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Original Article

Prevalence of Urinary Incontinence among Middle Aged Women and Its Association with Quality of Life

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ABSTRACT

Existing literature had shown a significant rise in the prevalence of urinary incontinence among female. This increasing trend in urinary incontinence had been associated with a noticeable decline in quality of life. **Objective:** To evaluate the prevalence of urinary incontinence in middle aged women to find the association between urinary incontinence and quality of life of middle aged women. **Methods:** This observational cross-sectional analytical study was conducted in a six-month study duration in Lahore. Female patients aged 35 to 65 years were selected. Outcome measures of this study were measuring urinary incontinence and quality of life. Data were collected from Sir Ganga Ram Hospital. Data were gathered by using ICIQ-SF and SF12. Data were analyzed by using SPSS version 27.0`1. **Results:** This observational study enrolled middle-aged women aged 35 to 65 years. The majority (53%) were housewives, while 46% were employed. Regarding socioeconomic status, 53% reported financial stability, whereas 79% indicated economic instability a discrepancy suggesting possible reporting error. Marital status distribution showed that 59% were married, 12% unmarried, and 27% widowed. In terms of Quality of Life (QoL), 19% of participants reported poor physical health, 62% fair, and 17% good physical health. **Conclusions:** Most middle-aged women in this study experienced urinary incontinence, with greater severity linked to poorer physical and mental health, especially among housewives.

INTRODUCTION

Historically, urinary incontinence (urinary incontinence) had been defined as the involuntary expulsion of urine, verified through objective observation, and regarded primarily as a social or hygienic issue. Although this definition possessed a high degree of specificity, it had proven to be of limited clinical utility. Women who had reported subjective symptoms of urinary incontinence were often disregarded by clinicians if such episodes had not been witnessed during physical examination or if the condition had not been perceived by patients as a significant hygienic concern. In contrast, the contemporary definition characterized urinary incontinence as any reported instance of involuntary urinary leakage. Paradoxically, this broader interpretation had encompassed a wide range of individuals, including those who had only encountered occasional or incidental episodes [1]. Incontinence arose from disturbances in the micturition cycle, assuming an intact lower urinary tract. Urine flow occurred when intravesical pressure exceeded urethral pressure or when urethral closure pressure became zero. This could result from reduced urethral pressure with increased intravesical pressure, as in detrusor instability. Alternatively, excessive detrusor pressure during filling indicated impaired bladder compliance, often seen in interstitial cystitis or post-pelvic irradiation. Urethral instability caused sudden pressure loss, while genurinary incontinence ne stress incontinence occurred when intravesical pressure surpassed urethral

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pressure [2]. It was estimated that over 200 million women worldwide had experienced urinary incontinence. The reported prevalence of the condition ranged from 5.2% to 70.8%, with some studies indicating that the rates might have been higher in developing countries compared to developed nations [3]. Population studies from various countries had indicated that the prevalence of urinary incontinence ranged from approximately 5% to 70%, with the majority of studies reporting rates between 25% and 45%. These figures increased with age, and among women aged 70 years and older, more than 40% of the population had been affected [4]. Stress urinary incontinence involved involuntary urine leakage during physical exertion, commonly linked to pregnancy, childbirth, constipation, and obesity. Urge incontinence was characterized by involuntary leakage following a sudden, intense urge to void, often part of Overactive Bladder Syndrome (OAB). Mixed urinary incontinence involved both stress and urgency incontinence. Overflow incontinence resulted from urinary retention, causing frequent or continuous leakage due to an over-distended bladder. Nocturnal enuresis referred to involuntary nighttime urine leakage, often related to OAB or sleep apnoea. Reflex incontinence was caused by neurological damage impairing bladder function. Functional incontinence had no organic cause, typically linked to cognitive or physical impairments that hindered toilet use [5]. Stress urinary incontinence (urinary incontinence) was caused by failure of the bladder neck and urethra to maintain resistance during rest or exertion. This occurred due to weakened musculo-fascial support, urethral hypermobility, or nerve damage, particularly to the pudendal nerve. Affected women showed reduced urethral pressure and absent vascular pulsations. Reflex muscle contractions were impaired, compromising continence. Studies confirmed lower urethral length and pressure correlated with urinary incontinence severity. The core mechanism was inadequate transmission of abdominal pressure to the urethra during stress. Factors such as obesity, full bladder, or vigorous activity further aggravated symptoms [6]. Sphincter weakness often followed surgery, ageing, nerve problems, or muscle diseases. Treatments worked better when some urethral support remained. The "hammock theory" explained that the urethra was normally supported by tissue beneath it, helping keep it closed during pressure. If this support was damaged by childbirth, obesity, or constant straining, the urethra moved instead of closing. This led to urine leaking during coughing, lifting, or exercise. Without firm support, bladder pressure became stronger than urethral pressure [7]. Urinary incontinence (urinary incontinence) is a common yet often underreported condition among middle-aged women, significantly affecting their daily lives. Hormonal changes, childbirth, and aging contribute to weakened pelvic floor muscles, increasing the risk of urinary incontinence. This condition can lead to embarrassment, social withdrawal, and psychological distress. As a result, urinary incontinence negatively impacts the quality of life (QoL), including physical, emotional, and social well-being. Investigating this association between urinary incontinence and quality of life, this was crucial to gurinary incontinence de effective interventions and improve women's overall health outcomes [8-10].

Urinary incontinence (UI) is a highly prevalent yet underreported condition among middle-aged women, significantly impairing physical, psychological, and social well-being. Although international literature documents a strong association between UI and reduced quality of life, there is limited local evidence from Lahore, Pakistan, quantifying its prevalence and examining its relationship with both physical and mental health outcomes. This study addresses this gap by determining the magnitude of UI and analyzing its association with quality of life among middle-aged women attending a tertiary care hospital. This study highlighted the impact of urinary incontinence on women's quality of life, promoting greater awareness and early intervention. It supports the development of targeted strategies to improve women's overall health and well-being.

METHODS

With a 95% confidence level, 5% margin of error and estimated prevalence of urinary incontinence of 50%, sample size of the proposed observational, cross-sectional analytical study was calculated with the Raosoft online sample size calculator, (http://www.raosoft.com/samplesize.html) based on a 95% confidence level, 5% margin of error and an estimated prevalence of 50 % to provide maximum variability due to the unavailability of local prevalence data. Coupled with the assumption of large population size (more than 10,000 population size) the required sample size was calculated to be 151 participants. The recruiting method adopted in this sample was the non-probability convenience sampling method and was a sample recruited within a period of 6 months of a particular hospital, Sir Ganga Ram Hospital. The study included female participants aged 35 to 65 years who presented to Sir Ganga Ram Hospital, reported urinary or pelvic health concerns, and provided informed consent. Women were excluded if they were younger than 35 or older than 65 years, pregnant or within six months postpartum, had known cognitive or neurological impairments, or declined to participate. The study was carried out in Sir Ganga Ram Hospital in a time duration of six months in Lahore. Using two standardized and validated questionnaires (International Consultation on Incontinence Questionnaire Short Form-ICIQ-SF and Short Form-12 Health Survey-SF-12) data were collected by personal interviews after obtaining written informed consent and ethical permission

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amongst eligible participants. The respondents were tackled in the outpatient departments and the questionnaires were administered by trained data collectors in a confidential room to make them give honest answers. Interviews consisted of about 1520 minutes. Categorical variables were summarized using frequencies and percentages, while continuous variables were reported using means and standard deviations where appropriate. Data analysis was performed using SPSS version 27.0. Descriptive statistics were applied for demographic variables, while the Chi-square test was used to explore associations between urinary incontinence and both physical and mental health. A significance level of $p < 0.05$ was considered statistically significant.

RESULTS

A total of 151 female participants, aged between 35 and 65 years, were included in the study. Results showed that , 11.92% (n = 18) of the women were in the 35–45 years age group, 43.05% (n = 65) were aged 46–55 years, and the remaining 45.03% (n = 68) belonged to the 56–65 years age group (Figure 1).

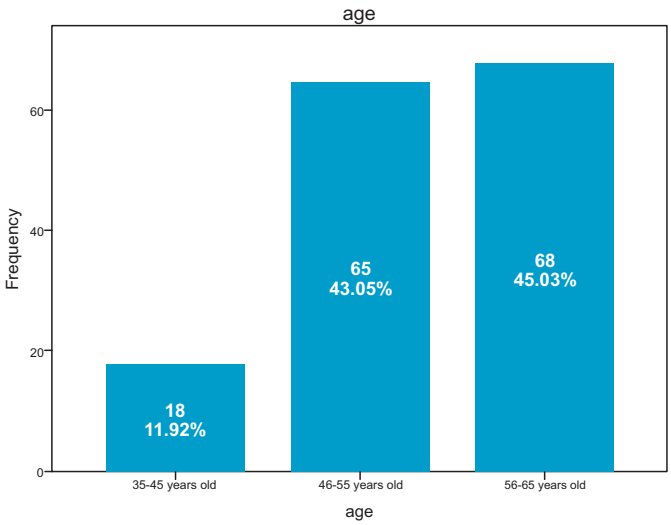

Figure 1: Age Distribution of Study Participants (N = 151)

All participants were female with a gender distribution of 100% female (n = 151) (Table 1).

Table 1: Gender Distribution of Study Participants (N = 151)

Gender	Frequency (%)
Female	151 (100)
Total	151 (100)

The prevalence of urinary incontinence (UI) was found to be 72.8% (n = 110) while 27.2% (n = 41) reported no symptoms (Table 2). This indicated that nearly three-fourths of the study population experienced some form of UI.

Table 2: Prevalence of Urinary Incontinence

Prevalence of Urinary Incontinence	Frequency (%)
Absent	41 (27.2)
Present	110 (72.8)
Total	151 (100)

Regarding self-rated physical health, results show that 19.2% (n = 29) of women reported poor physical health, 62.9% (n = 95) reported fair, and 17.9% (n = 27) reported good physical health (Table 3).

Table 3: Self-Reported Physical Health Status among Women

Physical Health	Frequency (%)
Poor	29 (19.2)
Fair	95 (62.9)
Good	27 (17.9)
Total	151 (100)

Chi-square test was used to determine the relationship between urinary incontinence and physical health. The result of the analysis was significant ($\chi^2 = 74.371$, $p < 0.001$) which shows that urinary incontinence was linked significantly to poorer self-reported physical health. To be more specific, the more participants experienced UI or the more severe its manifestations were, the more of them reported poor or fair physical condition. There was a statistically significant association between urinary incontinence (urinary incontinence) and mental health. As the incidence of urinary incontinence increased, physical health declined (Table 4).

Table 4: Chi-Square Test Showed the Association Between Urinary Incontinence and Physical Health

Test	Value	Significant Value
Chi-square	74.371	p < 0.001
Number of Valid Cases	151	

Nevertheless, another Chi-square test was conducted to assess the correlation between mental health and urinary incontinence. Its significance was also statistical ($\chi^2 = 88.298$, $p < 0.001$), implying that those with UI had more chances of reporting worse or poor mental health whereas good mental health was largely reported by the individuals without any of the UI symptoms. There was a statistically significant association between urinary incontinence (urinary incontinence) and mental health. As the incidence of urinary incontinence increased, mental health declined (Table 5).

Table 5: Chi-Square Test Showed the Association Between Urinary Incontinence and Mental Health

Test	Value	Significant Value
Chi-square	88.298	p < 0.001
Number of Valid Cases	151	

DISCUSSION

Urinary incontinence (urinary incontinence) affected women at various stages of life and was frequently associated with contributing factors such as obesity, diabetes mellitus, multi-parity, physical inactivity, tobacco

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use, excessive caffeine intake, chronic constipation, and recurrent urinary tract infections [1]. The premenopausal period represented a particularly vulnerable phase, owing to physiological changes within the pelvic and genitourinary systems [6, 7]. Women commonly reported limitations in social participation and difficulties in maintaining intimate relationships, particularly due to leakage during sexual activity [11-15]. Many adopted rigorous hygiene practices, driven by concerns over loss of control and perceived embarrassment [10]. As such, urinary incontinence was recognized as a condition with extensive physical, sexual, and psychological repercussions [4, 16]. Results of this study showed i.e. this observational investigation encompassed middle-aged female participants ranging from 35 to 65 years of age. Within the cohort, 11% fell within the 35-45 age brackets, 45% were aged 46-55, and 46% belonged to the 56–65 age group. All subjects were women. A majority (53%) identified as housewives, while 46% reported active employment. In terms of socioeconomic classification, 53% declared financial stability, whereas a notably higher proportion 79% indicated economic hardship, a statistical incongrurinary incontinence suggestive of potential reporting inconsistencies. Marital status was distributed as follows: 59% were married, 12% unmarried, and 27% widowed. Regarding self-perceived physical health, 19% of participants rated their condition as poor, 62% as fair, and 17% as good. Concerning mental wellbeing, 37% reported poor, 25% fair, and 37% good mental health. Symptoms indicative of urinary incontinence were observed in 72% of respondents, while 27.2% reported no such symptoms. With respect to urinary incontinence (urinary incontinence), 23.85% experienced mild, 25% moderate, and 23.18% severe manifestations. A 3×2 contingency analysis examining the association between urinary incontinence and physical health indicated that 16 participants without urinary incontinence reported fair physical health possibly reflecting outlier data while 25 without urinary incontinence reported good physical health. Among individuals experiencing urinary incontinence, 29 reported poor, 79 fair, and 2 good physical health, the latter suggestive of less severe symptomatology. A statistically significant correlation was established between the presence and severity of urinary incontinence and both physical and mental health outcomes, with a clear decline in health status observed as urinary incontinence severity increased [16-18]. A second 3×2 contingency analysis exploring the relationship between urinary incontinence and mental health demonstrated that among participants without urinary incontinence, one reported fair and forty reported good mental wellbeing again raising the possibility of anomalous data. Conversely, among those exhibiting urinary incontinence symptoms, 57 reported poor, 37 fair, and 16 good mental health, findings consistent with milder forms of urinary incontinence in the latter subset. A previous study conducted in Portugal among 80 women with urinary incontinence found that those reporting mild to moderate symptoms experienced a higher quality of life and greater sexual satisfaction, while higher prevalence of urinary incontinence was linked to increased emotional distress and reliance on maladaptive coping strategies such as self-blame and religious coping [18]. In comparison, the present study similarly identified a significant association between urinary incontinence, higher prevalence, and both physical and mental health. As urinary incontinence symptoms increased, participants in the current study reported declines in physical wellbeing and heightened psychological distress. Additionally, a higher prevalence of poor mental health was observed among those with higher incidence of urinary incontinence. Both studies underscore the detrimental impact of urinary incontinence on women's quality of life and emphasize the need for supportive interventions [19, 20].

A key limitation of this study is its cross-sectional design and use of non-probability convenience sampling from a single hospital, which limits causal inference and generalizability to the broader community. Additionally, reliance on self-reported questionnaires may introduce reporting bias, and minor data inconsistencies suggest possible measurement or documentation errors. Future research should employ multicenter longitudinal designs with probability sampling and incorporate clinical assessment tools to validate findings, while interventional studies focusing on pelvic floor rehabilitation and mental health support are recommended to improve women's quality of life.

CONCLUSIONS

Urinary incontinence is highly prevalent among middle-aged women and is significantly associated with poorer physical and mental health. This study found that nearly three-quarters of participants experienced urinary incontinence, with increasing severity linked to greater declines in quality of life. The findings highlight the urgent need for early identification and targeted interventions to improve both the physical and psychological well-being of affected women.

Authors' Contribution

Conceptualization: TA
Methodology: MJ, MW
Formal analysis: ST, EN, TA
Writing and Drafting: MJ, MW, ST, EN, TA, STZ
Review and Editing: TA, MJ, MW, ST, EN, TA, STZ

All authors approved the final manuscript and take responsibility for the integrity of the work.

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Conflicts of Interest

The authors declare no conflict of interest.

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