

# Severity of lower urinary tract symptoms and quality of life among men 50 years and older at a urology clinic in Jamaica

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**Abstract.** This paper seeks to describe the severity of lower urinary tract symptoms and quantify their effect on quality of life among male urology clinic attendees 50 years and older. Two hundred and ninety-four men were recruited from an out-patient urology clinic and interviewed. The International Prostate Symptom Score was used to measure urinary symptom severity and related quality of life. Symptoms were classified as moderate for 52.2% of the men, mild for 31.6% and severe for 15.8%. It was found that symptom severity increased significantly with age. The odds of impairment in quality of life were 1.94 times higher for men with moderate symptoms (odds ratio 1.94, 95% confidence interval 1.07, 3.51) and 6.34 times higher for those with severe symptoms (odds ratio 6.34, 95% confidence interval 2.43, 16.54) than their counterparts with no/mild symptoms. Lower urinary tract symptoms significantly impair men's quality of life. Research is needed to identify social and emotional support initiatives which can be incorporated in the management of affected persons.

**Keywords:** aged, healthy ageing, lower urinary tract symptoms, quality of life, self-help groups.

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## **Introduction**

Ageing and diseases associated with ageing cause changes in the structure and functioning of the genitourinary system often resulting in genitourinary disorders. Middle-aged and older men frequently report lower urinary tract symptoms (LUTS) related to storing and/or voiding urine which become more bothersome with severity (Irwin et al., 2006). Much of our understanding of the epidemiology and impact of LUTS is from research conducted in developed countries (Irwin et al., 2006, 2009; Knott, 2015). Data is comparatively sparse from developing countries, where medical care and support, as well as social values and norms are different (Nnabugwu, Okoronkwo, & Nnabugwu, 2020; Raharjo, 2016). In a multi-country (Canada, Germany, Italy, Sweden, and the United Kingdom) population-based study, Irwin et al. found that storage symptoms were most common (51.3%) followed by voiding symptoms (25.7%) and post-micturition symptoms (16.9%) and that the prevalence of symptoms increased with age (Irwin et al., 2009). In the United Kingdom it was reported that approximately 30% of men 50 years and older experienced bothersome LUTS (Knott, 2015). Overactive bladder syndrome (OABS) has been shown to occur frequently in older men (Dmochowski & Gomelsky, 2009) and is characterized by increased urination frequency, nocturia, and urinary urgency, often accompanied by episodes of urge-incontinence (storage symptoms) (Abrams et al., 2009). Its prevalence is similar to that of diabetes, heart disease, and asthma and is outranked only by arthritis in this older age group (Dmochowski & Gomelsky, 2009). The severity of LUTS has been shown to vary by socio-demographic characteristics. Older age, lower income, lower education levels, and absence of a spouse have been linked to increased symptom severity, particularly at diagnosis (Jo, Kim, Nam, Choi, & Moon., 2017).

LUTS can have adverse psychological effects and diminish men's sense of well-being (Adegun, Adebayo, & Areo, 2016; Dmochowski & Gomelsky, 2009; Liao et al., 2019). This is evident with OABS which has been associated with higher rates of depression, lower quality of life and poorer sleep quality- which itself is a common precursor to poor moods and depressive symptoms (Dmochowski & Gomelsky, 2009). One of the few identified studies from the developing world found the presence of LUTS to be associated with some impairment in quality of life (Adegun et al., 2016). Additionally, increased severity of LUTS was shown to be associated with diminished quality of life (Adegun et al., 2016; Liao et al., 2019) and dissatisfaction with the symptoms being experienced (Taylor et al., 2006). The bothersome nature of the symptoms has been identified as the leading reason for seeking care for LUTS in the United Kingdom (Speakman Kirby, Doyle, & Ioannou., 2015). This is another indication of the burden of LUTS on those affected. Although these studies provide valuable insight regarding the negative impact of LUTS on quality of life and well-being, more research is needed from developing countries to facilitate documentation of those experiences and also to add to the global literature on LUTS. Furthermore, perspectives in medical sociology argue that illnesses are "socially constructed at the experiential level" (Conrad & Barker, 2010) allowing for similar medical phenomena to be differentially experienced.

Healthy ageing is a fundamental concept in the life course approach to studying and practicing gerontology and geriatric medicine. It is defined as “the process of developing and maintaining the functional ability that enables well-being in older age” (World Health Organization, 2015). This emphasis on functionality and well-being requires research and interventions for conditions like LUTS which, by themselves, are not life-threatening but can result in loss of independence and reduced quality of life. These outcomes decrease the capacity for healthy ageing (ibid.). Most of the published work on male genitourinary health in Jamaica has addressed prostate cancer which has high incidence and mortality rates (Aiken & Eldemire-Shearer, 2012; Gibson, Hanchard, Waugh & McNaughton, 2010, 2011; International Agency for Research on Cancer/World Health Organization, 2018), whereas LUTS are less visible in the literature. This paper shall describe the severity of LUTS in male urology clinic attendees 50 years and older. As well as quantify the effect on men’s quality of life and assess the influence of socio-demographic covariates. The selected covariates are established predictors of a wide range of health outcomes including LUTS severity and quality of life. In countries like Jamaica where diagnostic opportunities are reduced due to limited urological services and poor health-seeking behaviour (Morrison, Aiken, & Mayhew, 2014; Willie-Tyndale et al., 2019), conditions that are not life-threatening may not be prioritized. Research highlighting these issues can contribute to the provision of appropriate healthcare services and encourage health seeking in the population.

## **Method**

### *Sample, design and data collection*

Two hundred and ninety-four participants were recruited from among men accessing outpatient urology services at a hospital in Jamaica during the periods June 2012-March 2013 and January-May 2014. Men were eligible if they had reached their 50th birthday or would in the same year as recruitment. At the study site, a member of the study team approached clinic attendees in the waiting room, provided study information and sought written informed voluntary consent. Interviewers administered a questionnaire to those who agreed to participate. The study was approved by The University of the West Indies Ethics Committee and supported by a grant from the Research Fellowship Committee of The University of The West Indies.

### *Variables*

The questionnaire captured socio-demographic data, self-reported medical history, and lifestyle practices. The International Prostate Symptom Score (IPSS) was also included. The IPSS is identical to the American Urological Association symptom index for benign prostatic hyperplasia (Barry et al., 1992) but with the inclusion of an assessment of quality of life. IPSS measures seven urine voiding and storage symptoms and is scored based on a respondent’s answers concerning symptom severity. In the single disease-specific ‘quality of life’ question respondents choose the option which best describes how they would feel if they had to spend the rest of their life with their present urinary condition: delighted, pleased, mostly satisfied,

mixed feelings, mostly dissatisfied, unhappy, terrible. For this paper, analyses of key socio-demographic data (age, relationship status, employment status and educational attainment) and data from the IPSS was captured.

#### *Data Analysis*

Socio-demographic characteristics were measured as categorical variables and relative frequencies reported. Total possible IPSS scores range from 0-35 with higher scores meaning more severe symptoms. Symptoms were classified in three severity groups: no/mild (score 0-7), moderate (score 8-19), and severe (score 20-35). Chi square analysis was used to explore associations between symptom severity and socio-demographic characteristics; quality of life and socio-demographic characteristics; and quality of life and symptom severity. Quality of life responses were collapsed into two categories: unimpaired (for those who responded 'delighted', 'pleased', or 'mostly satisfied') and impaired to some extent (for those who responded 'mixed feelings', 'mostly dissatisfied', 'unhappy' or 'terrible'). Logistic regression was used to identify variables independently associated with impaired quality of life with only significant variables ( $p < 0.05$ ) from chi-square analyses included in the model. Statistical Package for the Social Sciences (SPSS) Version 20 was used in data analysis.

#### *Study design and sample*

This study draws on data derived from the Health and Social Status of Older Persons in Jamaica Study. With approximately 3000 participants, the was considered as a large population-based cohort study which collected data on adults over age 60 across 4 Jamaican parishes (Kingston, St Andrew, St Thomas and St Catherine). The University of the West Indies Ethics Committee approved the study and written informed consent was received from all participants. Details about the design of this study have been published elsewhere (Eldemire-Shearer, James, Waldron, & Mitchell-Fearon, 2012).

#### *Statistical analysis*

A cross-sectional analysis among those  $\geq 60$  years of age was conducted. Twelve chronic conditions (heart trouble, cancer, arthritis, cataracts, asthma, diabetes, stroke, hypertension, depression, anxiety, overweight/obesity and cognitive impairment) were selected for inclusion in analyses in this study. Each disease examined was recoded to create a binary outcome variable – 'disease present' or 'disease absent'. Comorbidity was defined as the co-occurrence of two or more of these conditions (Smith et al., 2016). Principal component analysis was conducted to detect underlying disease patterns using Stata version 14. Similar to other studies, in determining the number of components to retain for further analysis, component eigenvalues greater than 1 was considered (Garin et al., 2016). Varimax rotation was performed in order to improve the comprehensibility and interpretability of the findings. Logistic regression analysis was performed to identify associations between comorbidity and key risk factors for chronic disease.

## Results

Table 1 shows the socio-demographic characteristics of participants. Ages ranged from 50 years to 91 years with the plurality (38.9%) in the 60-69 age group. Of the 291 persons who provided information regarding educational attainment, 62.5% had primary level (approximately Grade 6) or lower while 37.5% completed schooling at the secondary level (High school) or higher. Eighty-eight persons or 30.4% stated they were working at the time of the study. Most men (71.7%) reported being in union (married or common-law).

**Table 1: Socio-demographic profile of sample**

Variable	% (n)
<i>Age, years (n<sup>+</sup> = 293)</i>	
50-59	17.7 (52)
60-69	38.9 (114)
70-79	34.1 (100)
80 and over	9.2 (27)
<i>Relationship status (n<sup>+</sup> = 293)</i>	
In union	71.7 (210)
Single/Divorced	20.5 (60)
Widowed	7.8 (23)
<i>Educational attainment (n<sup>+</sup> = 291)</i>	
Primary level or lower	62.5 (182)
Secondary or higher	37.5 (109)
<i>Employment status (n<sup>+</sup> = 289)</i>	
Working	30.4 (88)
Not working	69.6 (201)

<sup>+</sup> represents the number of respondents to the item.

*IPSS Results*

Total IPSS scores ranged from zero to 30 with a median of 11 (IQR 6-17). More than half of the men (52.2%) had moderate symptoms and for 31.6% symptoms were mild. Symptoms were severe for 15.8% of men while only one man reported experiencing no symptoms. The variation in symptom severity by socio-demographic characteristics is shown in Table 2. A greater proportion of men in the oldest age category (70 and over) reported severe symptoms (24.0%) than those in the younger age categories (8.7% [60-69] and 14.0% [50-59]). Symptom severity showed no statistically significant variation with educational attainment, employment status or relationship status.

**Table 2: Associations between symptom severity and socio-demographic variables**

Variable	Severity of urinary symptoms % (n)			$\chi^2$	p-value
	No/Mild	Moderate	Severe		
<i>Age, years</i>				11.45	0.022*
50-59	39.5 (17)	46.5 (20)	14.0 (6)		
60-69	36.9 (38)	54.4 (56)	8.7 (9)		
70 and over	24.0 (24)	52.0 (52)	24.0 (24)		
<i>Relationship status</i>					
In a relationship	32.2 (58)	52.8 (95)	15.0 (27)	0.88	0.928
Single/Divorced	32.7 (16)	51.0 (25)	16.3 (8)		
Widowed	29.4 (5)	47.1 (8)	23.5 (4)		
<i>Educational attainment</i>					
Primary level or lower	30.5 (46)	53.6 (81)	15.9 (24)	0.64	0.728
Secondary or higher	35.1 (33)	48.9 (46)	16.0 (15)		
<i>Employment status</i>					
Working	36.8 (28)	50.0 (38)	13.2 (10)	1.78	0.412
Not working	28.9 (48)	53.6 (89)	17.5 (29)		

$\chi^2$  - Pearson Chi-Square value. \*p-value < 0.05

Quality of Life

Two hundred and eighty-seven men responded to the quality of life question. Approximately 57% indicated that the urinary symptoms impaired their quality of life to some extent. Table 3 shows this sentiment was most common among men aged 70 and over (72.4%) and least common in the 60-69 year old (43.8%) age group. The proportion of men whose quality of life was impaired by the presence of the urinary symptoms increased significantly with symptom severity: 36.7% of men with no/mild symptoms compared with 53.9% of men with moderate symptoms and 82.1% with severe symptoms. Men’s quality of life did not vary by relationship status, educational attainment, or employment status.

**Table 3: Quality of life (QOL) and covariates**

Variable	Unimpaired QOL	Impaired QOL	$\chi^2$	p-value
Symptom severity				
No/Mild	63.3 (50)	36.7 (29)	21.66	<0.001***
Moderate	46.1 (59)	53.9 (69)		
Severe	17.9 (7)	82.1 (32)		
Age, years				
50-59	49.0 (25)	51.0 (26)	20.64	<0.001***
60-69	56.2 (63)	43.8 (49)		
70 and over	27.6%	72.4 (89)		
Relationship status				
In a relationship	43.4 (89)	56.6 (116)	0.41	0.816
Single/Divorced	42.4 (25)	57.6 (34)		
Widowed	36.4 (8)	63.6 (14)		
Educational attainment				
Primary level or lower	43.2 (76)	56.8 (100)	0.01	0.922
Secondary or higher	42.6 (46)	57.4 (62)		
Employment status				
Working	49.4 (42)	50.6 (43)	2.60	0.107
Not working	39.1 (77)	60.9 (120)		

$\chi^2$  - Pearson Chi-Square value. \*\*\*p-value < 0.001

As shown in Table 4, logistic regression analysis confirmed severity of urinary symptoms as an independent predictor of quality of life. The odds of asserting that quality of life was

impaired by urinary symptoms were approximately two times higher among men with moderate symptoms and approximately six times higher among men with severe symptoms, than their counterparts with no or mild symptoms.

**Table 4: Odds of impaired quality of life due to urinary symptoms from binary logistic regression analysis**

Variable	Adjusted Odds Ratio	95% Confidence Interval	p-value
<i>Age</i>			
50-59 (reference)	1.00		
60-69	0.69	0.33, 1.45	0.325
70 and over	2.01	0.94, 4.31	0.074
<i>Symptom severity</i>			
No/Mild (reference)	1.00		
Moderate	1.94	1.07, 3.51	0.028*
Severe	6.34	2.43, 16.54	<0.001***

Model statistics: Hosmer-Lemeshow *p* value = 0.935. \**p*-value < 0.05, \*\*\**p*-value < 0.001

## Discussion

This paper examined severity of LUTS and their effect on quality of life in a sample of men 50 years and older accessing urology services in Jamaica. Most men had mild or moderate symptoms and only 15.8% had severe symptoms. This percentage is higher than the estimate obtained by Taylor et al. (2006) for a clinic-based sample in the United States of America. They reported a prevalence of 6.6% for severe symptoms among men 65 years and older. On the contrary, our finding is lower than that reported in a study among men 55 years and over in rural Uganda who were seeking care for urinary symptoms. Approximately 30% of them had severe symptoms (Stothers, MacNab, Bajunirwe, Mutabazi & Berkowitz, 2017). The authors conceded that their estimate of severe symptoms was higher than what had been reported elsewhere and suggested the difference may be linked to low socio-economic status. In a clinic sample, a low level of severe symptoms could be explained by factors including (i) high rate of treatment success (Yuan et al., 2013), (ii) a preponderance of mild to moderate symptoms in the parent population (Maserejian et al., 2013) and (iii) early health seeking before symptoms progress in severity (Presicce, De Nunzio, & Tubaro, 2018). The relatively low estimate found in this study could be due to high treatment success rates at the study site. The ability to make a definitive statement is limited because medical records were not assessed in this study. However, healthcare workers at the facility have noted that well-established and effective management protocols for LUTS are in use there, despite the existence of some resource limitations in the delivery of care (Willie-Tyndale, 2017). This increases the likelihood of attaining good treatment success rates. The epidemiology of LUTS in Jamaica has not been

previously documented and this study presents the only known documentation of its severity profile. In the United States of America higher severity LUTS has been documented to occur at a lower incidence than more moderate LUTS (Maserejian et al., 2013). If Jamaica follows a similar pattern, greater levels of mild to moderate symptoms may exist in the population and may influence the severity profile observed in this study. It is unlikely that early health seeking is driving the low prevalence of severe symptoms in this sample, especially given the poor health seeking behaviors for genitourinary issues documented in the population (Willie-Tyndale, 2017).

Severity of urinary symptoms increased significantly with age. This agrees with the literature and may be a result of declining bladder function and/or disease, both of which are likely to increase with age (Dmochowski & Gomelsky, 2009; Irwin et al., 2009). It was unexpectedly found that symptoms were similar in severity across the other socio-demographic categories studied. To the extent that they influence health care access, health services utilization, and treatment adherence, these socio-demographic characteristics were expected to vary with symptom severity even in a clinic population. Perhaps variation would have been observed if the study had focused on treatment naïve individuals as was found in a community-based study in Korea where higher severity of LUTS on diagnosis was associated with lower income and lower education levels (Jo et al., 2017).

LUTS impaired quality of life for 57% of men and this was more likely to occur among those who had moderate or severe symptoms than those whose symptoms were mild. This was expected as these symptoms can be highly disruptive to everyday life; affecting social activities, work productivity, intimate relationships and persons' general sense of well-being (Coyne et al., 2008; Dmochowski & Gomelsky, 2009; Speakman, Kirby, Doyle & Ioannou, 2015). Jamaican men have been documented to subscribe to a typology of masculinity which is defined by dominance and virility (Anderson, 2012). They have also been reported to delay and avoid seeking healthcare (Morris James, Laws & Eldemire-Shearer, 2011). The magnitude of the effect of moderate and severe symptoms on quality of life may therefore be a social construct influenced by how the symptoms challenge men's way of life regarding independence and functionality, their roles in intimate relationships, and dependence on medical interventions. It should be noted that in this study, there was no difference in quality of life by employment or relationship status. This could be due to measurement error as the variables analyzed (employment status and relationship status) may not have been ideal proxies, being somewhat distant from the concepts of interest (work productivity and intimacy).

## **Conclusion**

This paper assessed the severity of urinary symptoms and quantified the extent to which they impaired quality of life among men in a clinic setting. The findings may inform initiatives aimed at improving quality of life and supporting healthy ageing. The negative effect of urinary symptoms on men's quality of life calls for a holistic approach to healthcare delivery with a focus on psychosocial interventions and outcomes and not only medical management.

This may take varied forms in different settings. One approach could involve the formation of support groups which can operate through health facilities with leadership from a motivated patient and a social worker, nurse or other appropriate health care worker. Such groups provide access to social networks which can be leveraged for health education, building self-esteem, and providing emotional support and community. This may help men successfully navigate phases of illness and disease management with the benefit of shared experiences. A further public health response can involve educating younger men about age-related changes in the genitourinary system, genitourinary diseases and good health seeking practices to increase their chances of good outcomes in the future.

LUTS negatively affect men's quality of life. Additional research should seek to identify support strategies and systems which may improve quality of life for persons with LUTS. This may be particularly beneficial where effective medical management options are limited.

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