whether there was a correlation between glycemic control and ED.

Participants were asked information about various risk factors that may contribute to ED. These risk factors include dyslipidemia (abnormal lipid levels), hypertension (elevated blood pressure), anthropometric measurements (weight, height, abdominal circumference), BMI and smoking status. These factors will be determined through medical records, clinical measurements and self-reported information provided by participants. To assess the presence and severity of ED, the IIEF-5 was utilized. It is derived from the 15-item IIEF questionnaire developed by Rosen, et al.[8] The IIEF-5 was a simplified version for facilitating quicker clinical screening. The IIEF-5 is a self-administered questionnaire consisting of five questions evaluating the key dimensions of erectile function over the previous six months, including erectile confidence, erection firmness, maintenance ability, maintenance frequency and satisfaction with intercourse.[8] Each item is being scored on a scale from 1 to 5, yielding a total score between 5 and 25, with the lower scores signifying a more severe ED.

Collected data were meticulously analyzed to achieve the study's specific objectives. Descriptive statistics, such as frequencies and percentages,

were used to determine the prevalence of ED within the sample and summarize the distribution of risk factors. Bivariate and multivariate logistic regression analyses were performed to identify significant risk factors associated with ED while controlling for potential confounding variables.

Statistics

Descriptive statistics were employed to summarize the demographic and clinical characteristics of the study population. The prevalence of ED was computed using frequencies and percentages based on the participants' score from the IIEF-5, with participants scoring 21 or below indicating the presence of ED. Similarly, descriptive statistics were utilized for examination of the distribution of potential risk factors, including glycemic control (HbA1c levels), hypertension, dyslipidemia, smoking status, BMI and duration of diabetes.

To assess the associations between ED and categorical risk factors, Fisher's Exact Test was used, while the Mann-Whitney U test was used for continuous or ordinal variables to compare distributions between participants. For further identification of independent predictors of ED, a multivariate logistic regression analysis was performed, incorporating variables that showed $p < 0.10$ in the bivariate analysis. This allowed the study to adjust for potential confounding variables and evaluate the independent association of each risk factor with ED. Only participants with complete data would be included in this study; however, missing values would be addressed using listwise deletion. All statistical analysis was performed using SPSS with a significance level at $p < 0.05$ and a 95% confidence interval applied where appropriate. Variables demonstrating statistical significance at the bivariate level (commonly $p < 0.05$ or less stringent $p < 0.20$) may be included in the multivariate model to account for confounding effects. This approach ensures that important predictors are not omitted solely due to reduced power in univariable comparisons.[10]

RESULTS

Table 1 summarizes the demographic characteristics of the 423 participants included in the study,

Table 1: Demographic profile of patients (N=423)

	Total (n=423)	With ED (n=330)	Without ED (n=93)	p-value
	Frequency (%); Median (IQR)			
Age, years	47 (39 – 54)	49.5 (40.25 – 55)	42 (35 – 49)	<0.001m
BMI	26.04 (23.18 – 28.73)	26.83 (23.52 – 29.07)	25.16 (22.15 – 28.34)	.0254m
Overweight	73 (17.26)	61 (18.48)	12 (12.9)	.2762f
Obese	250 (59.1)	203 (61.52)	47 (50.54)	.0729f
Waist circumference, cm	86 (81 – 93)	86 (81 – 94)	84 (81 – 91)	.0376m
Length of diabetes, years	4 (2 – 8)	5 (2 – 9)	3 (1 – 5)	<.001m
Comorbidities				
Hypertension	270 (63.83)	219 (66.36)	51 (54.84)	.0503f
Dyslipidemia	190 (44.92)	158 (47.88)	32 (34.41)	.0248f
Gout/Hyperuricemia	31 (7.33)	28 (8.48)	3 (3.23)	.1133f
Others	20 (4.73)	19 (5.76)	1 (1.08)	.0919f
None	104 (24.59)	69 (20.91)	35 (37.63)	.0016f
Smoking Status				
Yes	175 (41.37)	138 (41.82)	37 (39.78)	.8117f
No	248 (58.63)	192 (58.19)	56 (60.22)	
For smokers				
Packs per year	12 (5 – 21)	12.43 (6 – 21)	7.5 (2.4 – 20)	.1225m

Statistical test used: f – Fisher's Exact test, m – Mann-Whitney U test.

comparing those with ED and those without. Most of the patients in the sample were classified with ED (78.01%) based on the IIEF-5. The overall median age was 47 years (IQR: 39-54), with a median BMI of 26.04 (IQR: 23.18-28.73) and a median waist circumference of 86 cm (IQR: 81-93). Regarding body weight classification, 17.3% were overweight and 59.1% classified as obese. The median duration of DM among all participants was four years (IQR: 2-8). The most common comorbidities were hypertension (63.8%), dyslipidemia (44.9%) and gout or hyperuricemia (7.3%). A smaller portion (4.7%) reported other comorbidities, while 24.6% reported no comorbid condition. Regarding smoking status, 41.4% were active smokers, with a median smoking exposure of 12 pack-years (IQR: 5-21) among smokers.

When comparing patients with ED (n = 330) and without (n = 93), several statistically significant differences were observed. Patients with ED were older, with a median age of 49.5 years versus 42 years among those without ED (p<0.001). BMI was also significantly higher in the ED group (median: 26.83 versus 25.16; p = 0.0254), similar to waist

circumference (median: 86 versus 84 cm; p = 0.0376). The duration of DM was longer among those with ED (median: 5 years) in comparison to those without ED (median: 3 years; p<0.001) indicating a potential link between prolonged hyperglycemia and the development of ED. Lastly, in regard to comorbidities, hypertension and dyslipidemia were more prevalent in the ED group, though only dyslipidemia showed a statistically significant difference (47.9% versus 34.4%; p = 0.0248). Notably, a significantly higher proportion of participants without ED had no comorbidities, suggesting that the presence of additional health conditions is a contributing factor to the risk of ED.

Table 2 displays an item-wise breakdown of the IIEF-5 questionnaire. The responses are mostly spread out, with most patients answering 3 or 4 for most of the questions. The overall average score in the sample for the 5-questionnaire is 18 (IQR: 15 -21), which meets the threshold of classification for ED. Overall, the results of the questionnaire indicate that most patients have some degree of ED and according to the questionnaire, erectile function is mostly middling.

Table 2: Summary of average responses to IIEF5 (N=423)

Question	Total (n=423)	With ED (n=330)	Without ED (n=93)	p-value*
	Median (IQR)			
How do you believe that you can achieve an erection?	3 (3-4)	3 (3-4)	5 (4-5)	<.001
During an erection from sexual stimulation, how often can you maintain it long enough before the actual sexual intercourse?	3 (3-4)	3 (2-4)	5 (5-5)	<.001
How frequent can you maintain an erection during the actual sexual intercourse?	3 (3-4)	3 (2-4)	5 (4-5)	<.001
During the sexual intercourse, how difficult is it for you to maintain an erection to achieve climax?	4 (3-4)	4 (3-4)	5 (5-5)	<.001
During sexual intercourse, how often is it satisfying for you?	4 (3-5)	4 (3-4)	5 (5-5)	<.001
Total score	18 (15-21)	17 (13-19)	24 (23-25)	<.001

Statistical test used: f – Fisher's Exact test, m – Mann-Whitney U test.

Table 3: Clinical profile of patients (N=423)

	Total (n=423)	With ED (n=330)	Without ED (n=93)	p-value
	Frequency (%); Median (IQR)			
Systolic BP (mmHg)	130 (120-130)	130 (120-130)	120 (120-130)	.2316 m
Diastolic BP (mmHg)	80 (80-90)	80 (80-90)	80 (80-90)	.4242 m
FBS (mg/dL)	142 (116-163)	142.5 (118-165.25)	135 (110-157)	.0999 m
HbA1c	N=422	N = 330	N = 92	
<5.7	25 (5.91)	15 (4.55)	10 (10.75)	.0423 f
5.7-6.4	115 (27.19)	85 (25.76)	30 (32.26)	.2355 f
6.5-8.0	172 (40.66)	142 (43.03)	30 (32.26)	.0729 f
8.0-9.0	67 (15.84)	52 (15.76)	15 (16.13)	>.999 f
>9.0	43 (10.17)	36 (10.91)	7 (7.53)	.4381 f
Serum Creatinine (mg/dL)	104 (87.75-123)	106 (88-126)	98 (86-109)	.0159 m
Total Cholesterol (mg/dL)	189.5 (156.25-223.5)	189 (154.83-227)	191 (162-216.5)	.6893 m
Triglycerides (mg/dL)	174 (125-199)	174 (124-199)	164.5 (129.75-198.5)	.9665 m
HDL (mg/dL)	49 (43-55)	48 (43-55)	50.5 (46-54.75)	.3386 m
LDL (mg/dL)	88.02 (76-111)	88.73 (74.75-110)	86.5 (76.25-127)	.6759 m

Statistical test used: f – Fisher's Exact test, m – Mann-Whitney U test.

Table 3 outlines the clinical characteristics of the study population. The overall median systolic and diastolic blood pressure readings were 130 mmHg and 80 mmHg, respectively. Median fasting blood sugar (FBS) was 142 mg/dL, serum creatinine 104 mg/dL, triglycerides 174 mg/dL, HDL 49 mg/dL, and LDL 88.02 mg/dL. Most patients had a recent HbA1c level ranging from 6.5% to 8.0%. Significant differences were observed in HbA1c levels and serum creatinine between those with and without

ED. A greater proportion of patients without ED had HbA1c <5.7% (10.75% versus 4.55%; $p = 0.0423$). Moreover, patients with ED had significantly higher median serum creatinine levels (106 versus 98 mg/dL; $p = 0.0159$). No significant differences were observed in blood pressure, lipid profile, or fasting blood sugar.

Table 4 presents the logistic regression results assessing the association between clinical and demographic variables and ED among diabetic

Table 4: Summary of logistic regression modeling

Variable	Univariable Models			Multivariable Model (n=247)		
	Crude Odds Ratio	95% Confidence Interval	P-value	Adjusted Odds Ratio	95% Confidence Interval	P-value
Age	1.06	(1.04, 1.09)	<.001	1.06	(0.99, 1.12)	.0633
BMI	1.01	(0.98, 1.06)	.4967	2.26	(0.64, 10.07)	.2399
Waist Circumference	1.02	(0.99, 1.04)	.1550	0.98	(0.93, 1.04)	.6138
Duration of diabetes	1.11	(1.05, 1.20)	<.001	1.08	(0.96, 1.25)	.2041
Comorbidities						
Hypertension	1.62	(1.02, 2.59)	.0420	1.09	(0.38, 3.03)	.8609
Dyslipidemia	1.75	(1.09, 2.85)	.0219	0.62	(0.21, 1.77)	.3821
Gout/Hyperuricemia	2.78	(0.96, 11.82)	.0985	3.40	(0.52, 68.90)	.2824
Smoker	1.09	(0.68, 1.75)	.7250	0.98	(0.41, 2.36)	.9670
Systolic BP	1.01	(0.99, 1.03)	.1820	1.01	(0.97, 1.06)	.5789
Diastolic BP	1.00	(0.98, 1.03)	.8350	0.98	(0.94, 1.02)	.3628
FBS	1.01	(1.001, 1.013)	.0309	1.1	(0.99, 1.04)	.1752
HbA1c						
<5.7				Reference		
5.7 – 6.4	1.89	(0.75, 4.63)	.1670	2.13	(0.39, 10.92)	.3630
6.5 – 8.0	3.16	(1.25, 7.65)	.0116	2.79	(0.49, 15.08)	.2307
8.0 – 9.0	2.31	(1.26, 7.65)	.0955	7.65	(0.723, 188.59)	.1220
>9.0	3.43	(1.11, 3.45)	.0339	0.98	(0.06, 25.45)	.9889
Serum creatinine	1.01	(1.003, 1.02)	.0081	1.01	(0.95, 1.03)	.2172
Total cholesterol	1.00	(0.99, 1.01)	.9412	0.99	(0.98, 1.01)	.6343
Triglycerides	1.00	(0.99, 1.00)	.7000	1.00	(0.99, 1.01)	.2463
HDL	0.99	(0.98, 1.02)	.7643	0.99	(0.97, 1.04)	.8673
LDL	0.99	(0.99, 1.01)	.4020	0.99	(0.97, 1.01)	.5529

*Upper confidence limit is very large, thus the notation of tending to infinity.

males on the basis of the IIEF-5. Following the univariable analysis, several factors were significantly associated with ED. Each additional year of age increased the odd of ED by 6% (OR: 1.06; 95% CI: 1.04-1.09; $p < 0.001$), and each year of diabetes duration raised the odds by 11% (OR: 1.11%; 95% CI: 1.05-1.20; $p < 0.001$). Hypertension (OR: 1.62; 95% CI: 1.02-2.59; $p = 0.042$) and dyslipidemia (OR: 1.75; 95% CI: 1.09-2.85; $p = 0.0219$) were also significant.

Elevated HbA1c levels were linked to increased ED risk. Compared to HbA1c <5.7%, the odds were higher in HbA1c 6.5%-8.0% (OR: 3.16; 95% CI: 1.25-7.65; $p = 0.0116$) and HbA1c >9.0% (OR: 3.43; 95% CI: 1.11-3.45; $p = 0.0339$). Serum creatinine was also positively correlated (OR: 1.01; 95% CI: 1.003-1.02, $p = 0.0081$). In the

multivariable model, none of the variables, including age, BMI, waist circumference, duration of diabetes, hypertension, dyslipidemia, hyperuricemia, smoking status, systolic and diastolic blood pressure, fasting blood sugar, HbA1c, serum creatinine, total cholesterol, triglycerides, HDL and LDL levels remained statistically significant.

DISCUSSION

In this study, men with ED were older (median age 49.5 versus 42 years, $p < 0.001$), had a higher BMI (26.8 versus 25.2, $p = 0.025$) and larger waist circumference (86 versus 84 cm, $p = 0.38$) in comparison to those without ED. These results, however, do not directly affirm that type 2 diabetes independently increases ED risk and that elevated

BMI amplifies the risk similarly to what [11] has been reported regarding BMI, fasting blood sugar, serum cholesterol and serum creatinine, showing weak negative correlation with potency score. [11] However, it similarly suggests that age is an independent predictor of ED.[12] These findings are however similar to a 2024 review of studies suggesting that diabetic men show that age (OR: 1.31, 95% CI = 1.24-1.37) is a significant risk factor.[13] Moreover, these findings are similarly reported by a review conducted [14] in 108,030 diabetic men and showing that age >40 years (adjusted OR: 1.95) and obesity (OR per BMI unit = 1.07) significantly increase ED risk.[14] Additionally, duration of diabetes was significantly longer in the ED group (median 5 versus 3 years, $p < 0.001$), which was also similarly reported, [14] wherein men with diabetes for more than 10 years have an approximately 1.9 times higher odds of experiencing ED in comparison to those with shorter duration (OR 1.90; 95% CI 1.16-2.65).[14] Dyslipidemia, being present in 48% of ED patients versus 34% of their counterparts ($p = 0.025$), supports previous evidence highlighting the role of atherogenic lipid profiles in compromising vascular erectile function.[15]

While blood pressure and lipids did not differ significantly between ED and non-ED groups, glycemic control and renal function did. More men without ED achieved HbA1c <5.7% (10.8% versus 4.6%; $p = 0.042$), and ED patients had higher serum creatinine (median 106 versus 98 mg/dL; $p = 0.016$). These findings correspond with an Ethiopian study reporting poor glycemic control and elevated creatinine as predictors. More specifically, this aligns with the findings,[7] which found that persistent hyperglycemia (FBS >126 mg/dL) was significantly associated with ED among diabetic men, underscoring the role of glycemic control in ED risk.[7] The findings of this study also align with [16] the study that examined diabetic men with chronic kidney disease in Malaysia. Their results showed that elevated serum urea was a significant independent predictor of ED (OR = 1.57; 95% CI: 1.10-2.23; $p = 0.01$) among DM patients with chronic kidney disease, underscoring the impact of renal impairment on erectile function.[16] The univariable analysis identified several significant risk factors aligning with the global data. More specifically,[13] following a

comprehensive systematic review of 58 studies, which reported age, duration of diabetes, hypertension and HbA1c as having positive associations with ED, further reinforced the findings of the study regarding the multifactorial pathophysiology of ED in diabetes. [13]

Notably, the multivariable model of this study did not retain any statistically significant predictors; this may likely be due to multicollinearity and limited sample size, which reduced statistical power. Nonetheless, the findings of this study underscore the urgent need for a holistic and multidisciplinary approach to ED risk reduction in diabetic populations. Disease management should be directed not only at glycemic targets, but also at weight, cardiovascular health and kidney function. Future studies would benefit from larger sample sizes and longitudinal designs to better clarify the causal relationship and mitigate multicollinearity. In summary, this study strengthens the evidence that ED in diabetic men is driven by interrelated factors, with the multivariable model highlighting the need for more comprehensive data and longitudinal investigation to isolate independent risk factors and guide effective intervention strategies.

CONCLUSION

In conclusion, male Filipino patients with diabetes have a significant burden of ED. In addition, age, BMI, waist circumference, duration of diabetes, presence of comorbidities, HbA1c levels and serum creatinine levels were found to be significantly different between those who had ED and those who did not. Results of the univariable models show that age, duration of diabetes, hypertension, dyslipidemia, HbA1c and serum creatinine are significant individual predictors of ED.

Declaration of Competing Interests

No conflict of interest to declare.

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