

Does Stress among Daily Passengers Causing Urinary Incontinence? A Cross Sectional Study from Prakasam District, Andhra Pradesh Using Non-Invasive Self-Administered Questionnaires

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Abstract

Back ground: Urinary Incontinence is also called leaky bladder/ sometimes involves a strong, uncontrollable urge to urinate. Life style of daily passengers includes hurry, anxiety and stress to catch the train to travel long distances for education or occupation purpose. Many people may feel discomfort to use washroom more frequently.

Objectives: To assess prevalence of urinary incontinence and socio-demographic profile and risk factors of daily passengers in Prakasam district suffering with urinary incontinence, who travelled in trains during study period.

Methodology: A Cross sectional observational study conducted among 160 daily passengers from August 1st to September 30th 2021 in Ongole, Prakasam district, Andhra Pradesh. A pretested semi structured questionnaire is used to assess socio demographic profile and risk factors of urinary incontinence among study participants. Questionnaire for urinary incontinence for diagnosis [QUID] is applied for diagnosing urinary incontinence among study participants. Simple random technique was applied to choose study participants.

Results: Prevalence of Urinary Incontinence was 29.66%. Almost half of the study participants (47.2%) mentioned the urinary continence when they had cough or sneezing. Mean age of study participants was 21.7 years and ranged between 17 to 76 years. Pearson correlation test revealed a strong significant positive correlation between QUID Urge score and QUID stress score. ($r= 0.40, p<0.01$).

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Conclusion: Urinary incontinence significantly high in the age group > 30 when compared to others. At the same time urinary incontinence significantly high among study participants having smoking history. People who had high stress score had high prevalence of urinary incontinence.

Key Words: Cross-sectional study, Daily passengers, QUID stress score, Urinary incontinence.

Introduction

Urinary Incontinence is also called leaky bladder / sometimes involves a strong, uncontrollable urge to urinate¹. This lead to human & social implications problems especially among the old aged people and women²⁻⁴. There are different types of urinary incontinence such as stress incontinence, urge incontinence, overflow incontinence, functional incontinence and mixed incontinence^{5,6}. Female gender, elderly age, overweight, smoking, family history and presence of other physiological problems such as neurological problems and diabetes are the risk factors for this condition^{6,7}.

Several studies conducted in different settings revealed that prevalence of urinary incontinence ranged from 20% to 34%⁷⁻⁹. Most of the studies revealed that women are more suffering with this problem when compared to men and stress incontinence is the most common type. Diagnosis of urinary incontinence needs physical examination of the patient and urine analysis in the laboratory⁶.

But the condition is associated with stigma and most of the patients may not come to hospital for getting treatment. A study conducted by Bradely et al., revealed that a non-invasive 6 item self-administered questionnaire, Questionnaire for Urinary incontinence diagnosis (QUID) is equally valid tool to diagnose stress related urinary incontinence¹⁰. This tool can be used as a screening tool to identify the hidden portion of iceberg. Prevalence studies were conducted to estimate burden of the problem in general population. But the knowledge regarding the burden of urinary incontinence among daily passengers is limited. Life style of daily passengers includes hurry, anxiety and stress to catch the train to travel long distances for education or occupation purpose. Many people may feel discomfort to use washroom more frequently. Based on this background the current study was done with an aim to estimate burden of urinary incontinence among daily passengers and its correlation with stress among them.

Objectives:

- To assess prevalence of urinary incontinence among daily passengers in prakasam district, who travelled in trains during study period.
- To assess socio-demographic profile and risk factors of daily passengers in prakasam district suffering with urinary incontinence, who travelled in trains during study period.
- To assess co-relation between stress and urinary incontinence among daily passengers who travelled in trains during study period.

Methodology

STUDY DESIGN: Cross sectional observational study.

STUDY SETTING: Study is conducted in the Ongole city, district headquarters of Prakasam district of Andhra Pradesh state.

STUDY POPULATION: Daily passengers travelling in train for their livelihood and education in the Prakasam District are considered as study population.

SAMPLE SIZE AND COLLECTION CRITERIA: Sample size was calculated using the formula for Likert scale¹⁷. $N = \frac{Z^2_{\alpha/2} C^2 (1+(k-1)\rho)}{KD^2}$ (C=1, $\rho = 0.3$, K=6, D=10%) 160 study participants were considered¹¹.

SELECTION CRITERIA:

Inclusion criteria: Daily passengers travelling in train since more than one month and the age group between 15 -75 years and those who are willing to participate in the study were included in the study.

Exclusion criteria: Daily passengers who are not willing to participate in the study and who are not suffering with chronic kidney diseases and neurological problems were excluded from the study.

SAMPLING PROCEDURE: Simple random technique was applied to choose study participants. Passengers who are waiting to board into the train in

the railway station are contacted to participate in the study.

DATA COLLECTION PROCEDURE AND INSTRUMENTS:

Study tools: A pretested semi structured questionnaire is used to assess socio demographic profile and risk factors of urinary incontinence among study participants. Questionnaire for urinary incontinence for diagnosis [QUID] is applied for diagnosing urinary incontinence among study participants¹⁰. It is a 6 itemed self-administered questionnaire. A ten itemed perceived stress scale was applied to assess the presence of stress among study participants and co-relation between urinary incontinence and stress^{12,13}.

Data collection procedure: Data is collected in the railway station for a period of 2 months i.e., from August 1st to September 30th 2021. Prior permission from the institutional ethics committee and station master were taken to conduct the study. Passengers who are waiting to board into the train in the railway station waiting hall are contacted to participate in the study. Study procedure and objectives are explained to study participants and an informed consent is taken from study participants before collecting the information. Questionnaires are given to study participants and asked them to fill and return the questionnaires within 15 minutes time.

STATISTICAL ANALYSIS: Microsoft Excel and SPSS trail version 21 was used for statistical analysis and to draw relevant graphs and tables. Descriptive statistics calculated for each variable from the collected data. QUID urge score calculated using QUID questionnaire. Study participants who are having urinary incontinence will be categorized based on the urge score. Proportions were calculated to assess the prevalence urinary incontinence among study participants. Study participants are categorized based on the socio demographic profile and presence of risk factors in the study participants. Chi-square test is used to test the significance of results. Pearson correlation test was used to correlate between QUID urge score and QUID stress score. Perceived stress scale had ten questions in a Likert scale from 0 to 4. Stress score were measured using this tool. Correlation analysis was done to assess correlation between stress and urinary incontinence among

study participants.

Observation and Results

Total number of study participants were 160, Among total study participants Incompletely filled forms were 15. Finally 145 Observations were considered for analysis.

Table 1: Showing Prevalence of overall Urinary incontinence and at different situations mentioned in QUID questionnaire

Do you leak urine (even small drops), wet yourself, or wet your pads or undergarments?	Frequency	Percent
All of the time	1	0.69
Most of the time	1	0.69
Often	5	3.45
Once in a while	5	3.45
Rarely	31	21.38
None of the time	102	70.34
V1 When You Cough or Sneeze?	Frequency	Percent
All of the time	0	0
Most of the time	2	1.38
Often	2	1.38
Once in a while	18	12.41
Rarely	45	31.03
None of the time	78	53.8
V2 When You bend or lift something up?	Frequency	Percent
All of the time	1	0.69
Most of the time	7	4.83
Often	4	2.76
Once in a while	8	5.51
Rarely	15	10.35
None of the time	110	75.86
V3 When You walk quickly, jog or exercise?	Frequency	Percent
All of the time	3	2.07
Most of the time	8	5.52
Often	3	2.07
Once in a while	8	5.52
Rarely	27	18.62
None of the time	96	66.2

V4 When You are undressing in order to use the toilet?	Frequency	Percent
All of the time	3	2.07
Most of the time	3	2.07
Often	5	3.45
Once in a while	17	11.72
Rarely	32	22.07
None of the time	85	58.62
V5 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?	Frequency	Percent
All of the time	4	2.76
Most of the time	2	1.38
Often	3	2.07
Once in a while	12	8.28
Rarely	31	21.38
None of the time	93	64.13
V6 Do you have to rush to the bathroom because you get a sudden, strong need to urinate?	Frequency	Percent
All of the time	2	1.38
Most of the time	4	2.76
Often	10	6.9
Once in a while	21	14.48
Rarely	48	33.1
None of the time	60	41.38

Prevalence of Urinary Incontinence (Including the categories from rare to all of the above) was 29.66%. However, people suffering with urinary incontinence all of the time was only 0.69%. Most of the people (21.38%) had this complaint as a rare problem.

Almost half of the study participants (47.2%) mentioned the urinary continence when they had cough or sneezing. Nearly one fourth of study participants (24.14%) reported the problem of urinary incontinence while bending or lifting the weights. At the same time one third of study participants (33.8%) stated the presence of urinary incontinence when they are walking quickly, doing jogging or exercise.

Study participants reported presence of urinary incontinence when they are undressing to use toilet was 41.38%. More than one third of study participants (35.87%) had strong and uncomfortable need to urinate before reaching the toilet. More than half of the people (58.62%) reported that they rushed to bathroom as they had sudden and strong need to urinate.

QUID score:

QUID urge score was calculated for each participant by combing the responses for questions v1, v2 and v3. QUID stress score was calculated for each participant by combing the responses for v4, v5 and v6. Average QUID urge score and QUID stress score was calculated and correlation between two scores was tested.

Table 2: Mean scores of QUID urge score and QUID stress score

QUID scores	Mean	Std. Deviation
QUID Urge score (V1+V2+V3)	1.862	2.624
QUID Stress score (V4+V5+V6)	2.386	2.444

Mean urge score of the study participants was 1.862, whereas mean QUID stress score was 2.386.

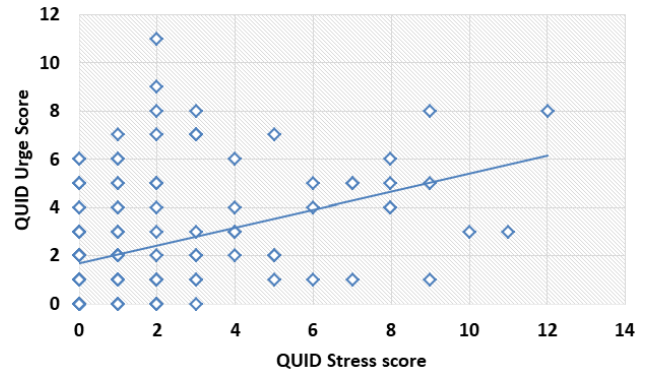


Figure 1: Correlation between QUID urge score and QUID stress score

Pearson correlation test revealed a strong significant positive correlation between QUID Urge score and QUID stress score. (r= 0.40, p<0.01). It indicated that people who had high stress score had high prevalence of urinary incontinence

Mean age of study participants was 21.7 years and ranged between 17 to 76 years. One hundred and

thirty-six participants belonged to age group less than 30 and six participants belonged to age more than 30 years. Among the study participants 41 were males 101 were females. Three participants had habit of smoking, 71 participants don't had habit of smoking, remaining people did not reveal their smoking history. Only five people reported family history of urinary incontinence. Seven people reported history

of diabetes and eight members reported history of neurological problems. Complaint of urine leak in none of the time was considered as absence of urinary incontinence and remaining were considered as presence of urinary incontinence and cross table with risk factors were created. Chi-square test was used to test significance of results.

Table no 3 showing Risk factors and Urinary Incontinence

Category		N	Urinary Incontinence present	Urinary Incontinence absent	Chi square
Age Group N=142	<20	27	13	14	Chi-square=7.387, df=2, p=0.02
	20-30	109	26	83	
	>30	6	3	3	
Gender N=142	Male	41	12	29	chi square = 0.002, df=1, p=0.95
	Female	101	30	71	
Family History N=143	Yes	5	2	3	chi square = 0.142, df=1, p=0.70
	No	138	40	98	
Smoking History N= 73	Yes	2	2	0	chi square = 5.84, df=1, p=0.01
	No	71	17	54	
History of Diabetes mellitus N= 142	Yes	7	0	7	chi square = 3.09, df=1, p=0.07
	No	135	42	93	
History of Neurological problems N= 143	Yes	8	3	5	chi square = 0.27, df=1, p=0.60
	No	135	39	96	

Cross tables revealed that proportion of urinary incontinence significantly high in the age group > 30 when compared to others. At the same time urinary incontinence significantly high among study participants having smoking history. There was no significant association observed for the remaining variables such as gender, family history, history of diabetes and history of neurological problems. As the study participants mainly belonged to the age group less than 30 years, these risk factors not showing significant association with urinary incontinence.

Mean score of perceived stress scale among study participants was 18.94 with standard deviation 5.94. Correlations of perceived stress scale score with urinary incontinence scale, QUID urge score and QUID stress score were tested using Pearson

correlation test. It revealed a significant positive correlation between stress scale and overall urinary incontinence score. ($r=0.234$, $p<0.005$)

Discussion

In this cross sectional study, prevalence of UI is 29.6%, This study provides an opportunity to analyze the prevalence and correlation of UI with stress among daily travelers different types of urinary incontinence QUID questionnaire was directly filled by subjects under the supervision by therapist, so it will increase the reliability of diagnosis of various type of urinary incontinence without being under report due to shame and hesitance. In this study, urinary incontinence diagnosed by QUID.

In this study prevalence among females were 29.7%. This findings is almost similar to studies done by Charpot in Gujarath and by Biswas in west Bengal which reported a prevalence of 29.36 % and 21.7 % respectively^{7,14}.

But few studies done in India reported low prevalence rate. studies done by Agrawal et al in Uttar Pradesh reported 12%. This variation in prevalence may due to difference in survey method, sample size difference in definition used in the study and duration of study¹⁵.

A study done by Ganapathy, & a cross-sectional study among tribal women in Thane District, Shahapur, India, by Prabhu and Shanbhag SI Stress incontinence (54.61%) and stress incontinence affecting the majority of women (56.2%), which is high compared to present study. This high prevalence mainly due to different study design and different population^{4,16}.

In the present study urinary incontinence significantly high in the age group > 30 when compared to others. This is consistent with reports of Ganapathy study, where the prevalence of all types of urinary incontinence was higher in middle-aged group of women above 40 years of age, as compared to women in the age group of 19–40 years. Singh *et al.* reported similar findings indicating that the prevalence of UI was high among women above 40 years of age, ranging from 27.8% to 42.8%^{4,9}. This could be possibly by the fact of withdrawal of hormones, decreased bladder contractility, and progressive loss of muscle tone with increasing age and changes in the hormonal stimulation.

Mean age of study participants was 21.7 years and ranged between 17 to 76 years low compared to the Ganapathy study in which mean age of the participants being 46.7 ± 14.6 years⁴.

In present study almost half of the study participants (47.2%) mentioned the urinary continence when they had cough. Cough considered as one of the risk factor for UI similar to the findings of the study done by Guin, Prabhu, Singh et al^{9,14,16}.

Present study revealed a significant positive correlation between stress scale and overall urinary incontinence score which is similar to the study done

by Lai et al, reported psychological stress levels were high in UI subjects. There were significant positive correlation between psychological stress levels perceived by patients and the severity of urinary incontinence¹⁷.

Conclusion and Recommendations

Even though urinary incontinence in all the time is less prevalent in the age group less than 30 years of age, almost one third of study participants experiencing the problem in different timings. Stress is the main contributing factor of urinary incontinence in the age group less than 30 years of age. Most of study participants has urinary incontinence while coughing. QUID questionnaire is one of the best tool to assess the urinary incontinence. Daily passengers should reduce the stress while travelling and should use the washrooms more frequently to low the risk of urinary incontinence.

Ethical Clearance: This study was approved by institutional ethics committee of Govt Medical College & Govt. General Hospital with ref no ECR/1351/Inst/AP/2020.

Conflict of Interest: There is no conflict of interest.

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