

ASSOCIATION OF UNURINARY INCONTINENCE WITH QUALITY OF LIFE IN PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE

Shagufta mureed¹, Sidra Afzal², Madiha Younas³, Misdaq Batool⁴, Kareena Imran⁵, Sana Atta Muhammad⁶

1,2, 3,5,6 Riphah International University Lahore, Pakistan
4, Sargodha Medical college, Pakistan

ABSTRACT

Chronic Obstructive Pulmonary Disease (COPD) is the third major cause of expiry at international level causing 3.23 million deaths in 2019. Over 80% of these deaths occurred in low- and middle-income countries (LMIC). Urinary incontinence is a popular term that can change women and men of all ages with a deep assortment of asperity and quality. Due to the persistent coughing, UI is most prevalent in individuals with long-term chest disorders such bronchiectasis, asthma, or chronic obstructive pulmonary disease.

Objective

To find out the association of urinary incontinence with quality of life in patients with chronic obstructive pulmonary disease.

Methods

It was a cross-sectional study with a sample size of 277 people of both genders. The ICIQ FLUTS and MLUTS questionnaires were used. Before patients completed the questionnaires, their informed consent was obtained. The study lasted for six months and was conducted at the DHQ hospital in DG khan.

Result

The chi square and correlation tests, which demonstrated significance at a 0.01 ratio, were used to examine the data using SPSS. Which suggests that UI have a negative impact on people with respiratory disorders in their quality of life.

Conclusion

This study provide evidence that there is significant role of chronic obstructive pulmonary disease in urinary incontinence which have negative impact on their lifestyle. The diagnosis reveals that the respiratory condition plays a role in developing UI. Hence Urinary Incontinence have considerably a great impact on Quality of life. Physical therapy programs can become an effectual option.

Keywords: Cough, COPD, urinary incontinence, pelvic floor muscle, pulmonary disease, asthma, respiratory disease.

I. INTRODUCTION:

Voiding is condition with loss of vesical control along-with minor leaking to uncontrolled wetness are all possible signs of UI affects more than 200 million people intercontinental, and estimate shown that just about 25 million adult Americans has been affected by

the urinary incontinence (1). Another estimate suggested that evacuation is more commonly discovered among elderly people, especially grannies. In addition, older individuals reported urinary incontinence -related problems more frequently as compared with their adolescent (2). COPD is a chronic obstructive pulmonary disease that can be prevented and treated. It also has some extra pulmonary effects that might exacerbate an individual's condition. The respiratory organ section is defined by a prolonged restriction of airflow things can't be undone entirely. Limitation of airflow is usually forward-looking and is linked to an increased seditious response in the lungs in reaction to hazardous stuff or flatulence (3, 4).

COPD is characterized by chronic respiratory tract inflammation and persistent and worsening airflow restriction (5). Smoking, environmental exposures, and air pollution are known to be key risk factors for COPD, with sex, age, concurrent illnesses, and recurring respiratory infections all being considered (6). COPD patients frequently have comorbidities. UI is connected to increasing social estrangement, perianth and fractures, economic crisis, lower ability to concentrate, increased anxiety, and nursing home admissions, all of which result in significant economic and quality-of-life losses. Chronic coughing caused by smoking or COPD is believed to be another risk factor for getting enuresis (7). UI is an important ethical and individualistic dilemma because it lowers health-related quality of life in those with emphysema. (8) UI is categorized as stress, urge, or mixed depending on the typical clinical symptoms. Patients with COPD appear to experience urine incontinence and symptoms frequently, which negatively impacts quality of life. (9). For those who suffer from chronic obstructive pulmonary disease, voiding presents a special set of difficulties (10). Health, happiness, and social contact are all included in the arbitrary, flat concept of "quality of life." (11) Carvalho et al., (2021) conducted an integrative review with the overarching objective of understanding the physiological mechanism of urinary incontinence connected to COPD medication. This research employed an integrative review methodology that included cohort and case-control studies, quasi-experimental intervention studies, and randomized clinical trials. The pharmacological classes SABA, LABA, SAMA, LAMA, ICS, and ipDE4 were taken

into consideration to investigate side effects and check for the existence of urinary symptoms caused by these treatments. The pharmaceutical class associated with urine incontinence in this study was Anticholinergics/antimuscarinics. Given this information, it is logical to draw the conclusion that COPD medication side effects largely have little to do with urine incontinence. But since urinary incontinence is not considered to be a life-lowering illness, it is likely that it was not included in list of possible side effects. (12) Hwang et al. divided the 33 SUI participants into PFES and control groups (2021). Both before and after an eight-week training period, the two categories were looked at. PFM strength, using ultrasound, electromagnetic sensors, and perineometer, the diaphragm excursion, upper rib cage movement, and coughing were all measured. There were significant differences in PFM strength (between groups: $P = .001$, between time: $P.001$), diaphragm excursion during forceful breathing (between groups: $P=.015$, between time: $P=.026$), and coughing (between groups: $P=.035$, between time: $P.006$) between pre- and post-training as well as between groups. By electrically activating the pelvic floor muscles, SUI patients' diaphragm excursion and breathing patterns can be improved (13).

In their 2020 study, Sacomori et al. sought to determine whether the caliber of life of people with chronic respiratory illnesses who visited a primary care clinic in Santiago de Chile was influenced by urine symptoms, respiratory and emotional functioning, or socio-demographic variables. In the observational cross-sectional study, 93 people took part (62 with asthma and 31 with chronic obstructive pulmonary disease). Urinary incontinence, depressed symptoms, and increased dyspnea have a major negative issue on the quality of life of people with chronic respiratory illnesses; therefore, clinical care and research should pay more attention to these issues (14). According to Barrie's review, individuals with chronic chest conditions such as asthma, bronchitis, or chronic obstructive pulmonary disease (COPD) have been accompanying to an exaggerated risk of infection of UI (2018). In comparison to women who do not have respiratory symptoms, those who do experience more severe symptoms and stress urine leaks. A review of respiratory illness was conducted, and it spotlight the significance of community nurses not only attending to conclusion related to respiratory illnesses, such as making sure that those with asthma have a personalized emphysematous action plan, but also assessing urinary incontinence to determine incidence and come up with prevention or mitigation strategies (15). With the help of their demographic information, this study is to determine how frequently individuals with chronic obstructive pulmonary

disease experience urinary incontinence as well as rule out any negative effects on quality of life of both genders. So that recommendations can be made and implemented to improve quality of life in both men and women with COPD. Enough studies have been conducted to rule out the impact of urine incontinence on quality of life as well as the involvement of pneumonia and cough in urinary incontinence. However, there is limited research to support a link between urine incontinence, respiratory issues, and quality of life. The study was configured to ascertain the kinship between urine incontinence and individuals with chronic obstructive pulmonary disease. The purpose of the study was to better understand all the applicable consequences and to aid in the development of treatments for complicated disease cases. Finding the related abnormalities that both conditions cause through research will also be helpful.

II. Methodology:

It was a cross sectional study. Study was conducted at DHQ Teaching Hospital Dg Khan. The study was completed within 6 Months after the approval of synopsis. Convenience sampling was used in this study. Sample size was 277 calculated through Epitools for survey. Keeping 95% confidence interval and 0.05 margin of error. (16)

INCLUSION CRITERIA was Patients with COPD according to global initiative for chronic obstructive pulmonary disease, forced expiratory volume in 1sec, forced vital capacity greater than 70, Clinical stable, both gender (17) **EXCLUSION CRITERIA** was Language impairment and cognitive impairment, Impairment precluding self-completion or understanding of questionnaires (18). International consultation on incontinence modular questionnaire ICIQ short form, ICIQ male lower urinary tract incontinence and ICIQ female lower urinary tract incontinence were used as data collection tools. (19) Once the above-mentioned inclusion and exclusion criteria were taken into account, potential participants were considered. They were requested to participate in the study. Written informed consent and demographic data was taken in the duration of 6 month in DHQ khan hospital. ICIQ Male lower urinary tract incontinence (MLUTS) ICIQ Female lower urinary tract incontinence (FLUTS) tool applied on patients having urinary incontinence with COPD in DHQ teaching hospital Dg khan. The sample size was 277 for both genders in a cross-sectional study with a 95 percent confidence interval and a 0.05 margin of error. Both male and female patients with COPD had forced vital capacity greater than 70 and forceful expiration in 1 second, but they were clinically stable. Patients with linguistic problems and those who were unstable or had cognitive impairment were excluded from my

convenient sample study. The tool on Incontinence Modular (ICIQ) tool was used. In this cross sectional study both male and female ICIQ tool was used. ICIQ-UI MLUTS short form is a form for evaluating the relative relative frequency, intensity and outcome on quality of life of urinary incontinence in men. (FLUTS) tool used for evaluating female lower urinary tract incontinence symptoms and impact on attribute in research and clinical practice across the world (2).

There two forms of MLUTS questionnaire one is long form MLUTS the other one is short form in this study the short form is used having number of 13 number of items include self-distrust, exertion to continue excretion, military capability of watercourse, irregularity, broken emptying, urging urge urinary incontinence, strain urinary incontinence, undetermined urinary incontinence, diurnal incontinency, post maturation flowing, urination and frequency. And FLUTS have 12 number of items like Excreting, advocacy, bladder pain, frequency, temperament, effortful, irregularity, urge urinary incontinence, frequency of urinary incontinence, stress urinary incontinence, incomprehensible incontinence and diurnal incontinency (3).

The first part ICIQ-UI MUTS form used, this MLUTS questionnaire contain two parts of questions 1st part of questions is about frequency of urinary incontinence and 2nd part contain the quality of life using visual analogue scale which have numbering from 0 to 10 the numbering of 0 to 3 represent not at all 4 to 6 represent a problem with UI on quality of life of clients and numbering of 5 to 10 represent that with UI patient is facing problem at quality of life at great deal. MLUTS questionnaire total scoring of both parts is 182 in which frequency of urinary incontinence have total scoring of 52 and quality of life have total scoring of 130, in which 0-20 voiding symptoms sub scale, 0-24 incontinence symptoms sub scale both scales are not integrated in the overall score but indicate the impact of respective indicant for the patients. The patients were asked to take part in the research. Patients in the pulmonology and urology wards, both male and female, provided written informed permission and demographic information as well. The district head quarter teaching hospital Dera Ghazi Khan was the main focus of this study's data collection over a 6-month period, so there was a data collection acceptance form that was approved by the hospital's medical superintendent. A second letter was a data completion form that was signed by the DHQ khan's head of the pulmonology ward after the completion of the study's 6-month data collection period. Some language barrier have to face during data collection from patients so its try to ask questions verbally by patients and fill the questionnaire by own because

some patients was hesitate and some was illiterate. The total scoring of patient's data was entered in SPSS sheet with demographic data. The SPSS data is analyzed by correlation test and chi square T test and descriptive study identify the frequency examine the score of quality of life and frequency of urinary incontinence .correlation between scoring of frequency of incontinence and life style analyzed by chi square test of both gender which is significant at 0.01 level. Score of urinary incontinence frequency and quality of life frequency is analyzed by histogram and pie chart also. (4)

III. RESULTS:

The chi square test was used to check the association of urinary incontinence with quality of life in patients with COPD and correlation tests was perform to check the strength of this association, which demonstrated significance at a 0.01 ratio, were used to examine the data using SPSS. Which suggests that UI may have an impact on people with respiratory disorders' way of life and sd.deviation of .00000 like this female marital status have mean value of 1.1895 and St. Deviation is .39323 female BMI mean value is 2.5294 and St. Deviation value of BMI is .66943, female water intake mean value is 2.2941 and St. Deviation is .71527 the mean value of female demographic of caffeine intake per day is 1.6471 and St. Deviation is .57891 and the mean value of female pack of cigarette per day is 4.6863 and St. Deviation of female cigarette intake per day is of 1.04170 value.

Female demographic data mean St. Deviation value of age is 2.2339 and .86587 respectively, male gender mean value is 2.0000 and St. Deviation value is .0000, male marital status mean value is 2.0887 and St. Deviation value is 1.82580 and male BMI mean value is 2.5081 and St. Deviation value is of .95845 and the mean value of water intake in male is 2.4032 and the value of St. Deviation value is of .79551 the mean value of male caffeine intake is 1.7419 and male St. Deviation value is .86364 and the mean value of packs of cigarette per day is 3.0806 and the St. Deviation value pack of cigarette per day is 1.49578. The female patient's number was 153 and male patients was 124 who participate in this study, the mean value of frequency of quality of life in female is 52.1242 and St. Deviation value is 7.29755 same like the mean value of scoring of quality of life in 153 female is 98.8366 and St. Deviation value of QOL is 21.50228. In male the mean value of score of frequency of urinary incontinence is 40.6855 and St. Deviation value of scoring quality of life in 124 male is 7.73164 same like the mean value of score of the frequency of UI in male is 107.4758 and the St. Deviation vale of quality of life in male is 19.08154. In female the mean value of frequency of UI in descriptive statistics is

52.1242 and St. Deviation value is 7.29755 same like the mean value of QOL in female is 98.8366 and St. Deviation value of QOL is 21.50228. In male the descriptive statistic of mean value in frequency of urinary incontinence is 40.6855 and St. Deviation value is 7.73164 the mean value of frequency of quality of life in male is 107.4758 and St. Deviation value of QOL in 124 male is 19.08154.

Age of the participants:

	Frequency	Percent	Valid Percent
45 to 55	73	26.4	26.4
56 to 77	87	31.4	31.4
78 to onward	117	42.2	42.2
Total	277	100.0	

Table of Chi Square Test Statistics

gender	Score of frequency	Score of quality of life
Chi-Square	134.647a	236.810b
df	17	18
Asymp. Sig.	.000	.000
Chi-Square	37.984c	53.597c
Asymp. Sig.	.000	.000

Table shows the statistics frequency of urinary incontinence and quality of life applying chi square test in male and female which represent the score of frequency of urinary incontinence in female is 134.647 with 17df and score of quality of life in female is 236.810 with difference of 18 . The chi square test of frequency of UI in male is 37.894 with df of 10 and score of quality of life in male is 53.597 with df value of QOL.

Table of Pearson Correlations

Gender			Score of frequency	Score of quality of life
		Pearson Correlation	1	.415*
	Score of frequency	Sig.2 tailed		0.000
		N	153	153
		Pearson Correlation	.415**	1
	Score of quality of life	Sig.2 tailed	.000	
		N	153	153

		Pearson Correlation	1	.679*
	Score of frequency	Sig.2 tailed		.000
		N	124	124
		Pearson Correlation	.679**	1
	Score of quality of life	Sig.2 tailed		.000
		N	124	124

Table shows the score of UIS and QOL in both male and female in which score of frequency of UI in female is .415 and score of quality of life is .679 same like in male the score of frequency of urinary incontinence is .679 and score of quality of life in males are .000analyzing the data by correlation test in male and female which is significant at 0.01 level.

IV. DISCUSSION:

Sacomori et al. conducted a study in 2020 to determine how sociological features, respiratory and emotional functioning, and urine symptoms affected the quality of life in patients with prolonged respiratory illnesses who visited a primary care clinic in Santiago de Chile. Study examined the kinship between urgency and life in COPD patients, and it found an evidential negative impact of the disease on these patients' quality of life. It was an experimental cross-sectional study involving 93 participants (62 patients was troubled with bronchial asthma attack and 31 with chronic clogging pulmonic disease). The comorbidities were recorded using a self-report questionnaire, and the Chronic Metastasis Questionnaire was utilized to measure (20). According to a study conducted in 2019 by Battaglia et al., the ratio of UI is best known to be higher in patients suffering from chronic preventive respiratory organ disease than in age-matched controls in both genders. In the occurrent study, there is a primal striking on antonyms for patients suffering from urinary issues. According to Battaglia et al., there are various forms of user interfaces, including tension, desire, and other types, each of which has a unique impact on people's quality of lives. Contrarily, the prevalence of UI in those with COPD is largely unknown in clinical studies and rarely underappreciated in medical institution practice. Despite the fact that the link between UI and lungs illness is still uncertain, their investigation shows that UI is related to the age factor the use of clinical practice. (21) 2019 study by Bottom et al. examined the effects of urinary incontinence, its effects and specialized physical therapy (PT) on women with

(CLD) who were clinically stable but unhappy. The research result was anticipated. Inclusion criteria for the study were 69 healthy women without chronic lung disease, women with mucoviscidosis (CF), and women with (COPD). In research where physiotherapy treatment was effective, ten women with CLD participated. Most women projected to have urine incontinence reported experiencing it in all three categories (CF 71 percent; COPD 70 percent; healthy women 55 percent). Urinary incontinence occurs more frequently in women with CF ($P = 0.006$). (40) This present study has a good convinced on measurement the cardinal number of UI and quality of life in both gender and find out that there is a great role on life style due to urgency in patients having respiratory disorder. (22) Using the concept of uncontrollable urine output, Linde et al. report a study and discuss urinary incontinence in 2019. Frequency, difficult urination, urinary tract infections, micturition, and other LUTS were also included in the study. In this study, it was shown that girls experienced UI at higher rates than boys did, and that the ratio of stress-related UI was higher than that of other types of UI. Uni-variate analysis revealed that UI was also linked to the frequency of straining, intermittency, nocturia, or filthy incontinence. In the current study, the incidence of UI was found, and its effects on quality of life were also known in males and females older than 45 (23). Aigon et al., (2018) examined the earlier research from 2001 to 2018 to introduce the causes of excretory issues, its consequences on quality of life, patient healthcare research, and how patients who suffer from UI are treated. This study suggests that continence is worse in the elderly and occurs in a small percentage of children. This study showed that while coughing, spirometry use, and chest physical therapy sessions, stress UI symptoms worsened. Self-reflection on quality of life was even lower in bladder issues patients with pulmonary disease (24). In 2013 Horng et al. examined the causes of urine incontinence (UI), how it impacts women's quality of life, and in their study, they found that the risk factors for urine dissoluteness rose with age, co-equality, higher index number, prior HRT usage in those with any psychiatric problem, lipemia, and respiratory disease. The current study clarifies that urine incontinence rates with lungs disease had a bigger impact on patients' attribute of life (25).

V. CONCLUSION:

According to the study's findings, chronic obstructive pulmonary disease has a substantial influence in urine incontinence and has an impact on people's lifestyles. The diagnosis demonstrates that the respiratory disorder contributes to UI. Hence Urinary incontinence significantly affects quality of life.

Programs for rehabilitation may become a viable choice.

Conflict of Interest

There was no conflict of interest.

Financial Statement

No fundings were given by any authorities; it was a project thesis of doctor of physical therapy.

Data availability

Data will be provided on the demand by corresponding author.

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