

# Urological problems among Men and Women with Diabetes Mellitus at Al Hussien Hospital in Holly Karbala City

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**Keywords:**

Diabetes Mellitus, Urological problems, assessment

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**ABSTRACT**

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A descriptive assessment study design is carried throughout the Assessment of Urological problems among men and women with Diabetes Mellitus at Al Hussain Hospital in Holly Karbala City for the period of 4<sup>th</sup> November 2020 to 5<sup>th</sup> May 2021. A non-probability a purposive sample of (100) patients are randomly selected from Medecin Ward at Al Hussain Hospital were distributed 53% of sample female and 47% male. As regard to all ages. A questionnaire was constructed for the purpose of the study. It is comprised of two parts which deal with men and women which were suffered of diabetic mellitus toward their urological problem as well as demographic characteristics. Reliability of the questionnaire was very high level of stability and internal consistency of the main study domains at the level of items of the applied questionnaire by using the major statistical parameter Alpha Cronbach. In order to test the validity of the questionnaire, it is forwarded to the panel of experts. Data were collected through the period from 1 of November, 2020 Up to the 20 of March, 2021, during the utilization of the self-administration technique (interview) as a mean of data collection from ward at AL Hussain Hospital in Karbala City. Data were analyzed through descriptive statistical data analysis approach. It is used for determining the (Frequencies, Percentages, and Cumulative Percent) and inferential statistical data analysis approaches which included (Contingency Coefficients, Chi-Square test, Binomial test multiple correlation coefficients and Simple Linear regression models). The study results concludes of less than half of patient had color and smell of urine changed & suffer from swelling of the limbs. Few of them suffer from lower abdomen pain, feel constantly urinating, suffer from a burning sensation while urinating, suffer from unprecedented high and low in diabetes, have a high blood pressure, smoking, have the inheritance of the same disease, have other diseases. The study recommends that the take medication of DM in regular time. Regular check-up of glucose level, and regular doing of general urine examination and urine culture to detect type of pathogen that cause the problems, also take medication to manage the urological problems as physician order and using of appropriate dietary guideline for DM patients and also appropriate for patient with urinary system health problems.



## 1. INTRODUCTION

The increased risk of urinary tract infection (UTI) among diabetic patients, combined with the global increase in the incidence of type 2 diabetes mellitus in recent years, could put a significant strain on medical costs. Furthermore, the high rates of antibiotic prescription for UTI in these patients, including broad-spectrum antibiotics, can hasten the development of antibiotic-resistant urinary pathogens. In this study, we'll look at the different forms of UTI that affect this population, as well as their incidence, risk factors, diagnosis, prognosis, and when and how to treat them. According to research, diabetic patients have a high incidence of urinary tract infections (UTIs) [17].

## 2. Objective

1. To assess of Urological Problems among Diabetes Mellitus at ALHussen Hospital in Holly Karbla City
2. To find out the relationship between Urological Problems and their Demographic Data Characteristics

## 3. Literature Review

### *3.1 Urological Problems: An Overview*

Urinary tract infections, kidney stones, bladder control issues, and prostate issues are just a few of the urologic disorders and illnesses. Some urologic disorders do not have a long-term effect on a person, while others are permanent [9]. Nephrologists examine and treat kidney illnesses, whereas urologists deal with disorders affecting other organs. Incontinence issues in women may be addressed by gynecologists; other bodily system diseases have a direct impact on urogenital function. Protein produced by the kidneys in diabetes mellitus, for example, sensitizes the kidneys Diabetes also can have a direct effect on urination due to peripheral neuropathies, which occur in some individuals with poorly controlled diabetics [5].

Peripheral neuropathies, which occur in some people with poorly managed blood sugar levels, can also have a direct effect on urine [9].

### *3.2 Urological Problems with Diabetes Mellitus*

It's debatable if this rise is due to these women's increased use of urinary tract catheters or diabetes itself [10]. Diabetes can also predispose patients to more serious infections of the upper urinary tract; up to 80% of urinary tract infections in diabetic patients occur in the upper tract [9]. Complications are also more common in diabetic patients with known urinary tract infections than in non-diabetic patients. Acute pyelonephritis in diabetic patients presents similarly to non-diabetic patients, with the exception that bilateral infection is more common in diabetic patients Emphysematous infection can be seen on plain abdominal radiography [14].

### *3.3 Urological Problems and Lower Abdomen pain*

Inabilities to urinate and lower abdomen pain are common symptoms of abrupt onset and when of gradual onset, symptoms may include loss of bladder control, mild lower abdominal pain, and a weak urine stream. Vomiting, stomach pain, deep gasping breathing, increased urination, fatigue, confusion, and sometimes loss of consciousness are some of the signs and symptoms [16].

### *3.4 Urological Problems with Diabetes Mellitus and Constantly Urinating*

Diabetes and urologic illnesses are two frequent health concerns that become more common as people get older. Diabetes is linked to an earlier start and severity of urologic disorders, leading to expensive and

devastating urologic consequences. Urologic problems include bladder malfunction, sexual and erectile dysfunction, and urinary tract infection, among others [8]. Over 50% of men and women with diabetes have bladder dysfunction. Bladder dysfunction is now recognized as a progressive illness characterized by a wide range of lower urinary tract symptoms such as urine urgency, frequency, nocturia, and incontinence. Previously, the dysfunction was known as bladder cystopathy, which was defined as decreased bladder feeling, poor contractility, and high post void residual urine, blade, on the other hand [15]. The most common finding in men and women with diabetes, bladder instability or hypersensitivity, has been recorded in a number of clinical trials, ranging from 39–61 percent of individuals. Diminished bladder contractility or sensation has been found less often and an acontractile bladder appears to be quite uncommon. In women, urinary incontinence is estimated to affect nearly 50% of middle aged and older women, leading to significant distress, limitations in daily functioning, and poorer quality of life [15].

Diabetes has been identified as a significant independent risk factor for incontinence in multiple major observational studies, including the Nurses' Health Study, and is linked to a 30–100% greater risk. This suggests that therapies that prevent or postpone the onset of diabetes may also prevent urine incontinence [16]. In men, lower urinary tract symptoms (LUTS) are common, age-related complaints that are often attributed to benign prostatic hyperplasia (BPH). LUTS and BPH increase rapidly with age starting at about age 50 years [4].

### ***3.5 Urological Problems with Diabetes Mellitus and Burning Sensation while Urinating***

Diabetic patients have a higher incidence of UTI than their non-diabetic counterparts. With a higher severity UTI which can be a cause of complications, ranging from dysuria (pain or burning sensation during urination) to organ damage and sometimes even death due to complicated UTI (pyelonephritis) [13]. Burning, tingling, or stinging sensation in the urethra and meatus that occurs when you void. Other types of bladder discomfort, such as suprapubic or retropubic pain, pressure, or discomfort that rises with bladder volume, should be distinguished [13].

### ***3.6 Urological Problems with Diabetes Mellitus and Color or Smell of Urine Changes***

Urinary color, smell, sediment even taste could provide important information related to several medical conditions. During the 7th century, the physician Theophilus Protospatharius presented the manuscript “De Urinis” which constituted the first publication exclusively on the subject of urine. The book described a range of urine discoloration and their clinical correlations [6]. Urine discoloration is mostly benign, although worrisome to the patient. It usually resolves with removal of the offending agent. Purple urine bag syndrome (PUBS) is referred to a propitious condition caused by increased levels of indigo and indirubin, 2 pigments related to metabolism of the amino-acid tryptophan. Its existence is related mostly to urinary tract infections (UTI), even though other factors seem to play causative role. Among them the commonest are advanced age, female gender, constipation, dementia, bedridden situation, institution-alization, end-stage renal disease, dehydration, chronic catheterization, use of polyvinyl chloride urinary catheter or bag, recurrent UTI, high urinary bacterial counts and alkaline urine. Each factor is associated with PUBS appearance in the setting of certain pathophysiological procedures, Herein, we present a comprehensive review of all cases of PUBS that are reported in the PubMed. The aim of our study is to record the prevalence of each predisposing factor and to further analyze the pathological mechanism through which the syndrome is manifested. Therefore, we can draw safe conclusions about its recognition and prevention [14].

### ***3.7 Urological Problems with Diabetes Mellitus and High Blood Pressure***

Hypertension is common among patients with diabetes, with the prevalence depending on type and duration of diabetes, age, sex, race/ethnicity, BMI, history of glycemic control, and the presence of kidney disease,

among other factors [14]. Furthermore, hypertension is a strong risk factor for atherosclerotic cardiovascular disease (ASCVD), heart failure, and microvascular complications. ASCVD—defined as acute coronary syndrome, myocardial infarction (MI), angina, coronary or other arterial revascularization, stroke, transient ischemic attack, or peripheral arterial disease presumed to be of atherosclerotic origin—is the leading cause of morbidity and mortality for individuals with diabetes and is the largest contributor to the direct and indirect costs of diabetes. Numerous studies have shown that antihypertensive therapy reduces ASCVD events, heart failure, and microvascular complications in people with diabetes [11]. This Position Statement is intended to update the assessment and treatment of hypertension among people with diabetes, including advances in care since the American Diabetes Association (ADA) last published a Position Statement on this topic in 2003 (American Diabetes Association)., Diabetic autonomic neuropathy or volume depletion can cause orthostatic hypotension [14]. The definition of orthostatic hypotension is a decrease in systolic blood pressure of 20 mmHg or a decrease in diastolic blood pressure of 10 mmHg within 3 min of standing when compared with blood pressure from the sitting or supine position [12].

Orthostatic hypotension is common in people with type 2 diabetes and hypertension and is associated with an increased risk of mortality and heart failure [3]. Patients with diabetes and albuminuria (UACR  $\geq 30$  mg/g creatinine and particularly  $\geq 300$  mg/g creatinine) are at increased risk of progressive kidney disease [14]. Therefore, patients with urinary albumin excretion  $\geq 300$  mg/g creatinine should have an ACE inhibitor or an ARB included as part of their blood pressure–lowering regimen. Clinicians should also consider an ACE inhibitor or ARB in patients with hypertension at any level of albuminuria (urinary albumin excretion  $\geq 30$  mg/g creatinine) [17]. Hyperinsulinemia and exogenous insulin may theoretically lead to hypertension through vasoconstriction and sodium and fluid retention [7].

However, insulin can also promote vasodilation, and basal insulin compared with standard care was not associated with a change in blood pressure in the Outcome Reduction With an Initial Glargine Intervention (ORIGIN) trial of people with type 2 diabetes or prediabetes [13].

### ***3.8 Urological Problems with Diabetes Mellitus and Swelling of the limbs***

Foot infections are the most important chronic complications of DM, being one of the most common causes of hospitalization and often resulting in amputation, osteomyelitis, and death [14].

The diabetic foot infections are usually divided into moderate or “non-limb threatening” and serious or “limb-threatening. Moderate infections are defined as superficial, with cellulitis less than 2.0 cm in the largest diameter, without evidence of serious ischemia, systemic toxicity, or bone and/or articular involvement. Serious infections are defined as deep ulceration, with cellulitis equal to or greater than 2.0 cm in the largest diameter, with evidence of serious ischemia, systemic toxicity, or bone and/or joint involvement [12].

### ***3.9 Urological Problems and Unprecedented High and Low in Diabetes***

The high incidence of urologic complications associated with diabetes mellitus (DM) is an increasing health concern throughout the entire world. Especially, if we consider the high incidence of obesity worldwide, being the United States and Mexico the countries with major incidence [17].

1. DM is a group of metabolic diseases characterized by hyperglycemia caused by a diminished insulin secretion, insulin effect, or both. This chronic hyperglycemia is associated with systemic long-term damage, dysfunction, and failure of several tissues. DM is classified into many categories, being the most frequent: type 1, type 2 and gestational diabetes, Urologic complications in patients involve the endothelial and neural damage associated systemically, which involve the genitourinary tract. To simplify this review we divided them into three groups: lower urinary tract dysfunction, sexual dysfunction, and urinary tract infections. It is

noteworthy to mention that all of them have a significant negative effect on the quality of life of diabetic patients, as well as life threatening complications [6].

### 3.10 Urological Problems with Diabetes Mellitus and Other Diseases

Almost all diabetic patients show several kinds of complications (eg, cardiovascular disease, neuropathy, retinopathy, nephropathy). One reasonable explanation for the high complication rate of DM is that diabetic patients are hyperglycemic for up to 6 years before being diagnosed, in this article, we review the complications of DM in urology (ie, diabetic cystopathy and erectile dysfunction). Future treatment strategies for these diabetic complications are also discussed. Diabetes is often found hand-in-hand with ischemic heart disease. We now have a greater understanding of why that is and how diabetes itself progresses. Understanding those links is crucial to your role in patient education. Ms. Alvarez is a 69-year-old woman with a history of Type 2 diabetes, hypertension, and hyperlipidemia. She says that her diabetes was diagnosed about a year ago, when her eye doctor found diabetic changes in her retina [2].

## 4. Results

**Table (1):** distribution of the study sample by their demographic characteristics (n=100)

Variables		F	%
Gender	Female	53	53.0
	Male	47	47.0
Age	10-20	24	24.0
	21-30	57	57.0
	31-40	8	8.0
	41-50	3	3.0
	51-60	7	7.0
	61-70	1	1.0
	71-80	0	0.0
Education	Illiterate	1	1.0
	Read and write	3	3.0
	Primary school	2	2.0
	Elementary school	4	4.0
	Secondary school	37	37.0
	Diploma	8	8.0
	Bachelor	41	41.0
	Post graduate	4	4.0
Occupation	Specific job	19	19.0
	Housewives	9	9.0
	Jobless	27	27.0
	Retired	2	2.0
	Government sector	30	30.0
	Private sector	13	13.0
Social status	Single	63	63.0
	Engaged	4	4.0
	Married	28	28.0
	Divorced	3	3.0

	Separated	2	2.0
Economic status	Less than 300000	46	46.0
	301000-600000	15	15.0
	601000-900000	14	14.0
	More than 900000	25	25.0

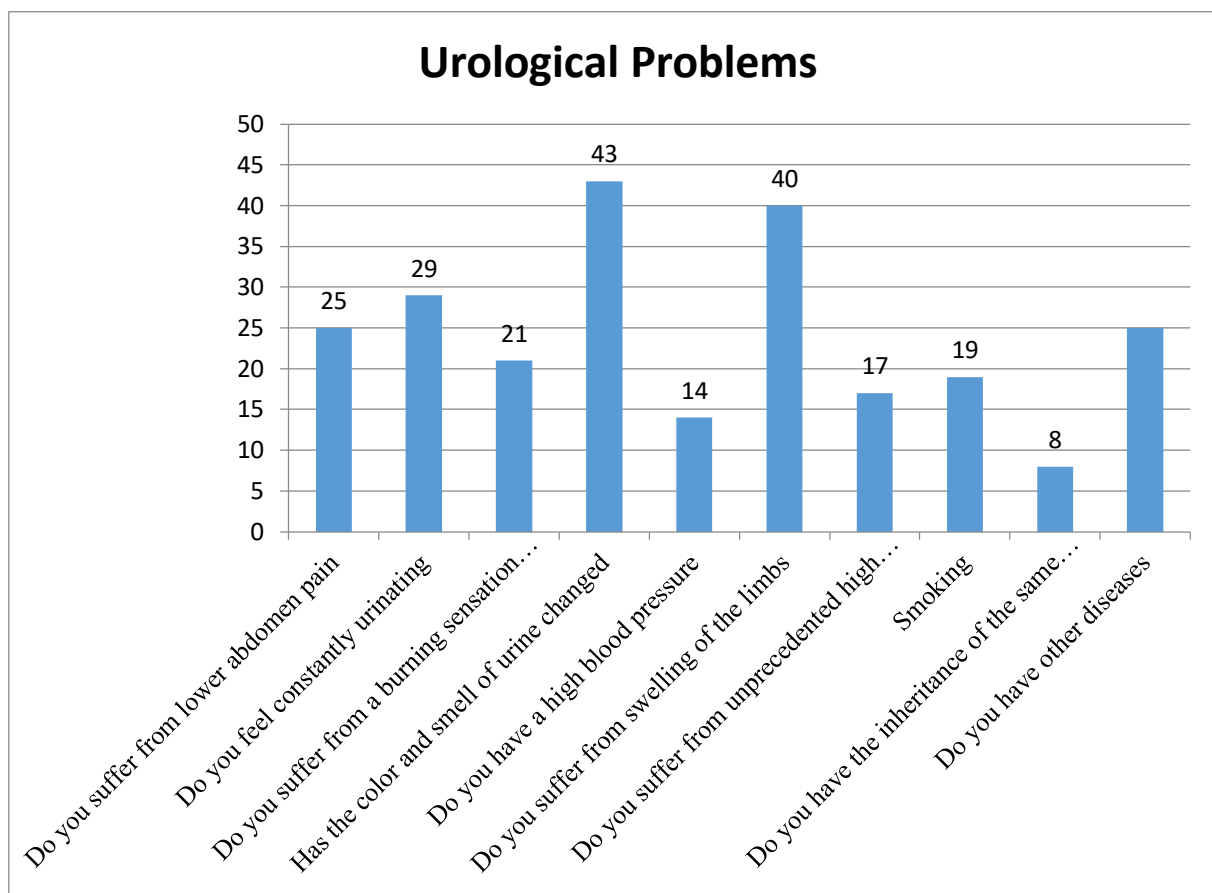
This table shows that 53% of sample female, 57% at age (21-30) years, 41% of them had bachelor degree, 30% government sector, 63% single, 46% monthly income less than 300000 ID.

**Table (2)** distribution of sample urological problems

Variables		f	%
Do you suffer from lower abdomen pain	May be	25	25.0
	No	50	50.0
	Yes	25	25.0
Do you feel constantly urinating	May be	20	20.0
	No	51	51.0
	Yes	29	29.0
Do you suffer from a burning sensation while urinating	May be	28	28.0
	No	51	51.0
	Yes	21	21.0
Has the color and smell of urine changed?	May be	21	21.0
	No	36	36.0
	Yes	43	43.0
Do you have a high blood pressure	No	86	86.0
	Yes	14	14.0
Do you suffer from swelling of the limbs	May be	21	21.0
	No	39	39.0
	Yes	40	40.0
Do you suffer from unprecedented high and low in diabetes?	No	83	83.0
	Yes	17	17.0
Smoking	No	81	81.0
	Yes	19	19.0
Do you have the inheritance of the same disease	No	92	92.0
	Yes	8	8.0
Do you have other diseases	No	75	75.0
	Yes	25	25.0

This table shows that 25% suffer from lower abdomen pain, 29% feel constantly urinating, 21% suffer from a burning sensation while urinating, 43% the color and smell of urine changed, 14% have a high blood pressure, 40% suffer from swelling of the limbs, 17% suffer from unprecedented high and low in diabetes, 19% smoking, 8% have the inheritance of the same disease, 25% have other diseases.





**Figure (1):** urological problems of patient with DM

**Table (3):** relationship between urological problems and gender

Variables		Gender		Total	Chi square
		Female	Male		
Do you suffer from lower abdomen pain	May be	22	3	25	Chi=18.105 P=0.000
	No	18	32	50	
	Yes	13	12	25	
	Total	53	47	100	
Do you feel constantly urinating	May be	13	7	20	Chi=1.934 P=0.380
	No	24	27	51	
	Yes	16	13	29	
	Total	53	47	100	
Do you suffer from a burning sensation while urinating	May be	17	11	28	Chi=1.536 P=0.464
	No	24	27	51	
	Yes	12	9	21	
	Total	53	47	100	
Has the color and smell of urine changed	May be	12	9	21	Chi=1.282 P=0.527
	No	21	15	36	
	Yes	20	23	43	
	Total	53	47	100	
Do you have a high blood pressure	No	45	41	86	Chi=0.112 P=0.738
	Yes	8	6	14	
	Total	53	47	100	
Do you suffer from swelling of the limbs	May be	12	9	21	Chi=3.839 P=0.147
	No	16	23	39	

	Yes	25	15	40	
	Total	53	47	100	
Do you suffer from unprecedented high and low in diabetes	No	41	42	83	Chi=2.544 P=0.111
	Yes	12	5	17	
	Total	53	47	100	
Smoking	No	48	33	81	Chi=6.705 P=0.010
	Yes	5	14	19	
	Total	53	47	100	
Do you have the inheritance of the same disease	No	46	46	92	Chi=4.155 P=0.042
	Yes	7	1	8	
	Total	53	47	100	
Do you have other diseases	No	37	38	75	Chi=1.619 P=0.203
	Yes	16	9	25	
	Total	53	47	100	

This table indicated that there is significant relationship between gender and suffer from lower abdomen pain, smoking, & have the inheritance of the same disease.

**Table (4)** relationship between urological problems and age

Variables		Age						Total	Chi square
		>20	21-30	31-40	41-50	51-60	61-70		
Do you suffer from lower abdomen pain	May be	8	16	0	0	1	0	25	Chi=14.198 P=0.164
	No	9	32	5	1	3	0	50	
	Yes	7	9	3	2	3	1	25	
	Total	24	57	8	3	7	1	100	
Do you feel constantly urinating	May be	6	13	1	0	0	0	20	Chi=8.948 P=0.537
	No	14	28	3	2	3	1	51	
	Yes	4	16	4	1	4	0	29	
	Total	24	57	8	3	7	1	100	
Do you suffer from a burning sensation while urinating	May be	8	13	2	1	4	0	28	Chi=15.971 P=0.1
	No	13	31	6	1	0	0	51	
	Yes	3	13	0	1	3	1	21	
	Total	24	57	8	3	7	1	100	
Has the color and smell of urine changed	May be	10	9	0	1	1	0	21	Chi=21.955 P=0.015
	No	9	25	2	0	0	0	36	
	Yes	5	23	6	2	6	1	43	
	Total	24	57	8	3	7	1	100	
Do you have a high blood pressure	No	21	49	7	1	7	1	86	Chi=8.274 P=0.142
	Yes	3	8	1	2	0	0	14	
	Total	24	57	8	3	7	1	100	
Do you suffer from swelling of the limbs	May be	5	13	2	0	1	0	21	Chi=15.346 P=0.120
	No	10	22	6	1	0	0	39	
	Yes	9	22	0	2	6	1	40	
	Total	24	57	8	3	7	1	100	
Do you suffer from unprecedented high and low in diabetes	No	21	52	8	2	0	0	83	Chi=44.344 P=0.000
	Yes	3	5	0	1	7	1	17	
	Total	24	57	8	3	7	1	100	
Smoking	No	24	48	5	2	1	1	81	Chi=28.670 P=0.000
	Yes	0	9	3	1	6	0	19	
	Total	24	57	8	3	7	1	100	
Do you have the inheritance of the same disease	No	21	54	8	3	5	1	92	Chi=6.309 P=0.277
	Yes	3	3	0	0	2	0	8	
	Total	24	57	8	3	7	1	100	
Do you have other diseases	No	19	42	8	1	5	0	75	Chi=8.767 P=0.119
	Yes	5	15	0	2	2	1	25	
	Total	24	57	8	3	7	1	100	

This table indicated that there is significant relationship between age and color and smell of urine changed,



suffer from unprecedented high and low in diabetes, & smoking

**Table (5):** relationship between urological problems and education

Variables		Education								Total	Chi square
		Illiterate	Read & write	Primary	Elementary	Secondary	Diploma	Bachelor	Postgraduate		
Do you suffer from lower abdomen pain	Maybe	0	0	0	1	8	2	14	0	25	Chi=17.273 P=0.242
	No	0	2	1	0	20	4	19	4	50	
	Yes	1	1	1	3	9	2	8	0	25	
	Total	1	3	2	4	37	8	41	4	100	
Do you feel constantly urinating	Maybe	0	0	0	0	7	2	10	1	20	Chi=21.328 P=0.094
	No	0	2	0	1	23	3	22	0	51	
	Yes	1	1	2	3	7	3	9	3	29	
	Total	1	3	2	4	37	8	41	4	100	
Do you suffer from a burning sensation while urinating	Maybe	1	2	1	2	9	1	11	1	28	Chi=16.339 P=0.293
	No	0	0	0	1	23	6	18	3	51	
	Yes	0	1	1	1	5	1	12	0	21	
	Total	1	3	2	4	37	8	41	4	100	
Has the color and smell of urine changed	Maybe	1	1	0	1	11	0	7	0	21	Chi=23.346 P=0.055
	No	0	0	0	0	16	6	13	1	36	
	Yes	0	2	2	3	10	2	21	3	43	
	Total	1	3	2	4	37	8	41	4	100	
Do you have a high blood pressure	No	0	3	2	2	34	5	36	4	86	Chi=16.761 P=0.019
	Yes	1	0	0	2	3	3	5	0	14	
	Total	1	3	2	4	37	8	41	4	100	
Do you suffer from swelling of the limbs	Maybe	0	0	0	0	9	0	11	1	21	Chi=15.350 P=0.355
	No	0	1	0	1	16	3	15	3	39	
	Yes	1	2	2	3	12	5	15	0	40	
	Total	1	3	2	4	37	8	41	4	100	
Do you suffer from unprecedented high and low in diabetes	No	1	0	0	2	35	8	33	4	83	Chi=33.870 P=0.000
	Yes	0	3	2	2	2	0	8	0	17	
	Total	1	3	2	4	37	8	41	4	100	
Smoking	No	1	1	0	4	33	7	31	4	81	Chi=17.672 P=0.014
	Yes	0	2	2	0	4	1	10	0	19	
	Total	1	3	2	4	37	8	41	4	100	
Do you have the inheritance of the same	No	1	3	1	3	35	8	27	4	92	Chi=8.266 P=0.310
	Yes	0	0	1	1	2	0	4	0	8	
	Total	1	3	2	4	37	8	41	4	100	

disease											
Do you have other diseases	No	1	3	2	1	27	7	30	4	75	Chi=9.488 P=0.220
	Yes	0	0	0	3	10	1	11	0	25	
	Total	1	3	2	4	37	8	41	4	100	

Table (5) indicated that there is significant relationship between education and high blood pressure, suffer from unprecedented high and low in diabetes, & smoking.

**Table (6)** relationship between urological problems and occupation

Variables		Occupation						Total	Chi square
		Specific job	Housewives	Jobless	Retired	Government sector	Private sector		
Do you suffer from lower abdomen pain	Maybe	3	3	12	0	6	1	25	Chi=11.765 P=0.301
	No	12	3	9	1	17	8	50	
	Yes	4	3	6	1	7	4	25	
	Total	19	9	27	2	30	13	100	
Do you feel constantly urinating	Maybe	4	1	4	0	7	4	20	Chi=11.155 P=0.346
	No	10	2	17	2	15	5	51	
	Yes	5	6	6	0	8	4	29	
	Total	19	9	27	2	30	13	100	
Do you suffer from a burning sensation while urinating	Maybe	3	7	7	0	7	4	28	Chi=18.373 P=0.049
	No	14	0	14	1	16	6	51	
	Yes	2	2	6	1	7	3	21	
	Total	19	9	27	2	30	13	100	
Has the color and smell of urine changed	Maybe	1	3	6	0	7	4	21	Chi=12.138 P=0.276
	No	9	0	9	1	14	3	36	
	Yes	9	6	12	1	9	6	43	
	Total	19	9	27	2	30	13	100	
Do you have a high blood pressure	No	19	6	23	2	25	11	86	Chi=6.425 P=0.267
	Yes	0	3	4	0	5	2	14	
	Total	19	9	27	2	30	13	100	
Do you suffer from swelling of the limbs	Maybe	4	0	6	0	10	1	21	Chi=17.741 P=0.059
	No	8	1	11	1	9	9	39	
	Yes	7	8	10	1	11	3	40	
	Total	19	9	27	2	30	13	100	
Do you suffer from unprecedented high and	No	17	5	23	1	27	10	83	Chi=8.386 P=0.136
	Yes	2	4	4	1	3	3	17	
	Total	19	9	27	2	30	13	100	

low in diabetes									
Smoking	No	12	6	24	2	24	13	81	Chi=9.76 1 P=0.082
	Yes	7	3	3	0	6	0	19	
	Total	19	9	27	2	30	13	100	
Do you have the inheritance of the same disease	No	17	8	26	2	30	9	92	Chi=12.9 00 P=0.024
	Yes	2	1	1	0	0	4	8	
	Total	19	9	27	2	30	13	100	
Do you have other diseases	No	16	7	20	1	23	8	75	Chi=2.87 7 P=0.719
	Yes	3	2	7	1	7	5	25	
	Total	19	9	27	2	30	13	100	

This table indicated that there is significant relationship between occupation and suffer from a burning sensation while urinating, & inheritance of the same disease

**Table (7):** relationship between urological problems and social status

Variables		Social status					Total	Chi square
		Single	Engaged	Married	Divorced	Separated		
Do you suffer from lower abdomen pain	May be	20	2	3	0	0	25	Chi=12.214 P=0.142
	No	28	2	15	3	2	50	
	Yes	15	0	10	0	0	25	
	Total	63	4	28	3	2	100	
Do you feel constantly urinating	May be	16	2	2	0	0	20	Chi=13.496 P=0.096
	No	32	2	15	2	0	51	
	Yes	15	0	11	1	2	29	
	Total	63	4	28	3	2	100	
Do you suffer from a burning sensation while urinating	May be	18	0	7	3	0	28	Chi=13.840 P=0.086
	No	34	3	12	0	2	51	
	Yes	11	1	9	0	0	21	
	Total	63	4	28	3	2	100	
Has the color and smell of urine changed	May be	16	0	5	0	0	21	Chi=11.455 P=0.177
	No	26	2	8	0	0	36	
	Yes	21	2	15	3	2	43	
	Total	63	4	28	3	2	100	
Do you have a high blood pressure	No	54	4	23	3	2	86	Chi=1.815 P=0.770
	Yes	9	0	5	0	0	14	
	Total	63	4	28	3	2	100	
Do you suffer from swelling of the limbs	May be	15	2	4	0	0	21	Chi=10.965 P=0.204
	No	25	1	13	0	0	39	
	Yes	23	1	11	3	2	40	
	Total	63	4	28	3	2	100	
Do you suffer	No	56	4	21	0	2	83	Chi=18.694

from unprecedented high and low in diabetes	Yes	7	0	7	3	0	17	P=0.001
	Total	63	4	28	3	2	100	
Smoking	No	59	4	18	0	0	81	Chi=33.888 P=0.000
	Yes	4	0	10	3	2	19	
	Total	63	4	28	3	2	100	
Do you have the inheritance of the same disease	No	57	4	26	3	2	92	Chi=1.009 P=0.908
	Yes	6	0	2	0	0	8	
	Total	63	4	28	3	2	100	
Do you have other diseases	No	46	4	20	3	2	75	Chi=3.323 P=0.505
	Yes	17	0	8	0	0	25	
	Total	63	4	28	3	2	100	

Table (7) indicated that there is significant relationship between social status and suffer from unprecedented high and low in diabetes, & smoking

**Table (8):** relationship between urological problems and economic status

Variables		Economic status				Total	Chi square
		>300000	301000-600000	601000-900000	<900000		
Do you suffer from lower abdomen pain	May be	16	5	2	2	25	Chi=12.197 P=0.058
	No	18	6	11	15	50	
	Yes	12	4	1	8	25	
	Total	46	15	14	25	100	
Do you feel constantly urinating	May be	9	1	3	7	20	Chi=6.446 P=0.375
	No	25	6	8	12	51	
	Yes	12	8	3	6	29	
	Total	46	15	14	25	100	
Do you suffer from a burning sensation while urinating	May be	16	3	4	5	28	Chi=3.286 P=0.772
	No	22	8	8	13	51	
	Yes	8	4	2	7	21	
	Total	46	15	14	25	100	
Has the color and smell of urine changed	May be	11	1	1	8	21	Chi=7.869 P=0.248
	No	16	5	8	7	36	
	Yes	19	9	5	10	43	
	Total	46	15	14	25	100	
Do you have a high blood pressure	No	40	14	12	20	86	Chi=1.453 P=0.693
	Yes	6	1	2	5	14	
	Total	46	15	14	25	100	
Do you suffer from swelling of the limbs	May be	9	3	4	5	21	Chi=4.120 P=0.660
	No	18	4	4	13	39	
	Yes	19	8	6	7	40	
	Total	46	15	14	25	100	
Do you suffer from	No	37	13	13	20	83	Chi=1.481 P=0.687
	Yes	9	2	1	5	17	

unprecedented high and low in diabetes	Total	46	15	14	25	100	
Smoking	No	38	10	12	21	81	Chi=2.428 P=0.488
	Yes	8	5	2	4	19	
	Total	46	15	14	25	100	
Do you have the inheritance of the same disease	No	43	14	14	21	92	Chi=3.564 P=0.313
	Yes	3	1	0	4	8	
	Total	46	15	14	25	100	
Do you have other diseases	No	36	10	9	20	75	Chi=2.007 P=0.571
	Yes	10	5	5	5	25	
	Total	46	15	14	25	100	

This table indicated that there is no significant relationship between economic status and urological problems.

## 5. Discussion

Part 1: discussion of distribution of the study sample by their demographic characteristics

Regarding to sample gender 53% of sample female, [3] found that 53.1% of sample were female. [17] found that 52.9% of patients were females. [1] found that 62.8% of sample were females. [2] found that 60% of patients females. As regard to age, 57% at age (21-30) years, [3] found that 31.6% more than 60 years. [17] found that the age mean of sample is 55 years. [1] found that 34.6% of patients at age 40-59 years. According to sample education, 41% of them had bachelor degree, [1] found that 35.44% had primary school. Regarding to occupation, 30% government sector, [1] found that 33.3% of sample work laborer.

According to social status, 63% single, [3] found that 81.5% of sample were married. [1] found that 68.7% of patients were married.

As regard to economic status, 46% monthly income less than 300000 ID.

Part 2: Discussion of Distribution of Sample Urological Problems

The finding indicated that 25% suffer from lower abdomen pain, 29% feel constantly urinating, 21% suffer from a burning sensation while urinating, 43% the color and smell of urine changed, 14% have a high blood pressure, 40% suffer from swelling of the limbs, 17% suffer from unprecedented high and low in diabetes, 19% smoking, 8% have the inheritance of the same disease, 25% have other diseases. [3] found that diabetes may effect on the hypertension, neuropathy. [17] found that 37% of patients had urinary tract infection. [1] found that 71.31% patients had frequency of micturition, 19.41% had un-controlling of micturition, 13.5% had presence of blood in urine, 91.14% had lower abdominal or back pain, 81.43% had burning micturition.

[2] found that 15% of patients had blood in urine, & 29% urine is cloudy and with an unusual odor.

Part 3: Discussion of Relationship Between Urological Problems and Sociodemographic Characteristics

There is significant relationship between gender and suffer from lower abdomen pain, smoking, & have the inheritance of the same disease. 13% female and 12% male have abdomen pain. 14% of male and 5% of female smoking. 7% female and 1% male have inheritance of the same disease. [3] found that there is significant relationship between sample gender and urinary tract infection at p value 0.00. There is significant relationship between age and color and smell of urine changed, suffer from unprecedented high and low in diabetes, & smoking. 23% of age 20-21 years have changed urine color. 7% of age 51-60 years suffer from

unprecedented high and low in diabetes. 9% of age 21-30 years smoking. [3] found that there is no significant relationship between sample age and urinary tract infection at p value 0.651. There is significant relationship between education and high blood pressure, suffer from unprecedented high and low in diabetes, & smoking. 5% of bachelor degree have high blood pressure. 8% have suffer from unprecedented high and low in diabetes. 10% smoking. There is significant relationship between occupation and suffer from a burning sensation while urinating, & inheritance of the same disease. 7% of government sector suffer from a burning sensation while urinating. 4% of private sector have inheritance of the same disease.

There is significant relationship between social status and suffer from unprecedented high and low in diabetes, & smoking. 7% of single and married patients have suffer from unprecedented high and low in diabetes. 10% of married patients smoking. [3] found that there is no significant relationship between sample social status and urinary tract infection at p value 0.178.

There is no significant relationship between economic status and urological problems

## **6. Conclusions**

The study result concluded that

1. Most of patient are females at age (21-30) years, single, had bachelor degree, working at government sector, with poor economic status
2. Less than half of patient had color and smell of urine changed & suffer from swelling of the limbs. Few of them suffer from lower abdomen pain, feel constantly urinating, suffer from a burning sensation while urinating, suffer from unprecedented high and low in diabetes, have a high blood pressure, smoking, have the inheritance of the same disease, have other diseases
3. There is significant relationship between gender and suffer from lower abdomen pain, smoking, & have the inheritance of the same disease.
4. There is significant relationship between age and color and smell of urine changed, suffer from unprecedented high and low in diabetes, & smoking
5. There is significant relationship between education and high blood pressure, suffer from unprecedented high and low in diabetes, & smoking
6. There is significant relationship between occupation and suffer from a burning sensation while urinating, & inheritance of the same disease
7. There is significant relationship between social status and suffer from unprecedented high and low in diabetes, & smoking

## **7. Recommendation**

The researcher recommended that:

1. Take medication of DM in regular time.
2. Regular check-up of glucose level
3. Regular doing of general urine examination and urine culture to detect type of pathogen that cause the problems
4. Take medication to manage the urological problems as physician order
5. Using of appropriate dietary guideline for DM patients and also appropriate for patient with urinary system health problems

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