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Original Article

Prevalence of Urinary Incontinence among Post-Menopausal Females and Its Associated Factors

Kiran Mushtaq[1], Iram Mushtaq[2], Ayesha Bajwa[3], Asna Waseem[3*], Sana Batool[4], Arif Ali Rana[3]

[1]Coventry University, UK
[2]DHQ Hospital, Gujranwala, Pakistan
[3]Physiotherapy Department, Central Park Medical College, Lahore Pakistan*
[4]Physical Therapy Department, Dow Medical University, Karachi, Pakistan

ABSTRACT

Background: Urinary Incontinence is now recognized as a major public health concern globally. It affects a large number of females worldwide and has a substantial socio-economic influence. It might also disturb the quality of life and lead to depression. **Objective:** To find out the prevalence of urinary incontinence in post-menopausal females and its related factors. **Methods:** This is a cross-sectional study in which 100 participants were recruited using non-probability convenient sampling. Urinary incontinence questionnaires were given to the females based on socio-demographics, clinical characteristics and experiences of urinary incontinence-related questions. Data was collected from different healthcare providers and hospitals in Daska and Gujranwala, Pakistan. The age of the participants ranged between 50 to 65 years and their previous menstruation was from at least one year ago. Females with early menopause before the age of 40, those females who were suffering from multiple sclerosis, brain tumor, Parkinson's, spinal cord injury and hysterectomy were excluded from study. Urinary incontinence questionnaires were given to the participants that were based on socio-demographics, clinical characteristics and experiences of Urinary incontinence related questions. Data was evaluated by SPSS version 23 and qualitative data was calculated as frequency and percentages. **Results:** The prevalence of urinary incontinence among postmenopausal females was 71%, stress urinary incontinence was 45%, urge urinary incontinence was 36% and mixed urinary incontinence was 19%. The menopausal age, mode of delivery and parity were not significantly associated with urinary incontinence however diabetes was significantly associated with urinary incontinence. ($p<0.05$). **Conclusion:** This study concluded that there is a higher prevalence of urinary incontinence among post-menopausal females. A greater number of childbirths, vaginal delivery, diabetes and high blood pressure are among some of the associated factors with urinary incontinence.

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***Corresponding Author:** Asna Waseem, Central Park Medical College, Lahore Pakistan

Email: asna_waseem@yahoo.com

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INTRODUCTION

Menopause is well-demarcated as the everlasting end of fertility and menstruation in a woman. A woman is deliberated to be post-menopausal when she had no periods for a year, that in 12 consecutive months in a row. Most women become menopausal naturally between the ages of 49 to 52 years, but around 51 years is the mean age of the onset of menopause. But when it occurs between 40 and 45 years of age it is labeled as 'early menopause'. After menopause, the risk of certain medical disorders increases, such as osteoporosis, urinary incontinence (UI), weight gain and osteoarthritis.[1,2]

Menopause has also been reported to show an impact on mental health and commonly observed psychological symptoms such as anxiety, depression and irritability.[3,4] Considering postmenopausal females the most frequently observed health issue is UI.5 It has been reported to affect 50% of post-menopausal women and is typically well-defined as any unconscious leakage of urine.[6-8,9] It has been reported to affect more than two hundred million people globally.[10] The UI is now recognized as a major public health concern globally. It has a substantial socio-economic influence.

It might also lead to depression and isolation and might also disturb the quality of life of the sufferer.[11] The recently conducted research showed a proportion of fifty percent of postmenopausal females have UI and this proportion is increasing from year to year drastically.[12] Hence we have many reasons to investigate and scrutinize the prevalence of UI and its associated influences so that we might aid in contributing to adding preventive and interventional measures for this health issue. There are several distinctive bases for the influences prompting the manifestation of UI.[13,14] The genetic factors are the most important ones since these factors are much more observed in women who suffer from UI. Age is correspondingly considered to be essential. The risk of having UI increases directly relative to increasing age. One more imperative issue is the number of pregnancies and childbirths, especially those childbirths which are induced using oxytocin. The cesarean deliveries are anticipated to be in improved expressions when considering the frequency of UI. When the weight of the baby reaches four kilograms, the danger of UI eventually rises. Obesity is also another major contributing factor.

Studies have shown that obese females are four to five times more at risk to have UI than normal-weighing women. Some other aspects that might sway the frequency of UI are recurrent constipation, urinary tract infections, diabetic neuropathy, multiple sclerosis, Parkinson's disease, polyradiculopathy, medicines or drugs such as anti-hypertensive, diuretics and anxiolytic drugs which are controlled. Additional risk factors are chronic respiratory diseases, specifically, that instigated by a cough that grounds an upsurge in the pressure at the abdominal wall and increases the abdominal pressure, for example, chronic obstructive pulmonary disease.[15,16]

Specific to the exploration study authors categorize the patients suffering from UI into three major categories, differentiating between stress UI, urge UI and mixed UI. [17] This is the most prevalent in grown-up aged women. The accumulative occurrence of UI in postmenopausal women was thirty-seven percent over the past 10 years.[18] The biggest group of the population which suffers from UI is the elderly population of both males and females.[19] Since the occurrence of UI is comparatively great, care concerning its precautionary and interventional measures is

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followed by only less than half of the sufferers. In Europe, the prevalence of urinary incontinence in feminine patients was found which is 23% in Spain, 42% in the United Kingdom, 41% in Germany and 44% in France.[20] The pelvic floor muscle exercises are an intervention included in physical therapy that produced advantageous results in females suffering from stress UI.[21] This current research also suggests focusing on the beneficial effects of physical therapy exercises on treating and avoiding UI in Pakistan. One more treatment is also considered beneficial worldwide for treating women with UI which is biofeedback used as an aide therapy to pelvic floor muscle exercises.

This method of treatment can encourage the women to accomplish a sturdier muscle contraction and thus leading to arouse great observance and intensive exercises.[22] It was also verified that the effects of electrical incentive while treating stress urinary incontinence, which might be executed with intra-vaginal, anal and superficial electrodes, might improve the urinary leakage, quality of life, pressure and strength of contraction of the pelvic floor muscles. The most frequently used in clinical practice is intra-vaginal electrical stimulation.[23] Acupuncture points are often entitled to the organs of the meridians.

The bladder points, often trail the meridian of the bladder. Several philosophies are present concerning the beneficial effects of therapeutic acupuncture. It is proven to motivate energy circulation to improve discrepancies that are caused by distress of the disease. The needling of acupuncture points at these regions releases blocks present in this energy or qi, which is professed to trigger the pathology of the ailment.[24] The significance of the current study is that determining the prevalence of urinary incontinence is a necessary pre-requisite for launching the distribution of the UI populace and additionally for projecting the dire prerequisite for physical therapy services. Moreover, when awareness regarding associated risk factors for UI is spread among the post-menopausal female population, various preventive and precautionary measures might be introduced to avoid this condition to develop in the first place or might save the post-menopausal females from worsening of this condition.

METHODS

This is a cross-sectional study that was designed to determine the prevalence of urinary incontinence among post-menopausal females and its associated factors. The sample size was calculated through epi info software placing the confidence interval at 95%, the design effect-1, and the margin of error at 5 was 0.5%. The sample size came out to be 100 participants. Non-probability convenient sampling technique was used in this current study. Consent forms both in Urdu and English were explained and were duly signed by the recruited participants. Urinary incontinence questionnaires were given to the females who were recruited in this study. The participants also filled out a questionnaire that was based on socio-demographics, clinical characteristics and experiences of UI-related questions.

To determine the associated risk factors, the recruited females were inquired about their mode of delivery, number of children, menopause age and co-morbidities such as diabetes and hypertension. Data was collected from different healthcare providers and hospitals in Daska and Gujranwala, Pakistan. The age of the participants ranged between 50 to 65 years and their previous menstruation was from at least one year ago.[25] Females with early menopause before the age of 40, those females who were suffering from multiple sclerosis, brain tumor, Parkinson's, spinal

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cord injury, hysterectomy and those who were not willing to participate were excluded from this current study. Data was evaluated by SPSS version 23 and qualitative data was calculated as frequency and percentages.

RESULTS

The results of this study concluded that the prevalence of UI in post-menopausal females is 71%. This study included a total number of 100 participants, where 71 had UI as only 29 post-menopausal females answered no to all the questions for the UI diagnosis scale. The mean age of the participants was 53.6±7.11 years.

Out of the 100 subjects' occupation-wise distribution showed 79% were housewives and 21% were working women. Education wise distribution showed 21% education till primary school, 23% education till secondary school, 48% had done bachelors and 8% were highly educated.

Delivery-wise distribution showed 46% had a vaginal delivery, 51% had cesarean section and 3% were null parity. Children-wise distribution showed 3% had no child, 43% had 1-3 children 51% had 4-6 children and 3% had ≥7 children. Out of 100 participants, 61% participants reported having diabetes and 49% reported having hypertension. About 59% of post-menopausal females reported having diabetes.

The findings showed us that diabetes was significantly associated with UI because the p-value is less than 0.01. Table-I showed the frequency and percentage distribution of all the questions for the UI Diagnosis scale. Table II showed us the frequency and percentage of subtypes of UI.

DISCUSSION

This current cross-sectional study determined the prevalence of urinary incontinence among post-menopausal females. The results were based on questionnaires that were based on history taking. No treatment was offered. This current study which recruited 100 post-menopausal females showed that the prevalence of urinary incontinence among post-menopausal females was 71%. Among these post-menopausal females, we inquired about several associated factors while we inquired about the presence of urinary incontinence. Urinary Incontinence in menopausal women was more commonly observed in females with four or more children, high blood pressure and diabetes.

These findings coincide with the findings of Mary K and her co-workers.[26] Their study showed that a history of Urinary Incontinence was more common among females with 4 or more children with an antiquity of smoking, higher blood pressure, diabetes, earlier age at the first birth and an advanced body mass index. They also concluded that female postmenopausal women who are young were at a higher risk to report an antiquity of UI at menopause than females of mature age. This current study showed the prevalence of UI to be 71% among postmenopausal females.

Another study in which 1307 women were recruited, aged ranged between 25 till 54 years, who lived in Sonora, Mexico and a study that recruited 628 females aged ranged 70 years and above in a Mexican study, the prevalence of UI was about 20% which is less than out study.[27,28] While comparing, among studies of American-Mexican females, the estimates of prevalence have been extremely variable, ranging from almost 15% among

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Table I: Frequency and Percentage of Questionnaire for Urinary Incontinence Diagnosis Scale

Question	Response	Frequency	Percentage
Do you leak urine (even small drops), wet yourself or wet your pads or undergarments when you cough or sneeze	None of time	39	39%
	Once in a while	5	5%
	Rarely	8	8%
	Often	48	48%
Do you leak urine (even small drops), wet yourself or wet your pads or undergarments when you bend down or lift	None of time	39	39%
	Rarely	17	17%
	Often	44	44%
Do you leak urine (even small drops), wet yourself or wet your pads or undergarments when you walk quickly, jog or exercise	None of time	39	39%
	Rarely	15	15%
	Often	46	46%
Do you leak urine (even small drops), wet yourself or wet your pads or undergarments while you are undressing to use the toilet	None of time	39	39%
	Rarely	5	5%
	Often	56	56%
Do you get such a strong and uncomfortable need to urinate that you leak urine (even small drops) or wet yourself before reaching the toilet	None of time	35	35%
	Rarely	5	5%
	Often	60	60%
Do you have to rush to the bathroom because you get a sudden, strong need to urinate	None of time	29	29%
	Rarely	5	5%
	Often	66	66%

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Table II: Frequency and Percentage of Subtypes of Urinary Incontinence (n=100)

Types of incontinence	Frequency(%)
Stress incontinence	45(45%)
Urge incontinence	36(36%)
Mixed incontinence	19(19%)

Table III: Risk Factors Associated with Urinary Incontinence

Variables		Incontinent Females	Continent Females	p-value
Mode of delivery	Vaginal delivery	27	19	.100
	Cesarean section	42	9	
	Null parity	2	1	
No of children	No Children	2	1	.062
	1 - 3	33	10	
	4 - 6	34	17	
	≥7	2	1	
Diabetes	yes	59	2	.000
	no	12	27	
Hypertension	yes	30	19	.288
	no	41	10	

females aged ranges from 65 years and above in the Hispanic recognized population for the epidemiologic study of age to 47% among females age ranging from 20 years and above in the National Health and Nutrition Examination Investigation.[29, 30] Undoubtedly,

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future researchers are recommended to conduct supplementary studies with authenticated Urdu language questions about UI to enumerate it among middle-aged and older Pakistani women in a much better way.

Older age is a recognized risk factor for UI.[31] Though, our finding is unswerving with a study conducted previously that found a peak in the prevalence of Urinary Incontinence at the age of 50 years, which was shadowed by a deterioration between ages 50 and 60 years and then 2nd uttermost among elder females.[32]

Giving birth to children also increases the risk for UI which is caused by triggering impairment to the connective tissues which provides support to the structures and nerves present in the pelvic floor.[31] The current study and Mary K's study[26] found a substantial undeviating tendency of greater chances of UI with greater equivalence and substantially higher odds of UI amongst females with at least 4 offspring when paralleled with nulliparous females. Likewise, when a study was conducted among 1307 females in Sonora Mexico, age ranged between 25 to 54 years, the odds of UI were greater in parous as compared to nulliparous females.[33] Numerous mechanisms might elaborate the association between diabetes, higher blood pressure, neurological disease and a greater risk of UI.

Because these circumstances might destroy the microvasculature and nerves present in the pelvic floor. Adding to this, inferior urinary tract infections, which are supplementary and commonly reported in females with diabetes, might infuriate the bladder and might lead to earnestness UI. Treatment provided by diuretic therapy for higher blood pressure might also stimulate UI by triggering greater urine production. Additionally, chronic cough concomitant with asthma might also increase the risk of stress incontinence. This associated factor was not included in this current study but future researchers are recommended to work on this factor as well.

Agreeing with our findings, in the Hispanic recognized population for the epidemiologic study of the elderly the prevalence of diabetes was greater in Mexican-American females as compared to those deprived of Urinary Incontinence.[30] Additionally, in the study of Mexican Health and Aging, there was a recommendation of a greater prevalence of Urinary Incontinence among adults as compared to those deprived of higher blood pressure.[34]

The limitation of this current study must be considered, firstly the sample size was very small. Additionally, the questionnaire did not include questions including to accumulate particulars about UI indications such as, the characteristic amount of urine trickled or frequency of the urine leakage. Most importantly, the dissemination of certain physiognomies in this populace of females is not demonstrative of the original feminine population of the entire Pakistan. Future researchers are recommended to conduct a study that included a population that represents the underlying females of Pakistan recruiting a larger sample size. Future researchers are recommended to conduct more studies on finding out authentic evidence to prove an association between diabetes and urinary incontinence in post-partum females and young females too.

Having authentic knowledge and proof regarding associated factors that eventually lead to urinary incontinence might help in planning prevention and interventional measures for females. Awareness among women regarding the associated factors might also aid females in the future to save themselves from this condition. The findings of this current study recommended that information about UI, although important for

all Pakistani post-menopausal females, might be beneficial, especially for females with four or more children or with diabetes.

Future forthcoming studies with more detailed data on UI rigorousness, sub-type and effects on quality of life are required to deliver additional explicit evidence about risk factors associated with UI. Future studies with longitudinal data on UI, adding more to already existing data on this and its subtypes, are required to provide more detailed information about risk factors related to UI among Pakistani females.

CONCLUSION

This study concluded that there is a higher prevalence of urinary incontinence among post-menopausal females. A greater number of childbirths, vaginal delivery, diabetes and high blood pressure are among some of the associated factors with urinary incontinence. The results suggested that information about incontinence and strategies concerning preventing urinary incontinence might be specifically beneficial for Pakistani post-menopausal women with four or more children or with diabetes and hypertension.

DECLARATIONS

Consent to participate: Written consent had been taken from patients. All methods were performed following the relevant guidelines and regulations.
Availability of data and materials: Data will be available on request. The corresponding author will submit all dataset files.
Competing interests: None
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