

## ERECTILE DYSFUNCTION

## Sexual Health Inventory for Men Questionnaire as a Screening Method for Erectile Dysfunction in a General Urology Clinic



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## ABSTRACT

**Introduction:** Sexual Health Inventory for Men (SHIM) is a validated questionnaire that is widely used in urology clinics to evaluate and assess treatment efficacy for erectile dysfunction (ED).

**Aim:** In this study, we evaluated the benefit of using the SHIM questionnaire as a screening tool for ED in a general urology clinic

**Material and Methods:** We retrospectively reviewed records of patients presenting to our general urology clinic from October 2018 to June 2019. During this period, all new male urology patients who are 40 years of age or older visiting the general urology clinic for any urologic condition received the SHIM questionnaire. We excluded all patients whose chief complaint was ED, Peyronie's disease, and hypogonadism. Patients were then asked if they want treatment for ED, and those patients who did, received a full ED evaluation and treatment. Factors associated with desire for ED treatment were analyzed using logistic regression.

**Main Outcome Measures:** SHIM score, desire for ED treatment, and factors influencing desire for treatment.

**Results:** Three hundred seventy-nine patients received the SHIM questionnaire. Of which, 48 patients (12.7%) declined to fill the questionnaire. We excluded all patients presenting for sexual health issues (67 patients, 17.7%). We included the remaining 264 patients (69.6%). The mean age was 61.7 years (range 40 to 85). Older patients were more likely to want ED treatment and had lower SHIM scores. However, older than the age of 70 years, there was a decline in the number of patients wanting treatment. In a multivariate regression analysis, age between 61 and 70 years and having diabetes mellitus were associated with the desire for ED treatment.

**Conclusions:** The SHIM questionnaire is a useful tool in the general urology clinic. It can serve as an efficient tool to screen for and quantify ED in patients presenting for other urologic issues. Maximum benefit is seen in patients between the age of 51 and 70 years and in patients with diabetes. **Alwaal A, Awad M, Boggs N, et al. Sexual Health Inventory for Men Questionnaire as a Screening Method for Erectile Dysfunction in a General Urology Clinic. Sex Med 2020;8:660–663.**

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**Key Words:** Erectile Dysfunction; SHIM Questionnaire; General Urology; Screening

## INTRODUCTION

Erectile dysfunction (ED) is the inability to achieve or maintain an erection satisfactory for sexual intercourse.<sup>1</sup> ED affects an estimated 20% of men who are older than the age of 40 years, and

the risk is increased with increasing age and comorbidities.<sup>2</sup> Several treatments for ED exist ranging from phosphodiesterase type 5 inhibitors to intracavernosal injections, vacuum erection device, intraurethral alprostadil, and penile prosthesis.<sup>3</sup>

Sexual Health Inventory for Men (SHIM) is a validated abbreviated version of International Index of Erectile Function. It has been widely used in urology clinics to evaluate and assess treatment efficacy for ED.<sup>4</sup> In this article, we examine the utility of SHIM as a screening method for ED in patients presenting to a general urology clinic for reasons other than ED.

## MATERIALS AND METHODS

After obtaining institutional review board approval from our institution, we retrospectively reviewed our prospectively collected

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data from patients' visits to the Marshall Urology clinic at Huntington, WV, which is a general urology clinic, for the period from October 2018 to June 2019. During this period, all new male urology patients who are 40 years of age or older received the SHIM questionnaire. Patients who were referred to the clinic with the chief complaint of ED, Peyronie's disease, and hypogonadism were excluded because the SHIM questionnaire in these patients would serve as a diagnostic/treatment tool rather than a screening tool. We included the remaining patients representing new patients visiting the urology clinic for non-ED-related issues. We did not routinely hand the questionnaire to follow-up patients, and we did not include in our analysis. Patients who filled the questionnaire were then asked if they would like any treatment for ED. For those who wanted treatment, a full evaluation for their ED was carried out, including history, physical examination, and investigations. Treatment for their ED was given after evaluation.

### Predictor and Outcome Variables

SHIM score data and demographic factors such as age, reason of visit (benign prostatic hyperplasia, hematuria, renal lesion, incontinence, nephrolithiasis, orchialgia/pelvic pain, vasectomy, urinary tract infection, infertility, penile lesion, and elevated prostate-specific antigen), comorbidities, specifically diabetes mellitus (DM), hypertension, chronic obstructive pulmonary disease, chronic kidney disease, and coronary artery disease (CAD) were collected. Main outcome was desire for ED treatment. In addition, SHIM scores (ED diagnosis defined as SHIM score <21) and treatments offered to the patient were analyzed.

### Statistical Analysis

Data analysis was conducted using Stata v. 14.0 (Stata, Stata-Corp, College Station, TX). Summary statistics were used to describe patient characteristics. Age was categorized into 4 groups: 40–50 years, 51–60 years, 61–70 years, and older than 70 years. Univariate and multivariate logistic regression analyses were used to examine factors associated with wanting treatment for ED. Factors adjusted were chosen a priori including age, DM, hypertension, chronic obstructive pulmonary disease, chronic kidney disease, and CAD. All statistical tests were 2 sided, and *P*-values less than 0.05 were considered statistically significant.

## RESULTS

A total of 379 new male patients who are 40 year of age or older visited Marshall Urology clinic from October 2018 to June 2019 and received the SHIM questionnaire. Forty-eight patients (12.7%) declined to fill the questionnaire. We excluded all patients who are referred to the clinic with the chief complaint of ED (37 patients, 9.8%), Peyronie's disease (21 patients, 5.5%), and hypogonadism (9 patients, 2.4%) (total 67 patients, 17.7%). We included the remaining 264 patients (69.6%) in the final analysis.

The mean age was 61.7 years (range 40 to 85). Median SHIM scores were 22, 17, 11.5, and 7.5 for patients aged 40–50,

51–60, 61–70, and older than 70 years, respectively. Patients older than 70 years (median age 75.5, interquartile range: 73–80) were the most to be diagnosed with ED (55 patients [94.8%]); however, patients aged 51–60 and 61–70 years were most common to desire treatment for ED (32 patients [42.7%] and 38 patients [45.2%], respectively). The most common comorbidity was hypertension (154 patients, 58.3%) followed by DM (74, 28%). Patients with CAD had the lowest median SHIM scores, 9 (interquartile range: 6–16). The most common reason for visit to our general urology clinic was for benign prostatic hyperplasia (135 patients, 51.1%) followed by hematuria (26 patients, 9.9%). Patients who presented with incontinence had the lowest median SHIM score, 7 (interquartile range: 5–21) (Table 1).

On a univariate logistic regression analysis, both DM and hypertension were significantly associated with the patient's desire to have treatment for ED (odds ratio [OR]: 2.3, *P* = .003, and OR: 2.1, *P* = .005, respectively). On multivariate regression analysis, DM was independently associated with wanting ED treatment (OR 1.9, *P* = .040), but hypertension was not (OR 1.6, *P* = .105). Patients aged 61–70 years had significantly higher odds of desiring ED treatment (OR: 2.3, *P* = .032), and patients aged 51–60 years had a trend for higher odds of desiring ED treatment than patients older than 70 years of age (OR 2, *P* = .075) (Table 2).

Generally, patients who wanted treatment had lower median SHIM scores (SHIM = 10) than those who did not want treatment (SHIM = 19). All patients who wanted treatment for ED underwent full evaluation and were offered the appropriate treatment. When we analyzed the treatments given to the patients, 81 patients (82.7%) were offered oral phosphodiesterase type 5 inhibitors, 9 patients (9.2%) were offered intracavernosal injection, 1 patient (1.0%) was offered vacuum erection device, and 7 patients (7.1%) were offered penile prosthesis insertion.

## DISCUSSION

The SHIM questionnaire is a well-validated questionnaire for the diagnosis and monitoring the treatment of ED.<sup>5</sup> It has become a standard diagnostic tool for patients with ED in the urology clinic to evaluate the severity of ED and monitor treatment.<sup>6</sup> All men with ED should have a validated questionnaire to assess their ED, as per the American Urological Association guidelines.<sup>7</sup> In our study, we excluded patients presenting with sexual complaints (ED, hypogonadism, and Peyronie's disease) as the purpose of this study is to identify patients presenting to the urology clinic with non-sexual complaints.

The patients presented to our clinic had the wide spectrum of common issues that usually present to the general urology clinic. The reason for visit did not correlate with the SHIM score or with the desire to want ED treatment. As expected, the SHIM score correlated negatively with the age of the patient; median SHIM scores of 22, 17, 11.5, and 7.5 for patients at age 40–50,

**Table 1.** Patient characteristics

Patient characteristic	Number (%)	Number wanting treatment (%)	Median SHIM score (IQR)	Number of patients with ED (%)	Median age of patients with ED (IQR)
<b>Age (y)</b>					
40–50	47 (17.8)	11 (23.4)	22 (16–24)	22 (46.8)	47 (45–48)
51–60	75 (28.4)	32 (42.7)	17 (11–24)	51 (68)	57 (54–59)
61–70	84 (31.8)	38 (45.2)	11.5 (6–20)	69 (82.1)	65.5 (63–68)
>70	58 (22.0)	17 (29.3)	7.5 (5–15)	55 (94.8)	75.5 (73–80)
<b>Comorbidities</b>					
DM	74 (28.0)	38 (51.4)	10 (6–16)	63 (85.1)	-
Hypertension	154 (58.3)	68 (44.2)	13 (7–20)	123 (79.9)	-
COPD	30 (11.4)	15 (50.0)	13.5 (6–17)	27 (90)	-
CAD	37 (14.0)	17 (46.0)	9 (6–16)	30 (81.1)	-
CKD	11 (4.2)	4 (36.4)	10 (7–13)	10 (90.9)	-
<b>Reason for visit</b>					
BPH	135 (51.1)	60 (44.4)	13 (6–19)	110 (81.5)	-
Hematuria	26 (9.9)	7 (26.9)	19.5 (8–25)	16 (61.5)	-
Renal lesion	2 (0.8)	1 (50.0)	9 (4–14)	2 (100)	-
Incontinence	19 (7.2)	6 (31.6)	7 (5–21)	15 (79)	-
Nephrolithiasis	16 (6.1)	5 (31.3)	20 (15–23.5)	11 (68.8)	-
Orchalgia/pelvic pain	44 (16.7)	14 (31.8)	16 (10–23)	30 (68.2)	-
Vasectomy	3 (1.0)	1 (33.3)	19 (12–24)	2 (66.7)	-
UTI	1 (0.4)	0	6	1 (100)	-
Infertility	1 (0.4)	0	25	0	-
Penile lesion	4 (1.5)	1 (25.0)	10 (7–18)	3 (75)	-
Elevated PSA	13 (4.9)	3 (23.1)	21 (18–24)	7 (53.9)	-

BPH = benign prostatic hyperplasia; CAD = coronary artery disease; CKD = chronic kidney disease; COPD = chronic obstructive pulmonary disease; DM = diabetes mellitus; ED = erectile dysfunction; IQR = interquartile range; PSA = prostate-specific antigen; SHIM = Sexual Health Inventory for Men; UTI = urinary tract infection.

51–60, 61–70, and older than 70 years, respectively. ED is known to be more prevalent with increasing age. Men at age 61–70 years are twice as likely to have ED than men at the age of 51–60 years,<sup>8</sup> while an estimated 67% of men older than the age of 70 years are affected with ED.<sup>9</sup> In this study, older patients were more likely to desire ED treatment; 23.4, 42.7, and 45.2% for patients at age 40–50, 51–60, and 61–70 years,

respectively. However, patients older than the age of 70 years noted to have less desire for ED treatment (29.3%). In addition and as expected, lower SHIM scores were associated with increased desire to have ED treatment.

Many comorbidities are known to be associated with ED, such as CAD, DM, hypertension chronic kidney disease, chronic obstructive pulmonary disease, obesity, and dyslipidemia.<sup>10</sup> We

**Table 2.** Univariate and multivariate analyses of patient factors associated with wanting treatment for erectile dysfunction

	Unadjusted OR (95% CI)	<i>P</i> -value	Adjusted OR (95% CI)*	<i>P</i> -value
<b>Age</b>				
40–50 y	0.7 (0.3–1.8)	.497	1.1 (0.4–2.8)	.853
51–60 y	1.8(0.9–3.7)	.115	2 (0.9–4.4)	.075
61–70 y	2 (1.0–4.1)	.057	2.3 (1.1–4.8)	<b>.032</b>
> 70 y	Reference		Reference	
DM	2.3 (1.3–4.0)	<b>.003</b>	1.9 (1.0–3.4)	<b>.040</b>
Hypertension	2.1 (1.2–3.6)	<b>.005</b>	1.6 (0.9–2.9)	.105
COPD	1.8 (0.8–3.9)	.125	1.8 (0.8–4.1)	.152
CAD	1.5 (0.8–3.1)	.233	1.4 (0.7–3.1)	.382
CKD	0.9 (0.3–3.4)	.950	0.9 (0.2–3.3)	.865

CAD = coronary artery disease; CI = confidence interval; CKD = chronic kidney disease; COPD = chronic obstructive pulmonary disease; DM = diabetes mellitus; IQR = interquartile range; OR = odds ratio.

Bold indicates statistically significant ( $P < .05$ ).

\*Adjusted for Age, DM, Hypertension, COPD, CAD, and CKD.

looked at some of the common associated comorbidities to identify useful screening parameters to identify patients with ED. DM and hypertension, particularly DM, were significantly associated with increased desire for ED treatment. This is not surprising as ED affects more than half the patients with DM, with increasing prevalence of ED in patients with DM with increasing age.<sup>11,12</sup>

We believe that screening for ED in men older than the age of 40 years will reveal a major segment of the population who would otherwise not seek treatment. The urologist is the most capable person to manage ED, and screening patients in the general urology clinic is the easiest way for the urologist to find patients with ED and provide them the treatment they need. The SHIM questionnaire represents a fast and reliable way in a busy urology clinic to quickly achieve the task of identifying patients with ED and measuring the severity of the condition. The highest yield of this questionnaire seems to be in patients who are between the age of 51–70 years, particularly if they have DM. Although, a significant portion of patients between the age of 41–50 years (23.45%) and older than the age of 70 years (29.3%) wanted ED treatment as well and therefore might benefit from the screening as well. Using these criteria in screening for patients with ED in collaborating, family practice clinics might also provide additional and larger patient population to help them treat this condition.

Our study is limited by its cross-sectional design with known inherent bias. Although we only included patients not presenting for ED, there may be a sampling bias because our sample of urology patients may not represent the general population. We did not control for other factors that may cause ED such as depression and certain medications that could confound our results. Another bias would be the small community practice of this general urology clinic, which may not be representative of a large busy urban or academic practice. Despite these limitations, to our knowledge, this study highlights the feasibility of using SHIM as a screening tool in the general urology clinic to identify patients with ED and improve their quality of life.

## CONCLUSIONS

In our study, screening for ED using the SHIM questionnaire in the general urology clinic was highly beneficial and revealed a large percentage of patients with ED who would not have pursued treatment for the disease otherwise. The highest yield of this questionnaire was in patients who are 51–70 years of age, particularly if they have DM. The use of any type of ED screening method may provide the same results, triggering further evaluation and treatment. Expanding ED screening to family practice clinics using these criteria represents the next reasonable step.

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## STATEMENT OF AUTHORSHIP

Amjad Alwaal and Mohannad Awad: Writing - Original Draft, Formal Analysis; Amjad Alwaal, Mohannad Awad, Nathan Boggs, Jake Kuzbel, and Brian Snoad: Conceptualization, Methodology, Investigation, Resources, Writing - Review & Editing, Funding Acquisition; Amjad Alwaal, Mohannad Awad, and Nathan Boggs: Writing - Original Draft, Formal Analysis, Project Administration.

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