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Impact of Patient Education Module in Pre and Post Counselling Assessment of Quality of Life in Patients with Urinary Tract Infection

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ABSTRACT

BACKGROUND INFORMATION: Urinary Tract Infection (UTI) is defined as the presence of microorganisms in the urinary tract that cannot be accounted for by contamination. Urinary tract infection (UTI) is the one of the most common type of bacterial infection. Women have shorter distance to the bladder and also the urethral opening in women is close to the rectum as compared to men which makes it easier for bacterial colonizers to reach the bladder. **OBJECTIVES:** The objective of the study is to assess the quality of life of patients using SF-36 questionnaire. **MATERIALS AND METHODS:** It is an interventional study which is carried out in Obstetrics and Gynecology (OBG) and General Medicine department with Patients of adult age group (>18 years of age) of both genders who were willing to participate were included. The paper includes the evaluation of Quality of Life of patients with Urinary Tract Infection using SF- 36 form. Scores were evaluated using statistical analysis like Student t test and Chi square test. **RESULTS:** The quality of life was assessed using SF-36 questionnaire. Out of 67 study subjects the mean of QOL scores of patients before patient education was found to be 53.10 and the mean of QOL scores after patient education with 52 study subjects were found to be 83.50, Descriptive statistics like mean and standard deviation were used to present the quantitative variables. The t-test was used to examine the relationship between the variables. Every p value under 0.05 is regarded as significant. Indicating that patient has improved quality of life. This assesses the 8 sub domains of SF-36 questionnaire. **CONCLUSION:** The QOL of Urinary tract infection study results revealed a significant improvement post counseling. If the patients have enough knowledge regarding the disease, further progression of the disease can be avoided by early detection. Also it establishes theroleof clinical pharmacist in providing the patient education.

INTRODUCTION

A urinary tract infection is defined as the presence of microorganisms in the urinary tract that cannot be accounted for by contamination[1]. A UTI can present as several syndromes. It can range from asymptomatic bacteriuria to pyelonephritis with bacteremia or sepsis. Females are more prone to experience urinary tract infection than males. Nearly 1 in 3 women will have had at least 1 episode of UTI which requires antimicrobial therapy before the age of 24 years[2].

Specific subpopulations who are at high risk of Urinary tract infection include infants, elderly, pregnant ladies, patients with spinal cord injuries and/or catheters, patients with acquired immune deficiency syndrome/human immune deficiency virus, patients with diabetes or multiple sclerosis and patients with other urological abnormalities.[3]

Recurrent urinary tract infections are common among young healthy women even though they generally have anatomically and physiologically normal urogenital tract [4]. Risk factors for recurrent UTI may include sexual intercourse, usage of spermicidal products, first UTI at the earlier age, past history of UTI. The management of recurrent UTI is same when compared with management of sporadic UTI. However there are several misconceptions or misunderstandings about urinary tract infection among patients.[5]

The purpose of our study is to assess the patient's overall well-being before, during and following treatment which may include physical, emotional and social dimensions, as well as the stress level, sexual function and self-perceived health status. It aims to enhance quality of life of patients towards UTI by providing patient counselling.

MATERIALS AND METHODS

Study design, study setting, and source of data:

In December 2020 we conducted a interventional case study in general medical and OBG departments (inpatient and outpatient) in The Oxford Medical College, hospital and Research Centre to assess the quality of life of patients with Urinary tract infection.

Sampling Size and Technique:

We have done the study on 67 patients in general medicine and OBG departments for a period of 12 months through a collection of data from the medical records & questionnaire using SF-36 form on UTI.

The sample size of 67 was calculated using the following sample size equations:

$$X=Z^2Pq/D^2$$

$$n=NX/ X + (N-1)$$

Patients who are above 18years and both genders were recruited into the study and the patients with UTI cases in General medicine wards, OBG wards and outpatient departments were included.

Inclusion criteria:

- Inpatients and outpatients for the treatment of urinary tract infection. (General Medicine and Obstetrics and Gynaecology department).
- Patients who are above 18 years of age (male and female).

Exclusion criteria:

- The patients who are unwilling to take part in the study.

Methods of Data Analysis:

1: All the annexures used in the study were translated to the local language (Kannada) & consent was obtained from patients.

2: Ethical approval was obtained from the Institutional Ethics Committee of The Oxford Medical College, Attibele, Bangalore.

3: Collection of demographics of the patient (Name, Age, Sex etc) and the data regarding diagnosis, social and past medical history.

4: Analysis of quality of life of patients using suitable questionnaire using form (SF-36).

5: Then rechecking whether the quality of life will be improved using SF-36 questionnaire after counselling.

6: The obtained data are going to be evaluated using the acceptable statistical procedure.

RESULTS

In this study total 67 cases were collected from General Medicine and Obstetrics and Gynaecology department and analyzed.

Age wise distribution in Table1 and figure 1 indicates the age wise distribution of 67 patients where 10 years of age interval was taken into consideration, youngest being 18 years and oldest being 78 years of age.

The data shows that patients in the age group of 18-28 years were most affected (25.37%) followed by 29-39 years (23.88%), 40-50 years (19.40%), 51-60 years (17.91%), 61-70 (7.46%), 71-80 (5.97%). Gender wise distribution represented in the table and figure 2 indicates that women (68.65%) are more prone to Urinary Tract Infection than men (31.34%). Symptomatic distribution from table and figure 3 illustrates that the commonly exhibited symptoms are burning micturition (82%) followed by abdominal pain (61%), fever (46%), frequent urination (30%), foul smell (22%).

Occupation wise distribution data from table and figure 4 reveals most of the subjects in the study were homemakers (36%) followed by agriculture (13.4%), student (12%), Labourer (12%), other occupation (7.4%), business (7.4%), driver (4.4%), school teacher (4.4%) and tailor (3%). Socioeconomic status from the data reveals that the majority of the patients belong to the lower socioeconomic status (46%) followed by medium (40%) and high (13.4%). The survey of Educational background in table and figure 6 indicates the most of the patients in this study fell under the category of illiterates (52%), followed by matriculates (22%), degree holders (15%), graduates (11%) and finally postgraduate (0%).

Comparison of the QOL of subjects before and after counselling using SF-36 questionnaire scoring:

The SF-36 questionnaire consists of 36 questions divided into 8 different domains with total scoring ranging from 0-100 with 0 being the least and 100 being the best possible quality of life.

Table and figure 7 indicate out of 67 patients QOL of patients with UTI before education was found to be 53.1017±20.932. Reassessment was done after Patient education with 52 study subjects and the results were found to be increased 83.5076±5.534 indicating that patient has improved quality of life. When the p value is less than 0.05, the findings are considered statistically significant.

Comparison of QOL of patients before and after counseling using SF-36 domains: The data from table and graph 8 indicates, mean and SD scores of all 8 domains of SF-36 (physical functioning, role physical, bodily pain, general health, energy, social functioning, role emotional and mental health) after counselling were found to be better. SF-36 sub domain score after counselling from table 9 shows that p values of allthe 8 sub domains of medical outcome study SF-36 (physical functioning, role physical, bodily pain, general health, energy, social functioning, role emotional and mental health) were found to be statistically significant ($p < 0.05$) in i.e., all the subdomains had a p value of below 0.05.

Age Wise Distribution:

Table No. 1: Age wise distribution

AGE	**NO.OF PATIENTS** **N= 67**	**PERCENTAGE**
18-28	17	25.37%
29-39	16	23.88%
40-50	13	19.40%
51-60	12	17.91%
61-70	5	7.46%
71-80	4	5.97%

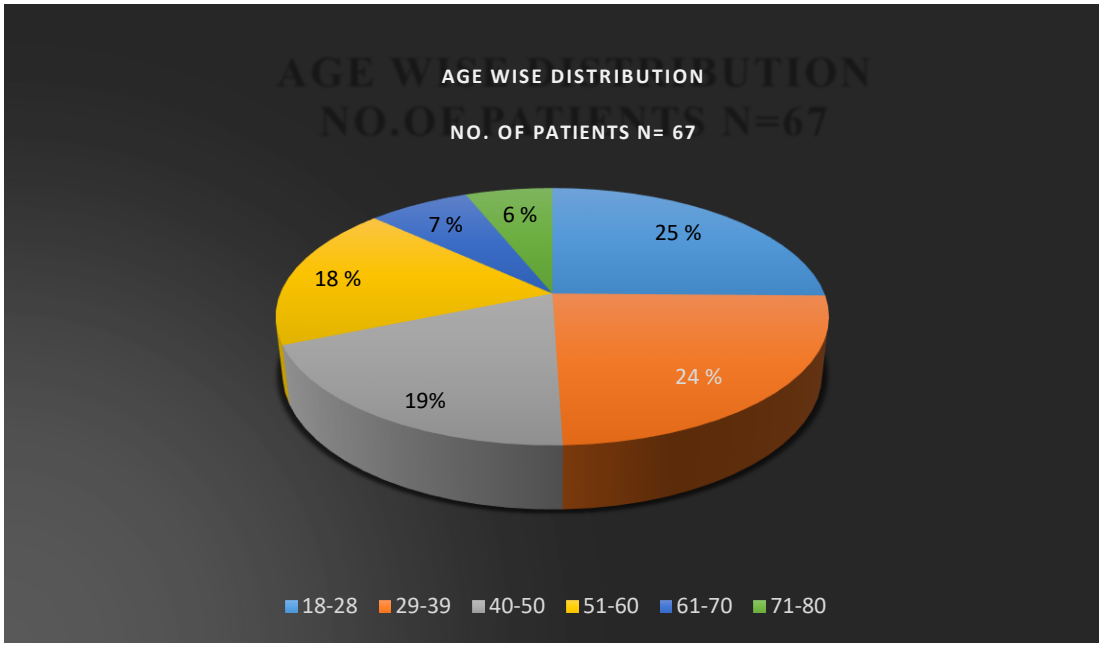


Fig. No. 1: Age wise distribution

Gender Wise Distribution:

Table No. 2: Gender wise distribution

GENDER	NO. OF PATIENTS N= 67	PERCENTAGE
MALE	21	31.34%
FEMALE	46	68.65%

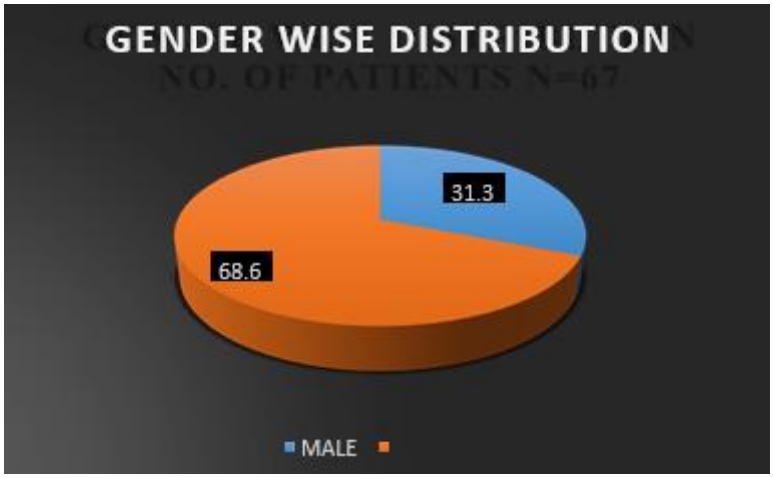


Fig. No. 2: Gender wise distribution

Symptomatic Distribution

Table No. 3: Symptomatic distribution among the subjects

N= 67	Abdominal pain	Burning micturition	Frequent urination	Fever	Foul smell
Positive no. of patients	41	55	20	31	14
Negative no. of patients	26	12	47	36	53
Positive no. of patients (%)	61	82	30	46	22
Negative no. of patients (%)	39	18	70	54	78

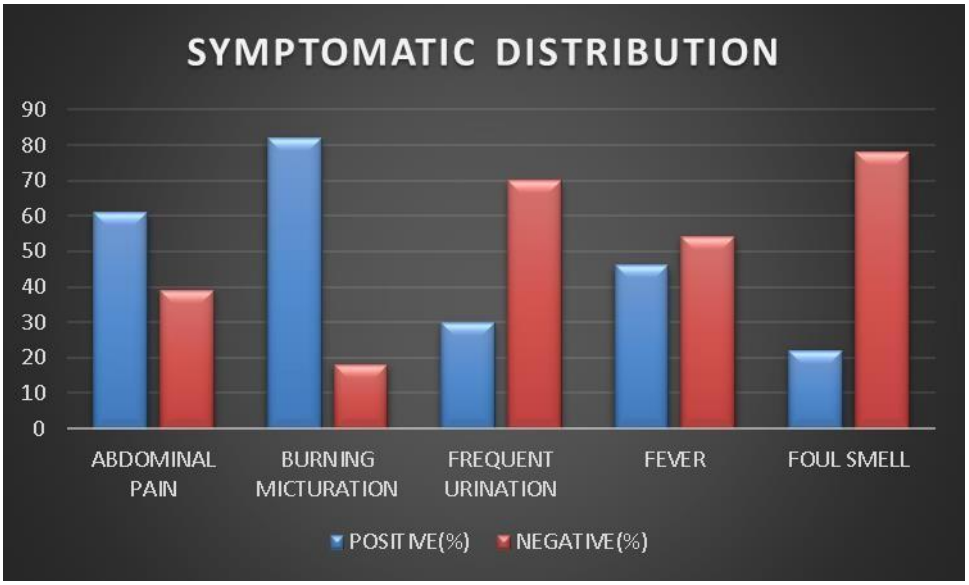


Fig. No. 3: Symptomatic distribution among the subjects

Occupation Wise Distribution

Table No. 4: Occupational status of study participants

Occupation	No. of patients (N=67)	Percentage
Agriculture	9	13.4%
Business	5	7.4%
Driver	3	4.4%
Homemaker	24	36%
Labourer	8	12%
School Teacher	3	4.4%
Student	8	12%
Tailor	2	3%
Others	5	7.4%

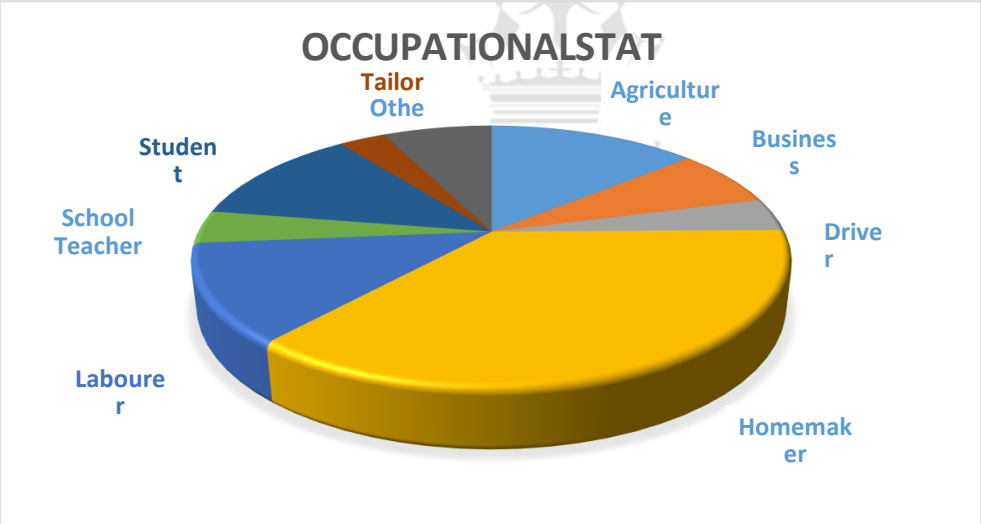


Fig. No. 4: Occupational Status of study objects

Social Economic Status

Table No. 5: Socio economic status of study subjects

Socioeconomic status	No. of patients (N= 67)	Percentage
Low	31	46.26%
Medium	27	40.29%
High	9	13.4%

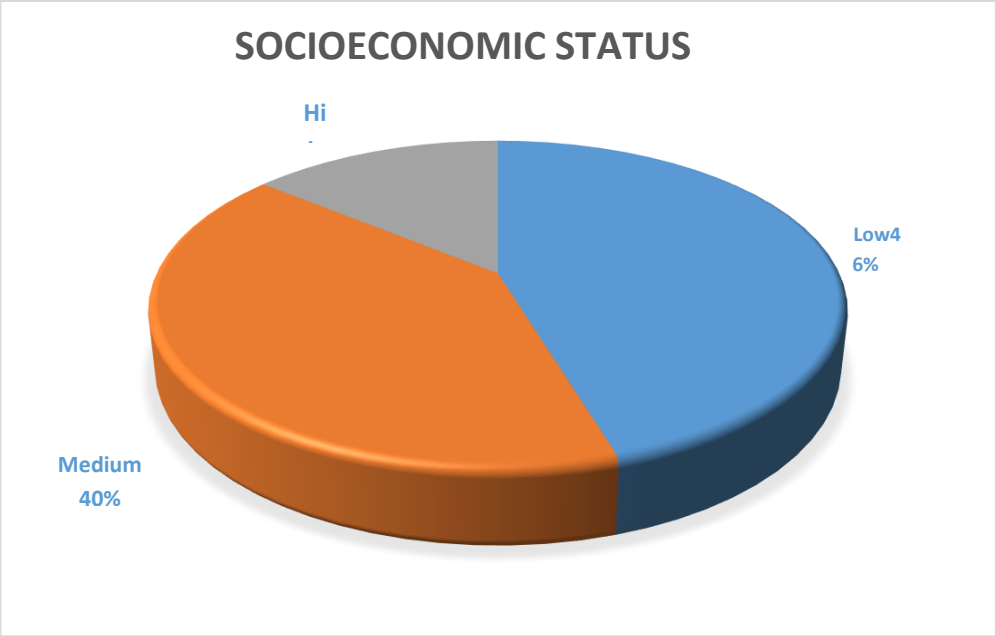


Fig. No. 5: Socio Economic Status

Educational Background:

Table No. 6: Distribution of patients based on educational background

EDUCATION	NO. OF PATIENTS	PERCENTAGE
Illiterate	35	52.23
Matriculate	15	22.38
Graduate	10	14.9
Degree	7	10.4
Post Graduate	0	0

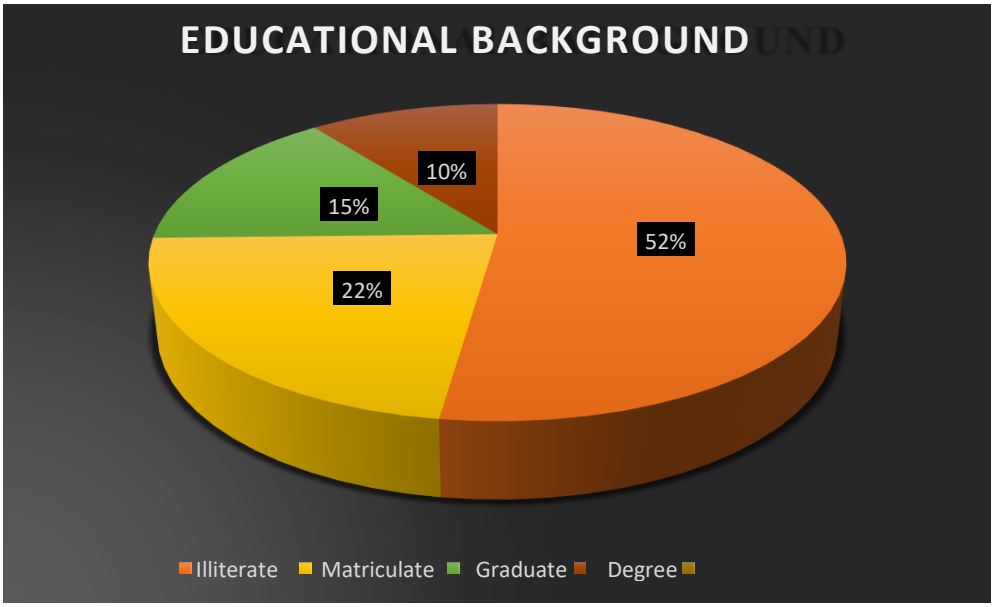


Fig. No. 6: Distribution of patients based on educational background

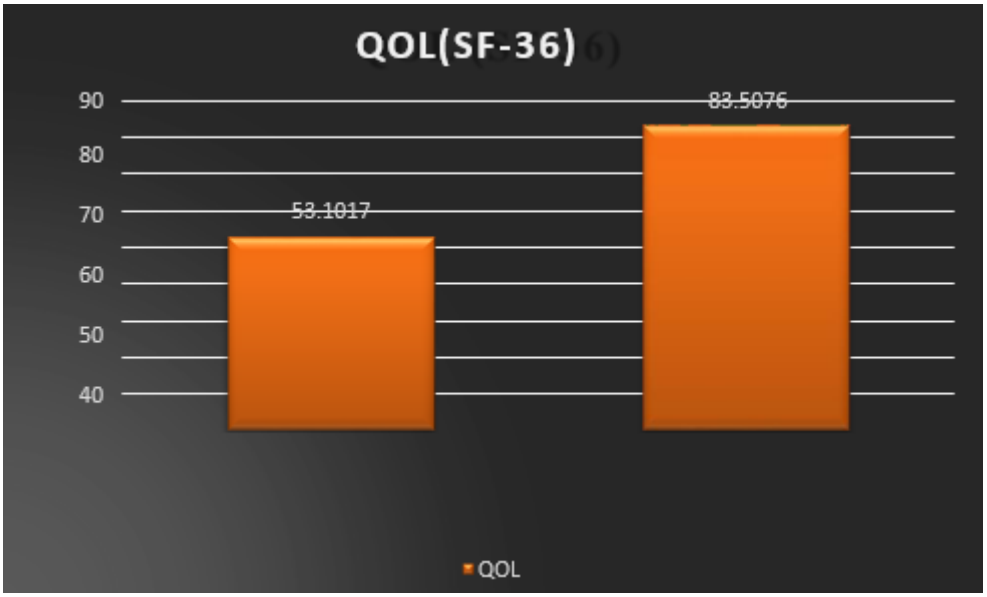
Comparison of the QOL of Subjects Before and After Counselling Using Sf-36 Questionnaire Scoring

Table No. 7: Comparison of QOL score before and after counseling

PARAMETERS	Before counseling N= 67 MEAN± SD	After counseling N= 52 MEAN± SD	T value	P value
QOL	53.1017±20.932	83.5076 ± 5.534	10.1930	<0.05*

*unpaired t test; significant if p<0.05

*SD–Standard Deviation



***QOL– Quality of Life**

	N= 67 Before Reassessment	N= 52 After Reassessment
QOL	53.1017	83.5076

Fig. No. 7: Graphical representation of QOL scores before and after counseling

Comparison of QOL of Patients Before and After Counseling Using Sf-36 Domains

Table No. 8: Comparison of QOL Domains before and after counseling

SF 36 SUBDOMAINS	SCALES	BEFORE FOLLOWUP MEAN±STANDARDDEVIATION	AFTER FOLLOW UP MEAN ±STANDARD DEVIATION
Physical functioning	0-100	70.15 ± 26.77	88.94 ± 9.62
Role physical	0-100	37.31 ± 26.46	69.23 ± 27.39
Bodily pain	0-100	58.410± 36.83	82.331 ± 20.023
General health	0-100	47.704 ± 23.2120	85.8173 ± 10.21
Energy	0-100	51.34± 17.02	88.65 ± 8.23
Social functioning	0-100	55. 299 ± 16.205	85.81 ± 10.215
Role emotional	0-100	58.21 ± 14.36	86.15 ± 7.91
Mental health	0-100	42.3881± 25.347	81.144 ± 9.653

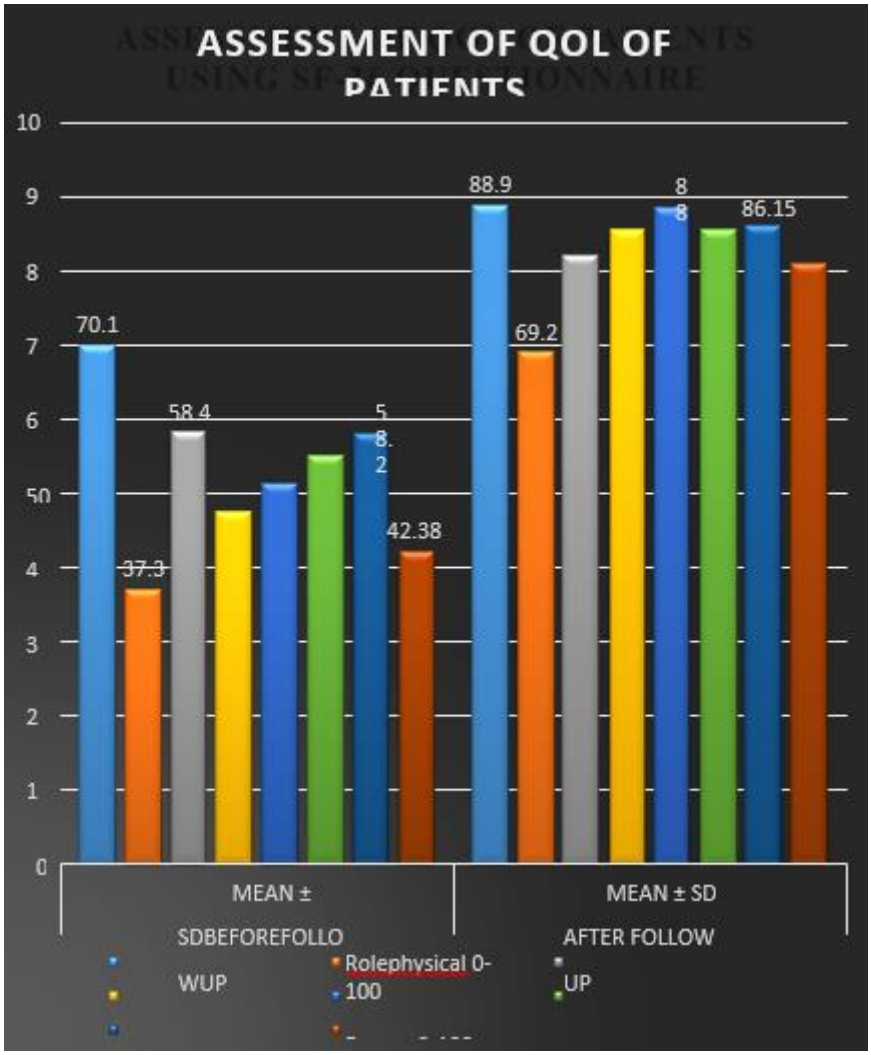


Fig. No. 8: Graphical representation of QOL scores before and after follow up

Sf- 36 Sub Domain Scores After Counseling

Table No. 9: SF-36 subdomain scores Unpaired t test; significant if p <0.05

SF 36 SUB DOMAINS	SCALES	T value	P value
Physical functioning	0-100	4.8227	< 0.05*
Role physical	0-100	4.380	< 0.05*
Bodily pain	0-100	4.2999	<0.05*
General health	0-100	11.0322	< 0.05*
Energy	0-100	14.5305	< 0.05*
Social functioning	0-100	11.8676	<0.05*
Role emotional	0-100	12.6165	< 0.05*
Mental health	0-100	10.445	< 0.05*

*SF-36– Item Short Form Survey

DISCUSSION

This study assesses the intervention made by pharmacist in improving the Quality of Life of patients towards Urinary Tract Infection. Patient education is an important key to accomplish the therapeutic outcome and bring an intense change in treatment. Assessment of Quality of life of patients suffering from UTI may improve patient's wellbeing and self-perceived healthstatus. Quality of life of patients is assessed using SF-36 questionnaire. In the current study, 67 patients were enrolled from General Medicine Department and OBG Department. The demographic characteristics of our study shows that maximum numbers of

patients were enrolled in the age group 18-28years (25.37%) and the mean age was found to be 23 years.

The results were similar to the study conducted by Athinarayanan G *et al*[15] 41, 2020 assessed "Epidemiology of UTI in South India", concluded that out of 1824 cases 318 (17.43%) Patients fall within the 21–30 age range. Considering the gender wise distribution predominance was found. In our study, we found that females (68%) were more prone when compared to males (33%) which are similar to the study conducted by Athinarayanan G *et al* 41, 2020. "Epidemiology of UTI in South India" concluded that out of 1824 cases 1029(56.41%) were females and 795 (43.58%) were males. Based on the socio demographic details of study subjects found that out of 67 patients, 46% of patients belong to lower socioeconomic status followed by 40% in middle class and 13.4% in high class.

Educational background report of study subjects revealed that most of the subjects belong tothe category of illiterates (52%), followed by matriculates (22%), degree holders (15%), graduates. This is a prospective interventional study to compare the pre and post counseling assessment of quality of life of patients with Urinary Tract Infection. 'Quality of life is defined as individuals' perception of their position in life and refers to the patient's ability to enjoy normal life activities. The quality of life was assessed using SF-36 questionnaire. In this study out of 67 study subjects the quality of life of patients before Patient education was found to be 53.1017±20.932. Reassessment was done after Patient education with 52 study subjects and the results were found to be increased 83.5076±5.534 indicating that patient has improved quality of life.

This study also assess the 8 sub domains of SF-36 questionnaire which shows physical functioning before Patient education was found to be 70.15 ± 26.77 and after follow up the results found to be increased 88.94 ± 9.62 indicating improved QOL after patient education. Similar results are observed with other domains of SF-36 includes Role physical, Bodily pain, General health, Energy, Social functioning, Role emotional, Mental health. Similar results were observed in the study conducted by Anne K. Ellis *et al* 42, 2000 "Quality of life of women with Urinary Tract Infection" the study was conducted on 47 study subjects who were given with SF-36 questionnaire to evaluate their QOL. Pre-counselling responses indicated decreased quality of life. Post-counselling responses were assessed after Patient education and it revealed that patients significantly improved the quality of life. P-value less than 0.05 signifies that the results are statistically significant.

CONCLUSION

The QOL of a patient depends on the attitude of the patients towards the disease and being adherent to their medications. The QOL of Urinary tract infection study subjects were analyzed using SF-36 questionnaire, and an overall QOL scale, the study was compared with pre and post counseling with the patients, the results revealed a significant improvement following post counseling. The p values of all the 8 sub domains of medical outcome study SF-36 were found to be statistically significant ($p < 0.05$) in study group i.e., all the sub domains had a p value of below 0.05. This study reveals that providing counseling to the patients would prove to be beneficial in improving their overall QOL. The study found that QOL was found to be poor among majority of the patients before counseling and that establishes the role of clinical pharmacist in providing the patient education.

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CONFLICT OF INTEREST:

None

REFERENCES:

1. Joseph T. Dipiro, Robert L, Talbert, Gary C. Yees, Gary R. Matzke, Barbara G. Wells *et al.* Pharmacotherapy: A pathophysiologic approach. 6th ed.USA: 2005: Section 16. Infectious diseases; p. 2081.

2. Ronald A. The etiology of urinary tract infection: traditional and emerging pathogens: Am. J. Med. 2002 Jul 8; 113(1):14-9.

3. Geerlings S E., Clinical presentations and epidemiology of urinary tract infections. Urinary Tract Infections: Molecular Pathogenesis and Clinical Management. 2017 Feb 15:27-40.

4. Hooton T M. Recurrent urinary tract infection in women: Int J Antimicrob Ag. 2001 Apr 1; 17(4):259-68.

5. Aydin A, Ahmed K, Zaman I, Khan M S, Dasgupta P. Recurrent urinary tract infections in women: Int Urogynecol J. 2015 Jun; 26(6):795-804.

6. Foxman B. Epidemiology of urinary tract infections: incidence, morbidity, and economic costs: Am. J. Med. 2002 Jul 8; 113(1):5-13.
7. Pathophysiology of an UTI - Urinary Tract Infection Case Study [Internet]. U. osu. edu. 2021 [cited 2021 June 7]. Available from: https://u.osu.edu/utieducation/pathophysiology-of-uti/.
8. Urinary tract infection (UTI) - Symptoms and causes [Internet]. Mayo Clinic. 2021[cited 2021 February 21]. Available from: URL: https://www.mayoclinic.org/diseases-conditions/urinary-tract-infection/symptoms-causes/syc-20353447.
9. Urinary tract infection (UTI) - Diagnosis and treatment - Mayo Clinic [Internet]. Mayoclinic.org. 2021 [cited 2021 June 7]. Available from: https://www.mayoclinic.org/diseases-conditions/urinary-tract-infection/diagnosis-treatment/drc-20353453.
10.AL MAHROUQI D. Urinary tract infection [Internet]. Slideshare. net. 2017 [cited 2017 November 12]. Available from: https://www.slideshare.net/mobile/bausherwillayat/urinary-tractinfection_89635298#:~:text=Cystitis%20First%2Dline%20treatment%20of,Acute%20pyelonephritis%20Antibiotics%20are%20required.
11.Ware J E, Kosinski M, Keller S D. SF-36 Physical and mental health summary scales. A users manual. Boston, M A: Health assessment lab, 1994. (35).
12.Bikorimana Jean Pierre, Nyirarukundo Clementine. Assessment of Knowledge Regarding to Urinary Tract Infection among Pregnant Women Attending Gitwe Hospital Rwanda. Int. J. Adv. Sci. Technol .2018 July 3:17-21.
13.Bailey A M, Weant K A, Baker S N. Prevalence and risk factor analysis of resistant *Escherichia coli* urinary tract infections in the emergency department. Pharm Pract (Granada): Pharmacy practice. 2013Apr; 11(2):96-101.
14.Ahmad Q T, Saffarini J H, Samara A M, Jabri D S, Safarini Z H, Banijaber Y M, *et al*. The impact of lower urinary tract symptoms on the quality of life during pregnancy: a cross-sectional study from Palestine. B M Curology. 2020 Dec; 20(1):1-10.
15.Athinarayanan G, Mariselvam R, Dhasarathan P, Ranjitsingh A J. Epidemiology of urinary tract infection in South India. World Journal of Biology Pharmacy and HealthSciences. 2020;1(1):025-32.