

# Association between Severity of Stress Urinary Incontinence and Quality Of Life among Menopausal Women

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**Abstract:** Background: Menopause is an important phase in every woman's reproductive life. Symptoms of urinary incontinence are highly prevalent in postmenopausal women. It has a significant effect on health-related quality of life and are associated with considerable personal and societal expenditure. Aim of the study: to assess the association between severity of stress urinary incontinence and quality of life among menopausal women. A descriptive correlation research design was utilized in this study started from the beginning of January till the end of April 2019. Setting: The study was conducted at urinary incontinence clinics in Alexandria affiliated to: Main University Hospital affiliated to Alexandria University, and Alexandria Regional Center for Women's Health and Development affiliated to the Ministry of Health. Subjects: A convenience sample of 200 menopausal women with stress urinary incontinence. Tools: Three tools were used by the researchers to collect the necessary data: Tool I: basic data structured interview schedule, Tool II: PRAFAB-Questionnaire (Protection, Amount, Frequency, Adjustment and Body Image) Tool III: quality of life scale. Results: about one-half (49.5%) of the study subjects had moderate degree of stress urinary incontinence, more than one-quarter (27.0%) of them had severe degree while, (23.0%) of them had mild degree of SUI. As regards quality of life, More than one half (54%) scored their feeling as mostly satisfied, there were a statistically significant differences between quality of life and degree of stress urinary incontinence among menopausal women (0.0001\*) . Conclusion: SUI is negatively affecting the quality of life.

**Keywords:** Stress urinary incontinence risk factors, quality of life, menopause.

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## 1. INTRODUCTION

Today, menopause is gaining an increasing attention because of growing emphasis on women's rights as well as the increase in the life expectancy of women resulting in increase in the number of women attaining the age of menopause.<sup>(1)</sup> Most women in developed countries will spend a third of their lives after menopause, the increase is substantially faster in developing countries than in industrialized one, where about 76% of women older than 50 years.<sup>(2)</sup> In Egypt the density of older female aged 50 years or more is 11.6%.<sup>(3)</sup>

Menopause refers to the last menstrual bleeding and is generally considered to have occurred retrospectively after one year of amenorrhea. Technically, it refers to a woman's last menstrual period. It is permanent cessation of menses because of loss of ovarian follicular function, usually due to aging. Menopause can happen normally (spontaneously) on average around age 51 years or be prompted through a medical intervention (surgery, chemotherapy, or pelvic radiation therapy).<sup>(4,5)</sup> Menopause occurs as a result of increasing ovarian resistance to follicle stimulating hormone (FSH);

declining in the total levels of circulating estrogen and progesterone, and increasing FSH level.<sup>(6)</sup> Approximately 85 percent of women during menopause report experiencing symptoms of varying type and severity include the following: vasomotor symptoms are recurrent, transient episodes of flushing, with intense heat on the face and upper body. Increases in sleep disturbances such as insomnia and sleep apnea may occur. Psychological symptoms such as: depressive symptoms, anxiety, and mood disturbances. In addition to urogenital symptoms such as urinary incontinence.<sup>(7,8)</sup>

Urinary incontinence (UI) is the most prevalent urinary problem among menopausal women. It is considered a public health issue worldwide. Urinary incontinence (UI) is defined by International Continence Society (ICS) as any involuntary leakage of urine with social and hygienic distress.<sup>(9)</sup> According to European and North American Epidemiological Studies 10% to 40% of menopausal women experience UI.<sup>(10,11)</sup> The Third International Conference on Incontinence held in Paris considered (UI) the third largest health issue after heart diseases and cancer primarily affecting women at different ages, regardless of economic class and cultural pattern.<sup>(12)</sup>

The most common type of female UI is stress urinary incontinence (SUI). It is defined by National Institute for Health and Clinical Excellence (NICE) as the involuntary urine leakage upon physical exertion, such as coughing or laughing.<sup>(12)</sup> The prevalence varies between 10–39% where about 50% of women with urinary incontinence reported symptoms of stress incontinence.<sup>(13)</sup>

Stress incontinence among menopausal women develops due to poor urethral support. The supporting structures to the urethra and bladder neck comprised the muscles of the pelvic floor along with their intact nerve supply and the sub-urethral endopelvic fascia, which is mainly composed of collagen<sup>(12,14)</sup>. Stress incontinence occurs due to change in collagen content including a reduction in total collagen concentration. A decrease in collagen cross linking may reduce the urethra's resistance to urine flow.<sup>(15,16)</sup>

Although stress urinary incontinence is not a life-threatening problem, it may significantly impair the quality of women's lives. It is physically debilitating and socially incapacitating with loss of self-confidence, feelings of helplessness, depression due to continuous wetness and irritation. In the literature, it is revealed that women with incontinence symptoms are greater susceptible to depression, have higher anxiety levels, and feel more humiliated compared to women without incontinence symptoms. Due to the fear of incontinence, regular activities of daily living may be worrying and embarrassing.<sup>(17,18)</sup>

Development of stress urinary incontinence may be contributed by many factors mainly aging, childbirth hormonal changes in menopause, obesity, gynecological surgeries, heredity, use of certain drugs and smoking, as well as physical activities.<sup>(19)</sup> In some studies, stress urinary incontinence may develop as a result of aging but this was not found in other study, which revealed that UI was more common in young women.<sup>(20)</sup> Also community-based epidemiological survey of female urinary incontinence: the Norwegian, reported that the highest rate of stress incontinence was encountered in women aged between 25 and 49 years.<sup>(21)</sup> In addition, childbearing is associated with more risk factors for urinary incontinence in women. A recent study from Turkey revealed a significant correlation between the number of children and UI. While in a previous study, it was reported that UI was 5.5 % among nulliparous women, 10.6 % among primiparous women, and 16.4 % among women with more than 3 deliveries.<sup>(22)</sup> A huge discrepancy in reported risk factors across nations and cultures, and the uncertainty concerning impact of stress urinary incontinence on life style and social determinants during menopause call for more research. Therefore further studies that investigate degree of stress incontinence severity, risk factors and quality of life among menopausal women are necessary. Such information is important for maternity nurses to be able to identify risk factors to project and plan a future healthy life in the coming years. In addition, to take the progression of the urinary incontinence under control by avoiding the risk factors, reducing the negative effects of UI on quality of life and motivating women to look for treatment with the aid of the proper information that suggests that urinary incontinence is a treatable and preventable disorder.

#### **Aim of the study**

The aim of this study is assess the association between severity of stress urinary incontinence and quality of life among menopausal women.

#### **Research question:**

Is there an association between severity of stress urinary incontinence and quality of life among menopausal women?

## 2. MATERIALS AND METHOD

### MATERIALS

#### Design:

A descriptive correlation research design was utilized in this study.

#### Settings:

The study was conducted at urinary incontinence clinics in Alexandria affiliated to the following settings:

- Main University Hospital affiliated to Alexandria University.
- Alexandria Regional Center for Women's Health and Development affiliated to the Ministry of Health.

These clinics were selected because they have an increased turnover of menopausal women suffering from stress urinary incontinence who represent different socioeconomic levels

**Subjects:** according to Epi info 7 sample size estimation program a convenience sample of 200 menopausal women with stress urinary incontinence out of 540 (representing the average number of women attending the previously mentioned setting during the last three months prior to the study) were recruited in the study.

Inclusion criteria: women who aged 40 to 60 years old and above, being diagnosed with stress urinary incontinence and willing to participate in the study.

#### Tools:

Three tools were used to collect the necessary data as follow:

#### Tool one: Basic data structured interview schedule:

This tool was developed and utilized by the researchers to collect basic data about the study subjects. It entailed three main parts

**Part I: Socio-demographic characteristics of the study subjects such as:** age, level of education, current residence, marital status, type of family, monthly income. It also included data about occupation, working hours and nature of daily activity which are categorized as

**light activities** where consumed less than 3 METS (metabolic equivalent one MET, or is the mean amount of oxygen consumed while sitting at rest) such as walking slowly, shopping, walking around the office, sitting, making bed, eating, preparing food and washing dishes;

**moderate activities** these consume 3-6 METS such as: sweeping the floor, walking briskly, vacuuming, washing windows, basketball

**and vigorous activities** these activities that consume  $\geq 6$  METS such as running swimming carrying heavy object <sup>(23)</sup>.

**Part II: Health related data of the study subjects** such as: weight, length, body mass index, smoking condition, presence of medical condition such as heart diseases, chest diseases, GIT diseases, skeletal system diseases, blood diseases, cancer, urinary tract infection and history of urogenital surgeries such as resection of endometriosis, hysterectomy, myomectomy, dilatation and curettage and cervical circulage and current use of medication.

**Part III: Reproductive characteristics of the study subjects such as:** gravidity, parity, history of abortion, age of the youngest child, type of last delivery and presence of associated problems.

#### Tool two: PRAFAB-Questionnaire (Protection, Amount, FREQUENCY, Adjustment and Body Image).

The PRAFAB-Q was adopted from department of Epidemiology and Centre of Evidence Based Physiotherapy & Clinical Guidelines (CEBP), Maastricht University 2008 <sup>(24)</sup> and translated by researchers to evaluate the severity of urinary incontinence (UI) among menopausal women.

The PRAFAB-Q is a brief assessment sheet, combines important objective and subjective aspects to determine UI severity. It consists of 20 items distributed among 5 dimensions as follows:

**A- Protection: (use of pads)**

It includes 4 items such as: never use protection for urine loss; sometimes use protection; have to change the underwear because of urine loss; normally use protection or change the underwear several times a day because of urine loss and always have to use protection because of urinary incontinence.

**B-Amount of urine loss:**

It includes 4 items such as: the amount of urine loss a trickle; the loss of urine is so much that it noticeably wets; the protection or clothes and the loss of urine is so much that the protection is soaked or leaks.

**C- Frequency of UI:**

It includes 4 items related to involuntary loss of urine that occurs once a week or less; more than once but less than three times a week; more than three times a week but not every day; every day

**D-Adjustment of behavior due to the symptoms:**

It includes 4 items about implication of urine loss such as: woman not hampered in her daily activities; has stopped some activities such as some sports and physically demanding activities; has stopped most physical activities that caused involuntary loss of urine and almost never go out

**E-Body (or self)-image as result of the symptoms of incontinence:**

It includes 4 items such as: women not bothered by urine loss; think urine loss is annoying and troublesome, but not greatly bothered by it; Urine loss makes women feels dirty; disgusted by self because of urinary incontinence. Within each dimension the subjects responded by choosing only one item from the four available one according to the weight of the four items in each dimensions (1-4).

**Total score ranged between (5-20).**

Scoring of urinary incontinence severity is ranked as follows:

-Mild degree  $5 > 10$  , Moderate degree  $10 > 15$  , and Severe degree  $\geq 15$

**Tool three: - The quality of life scale**

Instrument was developed in 1978-1982 by Flanagan. It tested for its validity and reliability via Burckhardt, C.S & Anderson, K.L 2003. The scale contain 16 items designed to measure six domains: (a) physical and marital wellbeing, (b) relations with others, (c) social, community, and civic activities, (d) personal development and fulfillment, (e) recreation, and (f) independence. Each woman was instructed to choose one of the five possible responses that are closest to how she felt with the statement (dissatisfied, mostly dissatisfied, mixed (neutral), mostly satisfied and satisfied). Scoring of the items is made using a 5-point likert scale ranging from one (1) to five (5) according to the satisfaction. The total score was calculated by adding together the score of each item. The score ranged from 16 to 80. High score indicated better quality of life, satisfied (65-80), mostly satisfied (49- 64), mixed (neutral) (33-48), mostly dissatisfied (17-32) and dissatisfied <sup>(25,26)</sup>.

**METHOD**

**The study was conducted according to the following steps:**

1. An official letter from the Faculty of Nursing- Alexandria University was directed to the responsible authorities of the previously mentioned research settings to obtain permission to conduct the study and collect the necessary data.
2. Tool (I) was developed by the researchers based on extensive review of recent relevant Tool (II), (III) were adapted and translated into Arabic language.
- 3-Tools were tested for content validity by a jury of five experts in the field of obstetric and gynecologic nursing. The recommended modifications were done and the final form was finalized after proving valid.

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4. Tools reliability (internal consistency) was tested by Cronbach's -Alpha test and the result was reliable ( $r = 0.879$ ) which is statistically accepted.

5. A pilot study was carried out on 20 menopausal women (excluded from the study subjects) from the previously mentioned setting to assure feasibility of the study, clarity and applicability of the tools and to identify obstacles that might interfere with the process of data collection. Tools were modified accordingly prior to data collection.

6. For each recruited subject an informed oral consent was obtained after explaining the purpose of the study. In addition, her anonymity, privacy, freedom to withdraw from the study at any time and confidentiality of her data were all emphasized prior starting the interview.

7. Each woman was individually interviewed after physician examination. The duration of each interview ranged between 35-40 minutes. Two days per week were specified for data collection over a period of four months, started from the beginning of January till the end of April 2019. An average of 6 to 8 interviews was performed per day

8. Statistical analysis was done after collection of data by using Statistical Package for Social Sciences (SPSS) version 20. The collected data were categorized, coded, computerized, tabulated and analyzed. Frequency and distribution were used for describing and summarizing categorical data. Cross tabulation with percentages were used to explore relationships between variables. Appropriate tests such as ANOVA, T test and Chi-square at 0.05 level of significance were used.

**Table (I): Distribution of the study subjects according to their socio-demographic characteristics:**

Socio-demographic characteristics	Total N=200	
	No	%
<b>Age(years)</b>		
• 45-	54	27.0
• 50-	42	21.0
• 55-60	104	52.0
Mean $\pm$ SD	55.41 $\pm$ 7.636	
<b>Level of education</b>		
• Illiterate	48	24.0
• Read & write	19	9.5
• Basic education	9	4.5
• Secondary/technical education	68	34.0
• University/Post university education	56	28.0
<b>Marital status</b>		
• Married	120	60.0
• Widowed	23	11.5
• Divorced	57	28.5
<b>Place of residence</b>		
• Urban	160	80.0
• Rural	40	20.0
<b>Type of family</b>		
• Nuclear	120	60.0
• Extended	80	40.0
<b>Income sufficiency</b>		
• Enough and save	16	8.0
• Hardly enough	132	66.0
• Not enough	52	26.0

**Table (I)** Shows that women's age ranged from 45 to 60 with a mean of  $55.41 \pm 7.636$ . More than one-half (52.0%) of the women aged 55-60 years, while more than one-quarter (27.0%) of them aged less than 50 years. About one-quarter (24.0%) of them were illiterate, compared to 28.0% of them who had university or post university education. On the other hand, those women with secondary or technical education constituted 34.0% of them. With respect to the marital status, three fifths (60.0%) of the studied women were married, while 11.5% of them were widowed and the rest 28.5% were divorced

The same table reveals that the majority (80.0%) of women were from urban areas, and less than two-thirds (60.0%) of them had nuclear families. Lastly, slightly more than one-quarter (26.0%) of the women reported income insufficiency. On the other hand, only 8.0% of the women mentioned that their income is enough and they can save from it.

**Table (II): Distribution of the study subjects according to their working statuses, weight, height, body mass index (BMI) and smoking**

Working status	Total N=200	
	No	%
<b>Occupation</b>		
• Housewife	100	50.0
• Working	100	50.0
<b>Type of work</b>	N=100	
• Technical	35	35.0
• Administrative	27	27.0
• Commercial	17	17.0
• Professional	12	12.0
• Others	9	9.0
<b>Daily working hours</b>	N=100	
• 6hours	22	22.0
• 7hours	17	17.0
• 8hours	36	36.0
• 9hoursandmore	25	25.0
Mean $\pm$ SD	6.93 $\pm$ 4.080	
<b>Nature of daily activities</b>	N=200	
• Light	76	38.0
• Moderate	98	49.0
• Vigorous	26	13.0
<b>Weight (kg)</b>	45- 122	
Min -Max		
• Mean $\pm$ SD	6.93 $\pm$ 4.080	
<b>Height (cm)</b>	110-190	
• Min -Max		
• Mean $\pm$ SD	162.23 $\pm$ 12.798	
<b>BMI</b>		
• Underweight(<18.5)	2	1.0
• Healthy(18.5-24.9)	23	11.5
• Over weight(25-29.9)	57	28.5
• Obese class I (30-34.9)	76	38.0
• Obese class II(35-39.9)	23	11.5
• Obese class III( $\geq$ 40)	19	9.5
<b>Smoking status</b>		
• Active	7	3.5
• Passive	35	17.5
• Non smoking	158	79

Table (II) presents distribution of study subjects according to their working statuses, weight, height and body mass index (BMI). It was noticed that one-half (50.0%) of them were working, their mean daily working hours was  $6.93 \pm 4.080$ . Women who working 6 hrs. Per day or those working 9 hrs or more per day constituted 22.0% and 25.0% of them respectively. More than one-third (38.0%) women carried out light activities, while 13.0% of them carried vigorous daily activities.

The table also revealed that the women's weight ranged from 45 kg to 122 kg with a mean of  $82.04 \pm 13.262$ . Their height ranged from 110 to 190 cm with a mean of  $162.23 \pm 12.798$  cm. Concerning body mass index, it was noticed that highest percentage of women were obese class I (38.0%), followed by overweight (28.5%), obese class II (11.5%), obese class III (9.5%). While, underweight women constituted only 1.0% of them compared to 11.5% of them who had healthy weight. In relation to smoking status of the study subjects. More than three-quarters (79.0%) of women were non-smokers, while passive smokers represented 17.5% of them and only 3.5% of women were active smokers

**Table (III): Distribution of the study subjects according to their reproductive health history**

Reproductive history	Total N=200	
	No	%
<b>Previous gravid</b>		
• Yes	185	92.5
• No	15	7.5
<b>Number of gravid</b>	N=185	
• <3	54	29.2
• 3 and more	131	70.8
Mean $\pm$ SD	3.47 $\pm$ 2.168	
<b>Number of para</b>		
• <3	74	40.0
• 3 and more	111	60.0
Mean $\pm$ SD	2.90 $\pm$ 1.717	
<b>Type of last delivery</b>		
• Normal	116	62.7
• Normal with episiotomy	21	11.4
• Caesarian Section	48	25.9
<b>Date of last delivery (years)</b>		
• 4-	6	3.2
• 6-	2	1.1
• 8-	5	2.7
• 10+	172	93.0
• Min-Max	4-20	
• Mean $\pm$ SD	20.04 $\pm$ 10.176	

<b>Complications associated with last delivery</b>	<b>N=185</b>	
• No	142	76.8
• Yes#	43	23.2
-Bleeding	15	34.9
-Perineal laceration	10	23.3
-Vaginal injuries	7	16.3
-Cervical laceration	4	9.3
-Prolonged labor	4	9.3
-Precipitate labor	3	7.0
<b>Previous abortions</b>		
• No	119	64.3
• Yes	66	35.7
<b>Number of abortions</b>	<b>N=66</b>	
• <3	55	83.3
• 3andmore	11	16.7
Mean ±SD	1.57±0.119	
<b>Gynecological surgeries</b>	<b>200</b>	
• No	146	73.0
• Yes#	54	27.0
-Dilatation and curettage	20	37.0
-Hysterectomy	15	27.8
-Salpingectomy	6	11.1
-Resection of endometriosis	6	11.1
-Myomectomy	6	11.1
-Cervicalcirculage	6	11.1
-Oophorectomy	5	9.3

According to (table III) the majority (92.5%) of the women had previous history of pregnancy with a mean of  $3.47 \pm 2.168$ . Less than three-quarters (70.8%) of them had 3 and more pregnancies, and three fifths (60%) of them had 3 and more deliveries with a mean of  $2.90 \pm 1.717$ . Concerning the type of last delivery, less than two-thirds (62.7%) of them had normal deliveries, and less than one-quarter (23.2%) of them faced complications with last delivery mainly bleeding as mentioned by (34.9%) of them followed by perineal laceration (23.3%), vaginal injuries (16.3%), and lastly, precipitated labor as reported by 7.0 % of them.

Additionally, the date of their last delivery was 10 years ago and more as declared by vast majority (93.0%) of them. Regarding history and number of abortions, it was found that (35.7%) had previous abortion. The same table reveals that more than one- quarter (27.0%) of the women reported previous gynecological surgeries mainly: dilation and curettage (37.0%) and hysterectomy (27.8%). Oophorectomy was reported by 9.3% of them.



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**Table (IV): Distribution of the study subjects according to their health status and age at onset of urinary incontinence:**

health status:	Total N=200	
	No	%
<b>Medical conditions</b>		
• No	46	23.0
• Yes#	154	77.0
-Hypertension	72	46.7
-Diabetes Mellitus	34	22.8
-Heart diseases	14	9.0
-Neurological disorders	9	5.8
-Urinary infections	8	5.1
-Respiratory diseases	4	2.5
-Motor disorders	4	2.5
-Hernia(umbilical and inguinal)	4	2.5
-GIT disorders	3	1.9
-Cancer	2	1.2
<b>Medications use</b>		
• No	42	21
• Yes#	158	79
-Anti hypertensive drugs	72	45.5
-Hypoglycemic drugs	34	21.5
-Analgesics	12	7.5
-Anti-coagulant drugs	11	6.9
-Diuretics	8	5.7
-Others(vitamins)	6	3.7
-Digitalis	5	3.1
-Broncho dilators and cough suppressant	4	2.5
-Liver support drugs	3	1.8
-Laxatives	2	1.2
-Hormones	1	0.6
<b>Age at onset of urinary incontinence(years)</b>		
• 30-	2	1.0
• 40-	96	48.0
• 50-60	102	51.0
Mean ±SD	49.71±5.927	

Table (IV) clarifies distribution of the study subjects according to their health status and age at onset of urinary incontinence. The table shows that more than three-quarters (77%) of the women had medical conditions mainly hypertension as mentioned by less than one-half (46.7%) of them, followed by diabetes mellitus (22.8%), heart diseases (9.0%) neurological disorder (5.8%), urinary infection (5.1%), motor disorder and respiratory disease (2.5%) with the same percentage and lastly, blood diseases and cancer as reported by 0.6% of them with the same percentage.

Concerning their medication use, 79% of the women use medications with regular basis, like antihypertensive drugs as declared by 45.5% of them, followed by hypoglycemic drugs (21.5%), analgesics (7.5%), anti-coagulant drugs (6.9%), diuretics (5.7%), others such as vitamins (3.7%). Bronchodilators and cough suppressant (2.5%), and the least reported medication was hormones (0.6%).

As regards study subject's age of onset of stress urinary incontinence. It was noticed that almost one-half (51.0%) of women had urinary incontinence by age 50 to 60 years, compared to only 1.0% of them who got it at the age of less than 40 years with a mean of  $49.71 \pm 5.927$  years old.

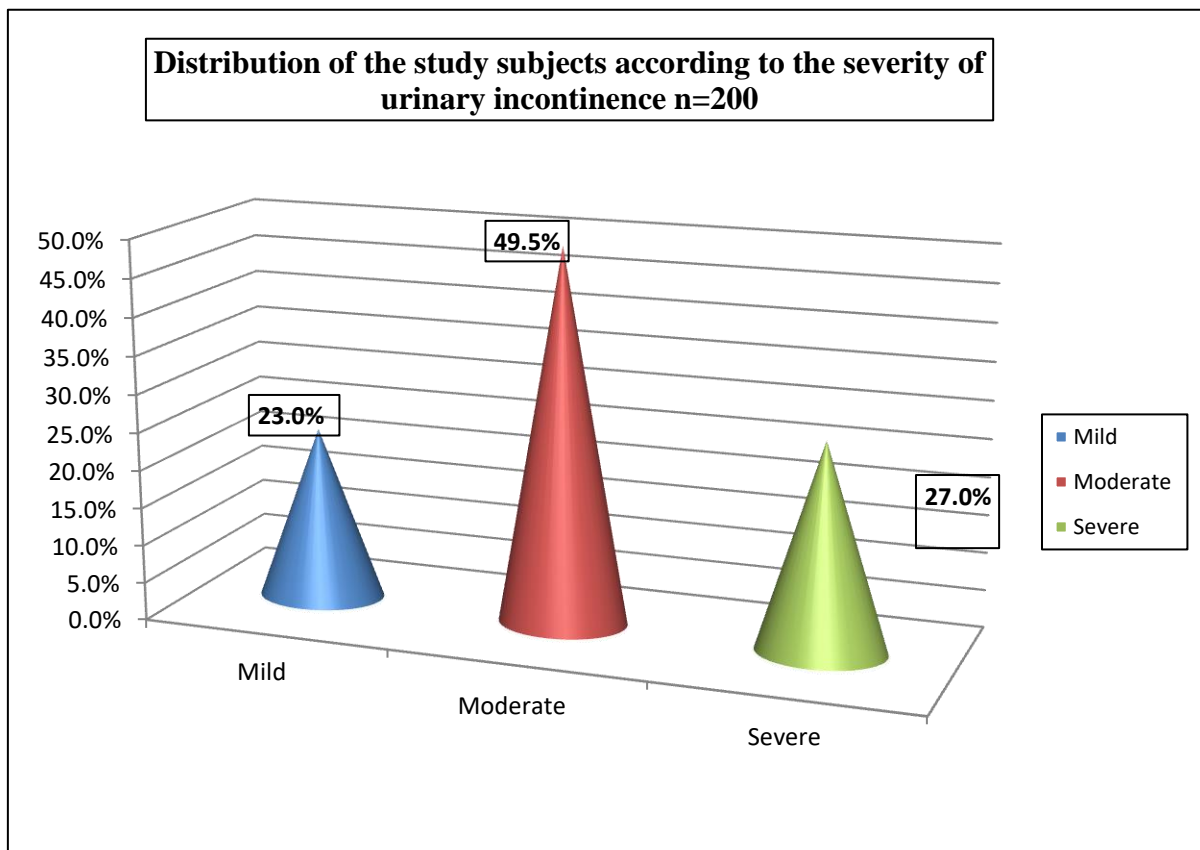
**Table (V): Number and percent distribution of the study subjects according to PRAFAB assessment:**

PRAFAB assessment	Total N=200	
	No	%
<b>Protection</b>		
1. Never use protection for urine loss	23	11.5
2. Sometimes use protection or change the underwear because of urine loss	76	38.0
3. Normally use protection, or change under wear several times a day	56	28.0
4. Always have to use protection because of urinary incontinence	45	22.5
<b>Amount</b>		
1. The amount of urine loss is just a drop or less	51	25.5
2. Sometimes lose a trickle	72	36.0
3. The loss of urine is so much that it noticeably wets protection or clothes	55	27.5
4. The loss of urine is so much that make protection soaks or leaks	22	11.0
<b>Frequency</b>		
1. Once a week or less	41	20.5
2. More than once but less than three times a week	57	28.5
3. More than three times a week, but not every day	44	22.0
4. Every day	58	29.0
<b>Adjustment</b>		
1. Do not hamper my daily activities	68	34.0
2. Have stopped some activities, such as some sports and physically demanding activities	58	29.0
3. stopped most physical activities that caused involuntary loss of urine	55	27.5
4. Almost never go out	19	9.5
<b>Body image</b>		
1. Not bothered by urine loss	27	13.5
2. Think urine loss is annoying and <u>trouble some</u> ,but not greatly bothered	62	31.0
3. Urine loss makes me feel dirty	49	24.5
4. Disgusted because of urinary incontinence	62	31.0

Table (5) elucidates number and percent distribution of the study subjects according to PRAFB assessment. Concerning protection, it was noticed that more than one-third (38.5%) of the studied women reported that they sometimes use protection followed by (28.0%) of women reported normally use protection. While, more than one-tenth (11.5%) of women never use protection for urine loss.

Regarding amount, it was found that more than one-third (36.5%) of the studied women said that they sometimes lose a trickle while (11.0%) of them mentioned that the loss of urine is so much that make protection soaks or leaks. With respect to frequency, around one-fifth (20.5%) of the studied women declared that they experience urinary incontinence once a week, while 29.0% of them had daily attack of urinary incontinence.

Concerning adjustment, it is observable that slightly more than one-third (34.0%) of the studied women mentioned that urinary incontinence does not affect their daily activities. On the other hand, 9.5% of the women stated that urinary incontinence totally affects their daily activities and prevent them from going out. Finally, in relation to body image (13.5%) of the studied women declared that urinary incontinence does not bother them at all while, less than one-third (31.0%) of them stated that they feel disgusted with themselves because of urinary incontinence and the same percentage (31.0%) think urine loss is annoying and troublesome but not greatly bothered, while slightly less than one-quarter (24.5%) of them feel dirty with urine loss



(Figure I): Distribution of study subjects according to the severity of stress urinary incontinence (PRAFB assessment).

The Figure revealed that about one-half (49.5%) of the study subjects had moderate degree of stress urinary incontinence, more than one-quarter (27.0%) of them had severe degree while, (23.0%) of them had mild degree of UI.

**Table (VI): The relationship between the study subjects severity of SUI and their socio-demographic characteristics:**

Socio-demographic characteristics	SUI degree						Total N=200		Test of significance
	Mild (N=46)		Moderate (N=99)		Severe (N=55)		No	%	
	No	%	No	%	No	%			
<b>Age</b>									
•45-	20	37.0	19	35.2	15	27.8	54	27.0	X <sup>2</sup> =11.752 P=0.019*
•50-	11	26.2	21	50.0	10	23.8	42	21.0	
•55-60	15	14.4	59	56.7	30	28.8	104	52.0	
<b>Level of education</b>									
•Illiterate	7	14.6	22	45.8	19	39.6	48	24.0	X <sup>2</sup> =10.876 P=0.209
•Read & write	4	21.1	9	47.4	6	31.6	19	9.5	
•Basic education	0	0.0	7	77.8	2	22.2	9	4.5	
•Secondary/technical education	18	26.5	35	51.5	15	22.1	68	34.0	
•University/Post university	17	30.4	26	46.4	13	23.2	56	28.0	
<b>Place of residence</b>									
•Rural	11	27.5	18	45.0	11	27.5	40	80.0	X <sup>2</sup> =0.645 P=0.724
•Urban	35	21.9	81	50.6	44	27.5	160	20.0	
<b>Marital status</b>									
•Married	9	7.5	71	59.2	40	33.3	120	60.0	X <sup>2</sup> =53.492 P=0.000*
•Widowed	22	38.6	27	47.4	8	14.0	57	28.5	
•Divorced	15	65.2	1	4.3	7	30.4	23	11.5	
<b>Type of family</b>									
•Nuclear	28	23.3	62	51.7	30	25.0	120	60.0	X <sup>2</sup> =2.982 P=0.561
•Extended	18	22.5	37	46.3	25	31.3	80	40.0	
<b>Income sufficiency</b>									
•Enough and save	3	18.8	8	50.0	5	31.2	16	8.0	X <sup>2</sup> =4.575 P=0.334
•Hardly enough	35	26.5	66	50.0	31	23.5	132	66.0	
•Not enough	8	15.4	25	48.1	19	36.5	52	26.0	

The relationship between the study subjects' severity of SUI and their socio demographic characteristics is portrayed in table (VI). A statistically significant relation was noticed between age and severity of stress urinary incontinence ( $x^2=11.752$ ,  $p=0.019$ ), where severe degree of SUI was more encountered (28.8%) among those women aged 55-60 years compared to mild degree of SUI (14.4%) in the same age group

As regards marital status, severe degree of SUI was more encountered among married women (33.3%) than divorced and widowed women (30.4% and 14.0%) respectively. However the statistical relation between marital status and degree of SUI severity was highly significant ( $x^2 =53.49$ ,  $P=0.000$ ).

The same table indicates no statistically significant relation between study subjects' severity of SUI and their education ,residence, as well as type of family. Where severe degree SUI was more prevalent (39.6%) among illiterate women compared to those with secondary and university education (22.1% and 23.2 %) respectively. Also it experienced by the

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same percentage (27.5%) among rural and urban residents. In addition, severe degree of SUI was more encountered among those women with extended families (31.3%) and those with income insufficiency (36.5 %).

**Table (VII): The relationship between the study subjects severity of SUI and their working status, body mass index (BMI) and smoking**

Working status	SUI degree						Total N=200		Test of significance
	Mild (N=46)		Moderate (N=99)		Severe (N=55)		No	%	
	No	%	No	%	No	%			
<b>Occupation</b>									
•Working	20	20.0	48	48.0	32	32.0	100	50.0	X <sup>2</sup> =2.346 P=0.309
•Housewives	26	26.0	51	51.0	23	23.0	100	50.0	
<b>Daily working hours</b>	N=20		N=48		N=32		N=100		
•6hours	7	31.8	7	31.8	8	36.4	22	22.0	X <sup>2</sup> =4.534 P=0.605
•7hours	4	23.5	8	47.1	5	29.4	17	17.0	
•8hours	5	13.9	19	52.8	12	33.3	36	36.0	
•9hoursandmore	4	16.0	14	56.0	7	28.0	25	25.0	
<b>Nature of daily activities</b>	N=46		N=99		N=55		N=200		
•Light	30	39.5	29	38.2	17	22.4	76	38.0	X <sup>2</sup> =44.43 P=0.000*
•Moderate	14	14.3	64	65.3	20	20.4	98	49.0	
•Vigorous	2	7.7	6	23.1	18	69.2	26	13.0	
<b>body mass index (BMI):</b>	N=46		N=99		N=55		N=200		
• Underweight(<18.5)	1	50.0	1	50.0	0	0.0	2	1.0	X <sup>2</sup> =9.871 P=0.452
• Healthy(18.5-24.9)	2	17.4	14	60.9	5	21.7	23	11.5	
• Overweight(25-29.9)	17	29.8	29	50.9	11	19.3	57	28.5	
• Obese class I(30-34.9)	18	23.7	34	44.7	24	31.6	76	38.0	
• Obese class II(35-39.9)	5	21.7	10	43.5	8	34.8	23	11.5	
• Obese class III(≥40)	1	5.3	11	57.9	7	36.8	19	9.5	
<b>Smoking status</b>									
•Non smoker	40	25.3	79	50.0	39	24.7	158	79.0	X <sup>2</sup> =5.024 P=0.285
•Passive smoker	4	11.4	17	48.6	14	40.0	35	17.5	
•Actives moker	2	28.6	3	42.9	2	28.6	7	3.5	

X<sup>2</sup> Chi Square Test \* Statistically significant at ≤0.05

Table (VII) illustrates the relationship between the study subjects severity of SUI and their working status and body mass index . It was found that working women had higher rate of severe SUI than housewives women (32.0% and 23.0%) respectively. Concerning daily working hours, it was observed that mild SUI was more prevalent among those who worked daily for 6 hrs, compared to those who work 9 hrs and more (31.8% and 16.0%) respectively. and severe SUI was more encountered among women who work 9 hrs. and more (28.0%) than mild (16.0%). However, no statistical significant difference was found between degree of SUI and women's working status or their daily working hours

Regarding nature of daily activities, it was apparent that severe SUI was more encountered among those women with vigorous daily activities in comparison to those with light activities (69.2% and 22.4%) respectively, with a highly statistically significant relation ( $\chi^2=44.43$ ,  $P=0.000$ ).

The table also reveals that severe SUI was more frequent among obese class II (35-39.9) and III ( $\geq 40$ ) (34.8%, and 36.8 %) respectively than those with healthy BMI (21.7%), women with underweight have either mild or moderate degree of SUI (50%). However, the statistical relationship between degree of SUI and women's BMI was not significant. With respect to women's smoking status, severe SUI was observed among non-smokers (24.7%) active smokers (28.6%) and passive smokers (40.0%) with no observed statistical relationship ( $\chi^2= 5.024$ ,  $P=0.285$ )

**Table (VIII): The relationship between the study subjects severity of SUI and their reproductive history, health status and age at onset of UI :**

Reproductive and health status	SUI degree						Total N=200		Test of significance
	Mild (N=46)		Moderate (N=99)		Severe (N=55)		No	%	
	No	%	No	%	No	%			
<b>Number of gravid</b>	N=41		N=93		N=51		N=185		
•<3	9	16.7	31	57.4	14	25.9	54	29.2	$\chi^2=1.886$ $P=0.389$
•3andmore	32	24.4	62	47.3	37	28.2	131	70.8	
<b>Number of para</b>									
•<3	16	21.6	39	52.7	19	25.7	74	40.0	$\chi^2=0.3216$ $P=0.8515$
•3andmore	25	22.5	54	48.6	32	28.8	111	40.0	
<b>Type of last delivery</b>									
•Normal	5	4.3	84	72.4	27	23.3	116	62.7	$\chi^2=96.27$ $P=0.000*$
•Normal with episiotomy	6	28.6	1	4.8	14	66.7	21	11.4	
•Caesarian section	30	62.5	8	16.7	10	20.8	48	25.9	
<b>Date of last delivery(years)</b>									
•4-	2	33.3	2	33.3	2	33.3	6	1.6	$\chi^2=4.588$ $P=0.597$
•6-	0	0.0	1	50.0	1	50.0	2	1.1	
•8-	1	20.0	1	20.0	3	60.0	5	2.7	
•10+	38	22.1	89	51.7	45	26.2	172	93.0	
<b>Complications associated with last delivery</b>									
•Yes	5	11.6	8	18.6	30	69.8	43	23.2	$\chi^2=50.17$ $P=0.000*$
•No	36	25.3	85	59.9	21	14.8	142	76.8	
<b>Previous abortion</b>									
•Yes	8	12.1	16	24.2	42	63.6	66	35.7	$\chi^2=66.92$ $P=0.000*$
•No	33	27.7	77	64.7	9	7.6	119	64.3	
<b>Previous gynecological surgeries</b>									
•Yes	6	11.1	10	18.5	38	70.4	54	27.0	$\chi^2=68.33$ $P=0.000*$
•No	40	27.4	89	61.0	17	11.6	146	73.0	
<b>Having medical conditions</b>									
•Yes	7	5.5	70	55.1	50	39.4	127	63.5	$\chi^2=66.31$ $P=0.000*$
•No	39	53.4	29	39.7	5	6.9	73	36.5	
<b>Age at onset of SUI</b>									
• 30-	0	0.0	2	100.0	0	0.0	2	1.0	$\chi^2=4.679$ $P=0.321$
• 40-	22	22.9	52	54.2	22	22.9	96	48.0	
• 50-60	24	23.5	45	44.1	33	32.4	102	51.0	

$\chi^2$  Chi Square Test \* Statistically significant at  $\leq 0.05$

According to table (VIII) a statistically significant relation was observed between study subjects' degree of SUI and their reproductive history and health status. ( $P=0.000*$ ). Where highest severity of stress urinary incontinence (66.7%, 60.0 %, 69.8% , 63.6 % & 70.4) was observed among women who delivered normal with episiotomy, reported complications with their last delivery, had previous history of abortion, and had history of previous gynecological surgeries, as well as had medical conditions respectively.

In relation to age at onset of SUI, the table also reveals that severe degree SUI was reported in about one- third (32.4%) of study subjects' aged 50-60 years, more than fifth (22.2%) of those aged 40-50 years and no one of those aged 30-40 years. Meanwhile subjects' degree of SUI was not correlated with their age at onset

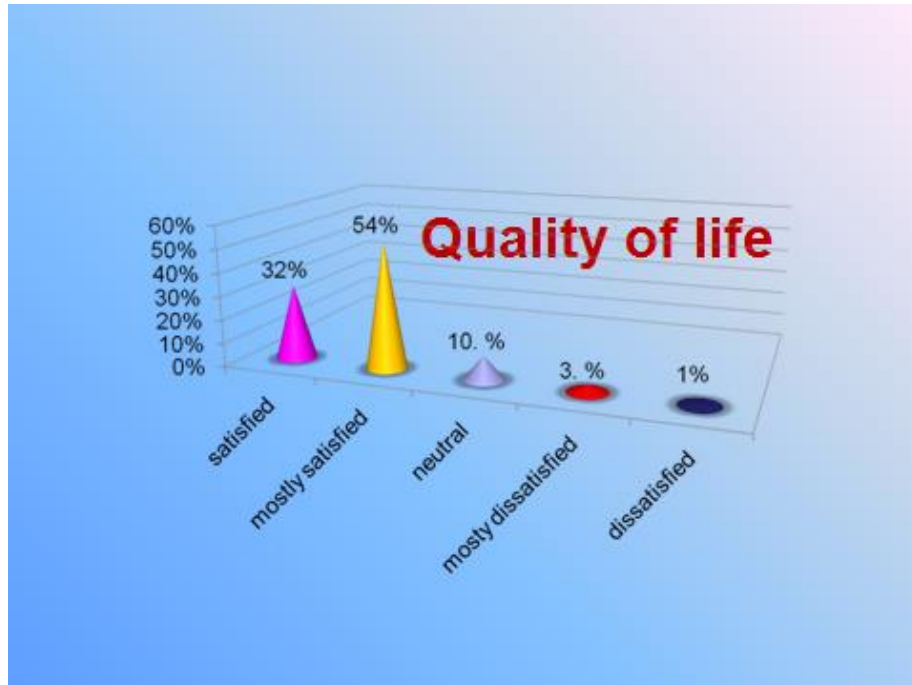


Figure (II) Distribution of the study subjects according to their responses toward their quality of life

The figure reveals that more than one- half of the study subjects (54%) scored their feeling as mostly satisfied, and about one- third (32%) were satisfied, compared to only 10%, 3% and 1% were neutral, mostly dissatisfied and dissatisfied respectively.

Table (IX): The relationship between the study subjects' quality of life and severity of SUI

Quality of life	SUI degree						Total N=200		Test of significance
	Mild (N=46)		Moderate (N=99)		Severe (N=55)		No	%	
	No	%	No	%	No	%			
Dissatisfied	0	0.0	1	50.0	1	50.0	2	1.0	X <sup>2</sup> =25.75 P=0.001*
Mostly dissatisfied	0	0.0	1	16.7	5	83.3	6	3.0	
Mixed (neutral)	0	0.0	15	75.0	5	25.0	20	10.0	
Mostly satisfied	22	20.4	55	50.9	31	28.70	108	54.0	
Satisfied	24	37.5	27	42.2	13	20.3.8	64	32.0	

Table (IX): shows the relationship between the study subjects' quality of life and severity of SUI. Regarding, mostly satisfied quality of life The table revealed that More than one half (50.9%) of the study subjects had moderate degree of SUI compared to 20.4% and 28.7 % had mild and sever degree of SUI respectively. Concerning neutral quality of life, it was observed that three quarters (75 % ) of them had moderate degree of SUI and completely absent of mild degree symptoms compared to only 25.0 % of them had sever degree of SUI. In relation to satisfied quality of life, it was observed that more than two fifths (42.2%) of them had moderate degree of SUI and more than one third (37.5 %) had mild degree of SUI compared to 20.38% had severe degree of SUI. Statistically, there was a significant difference quality of life and degree of SUI.

### 3. DISCUSSION

Menopause is one of the age-related phases of physiological transition of females. It is neither a disease, an illness, pathology, nor a state of being not well but just a normal physiological phenomenon of aging among females from transition of reproductive life to no more ability to reproduce. This transition occurs with some changes in hormones of female endocrine system predominantly estrogen leading to menopausal symptoms. <sup>( 27)</sup> In addition, the lower urinary tract is known to be hormone-sensitive with estrogen receptors being present in all squamous epithelia irrespective of estrogen status. Therefore, it is possible that the estrogen deficiency may play an etiological role in the development of urinary incontinence after menopause. The most prevalent urinary problem among menopausal women is stress urinary incontinence. <sup>(28,29).</sup>

The present study revealed that one-half of menopausal women aged 50-60 years at onset of SUI. This result is relatively consistent with study of Hijaz A et al (2012) about "Advanced maternal age as a risk factor for stress urinary incontinence:" in USA. They found that women older than 35 years had 2.36% higher risk of developing SUI than women younger than 35 years. <sup>(30)</sup> On the other hands, the current finding doesn't match with the result of the previous mentioned study conducted by Hannestad Y et al. (2000) titled " community-based epidemiological survey of female urinary incontinence: in Norweg. They reported that the highest rate of stress incontinence was encountered in women aged between 25 and 49 years. <sup>(21)</sup>

Pregnancy and delivery are an important risk factor for urinary incontinence. The current study showed that about two-thirds of the study subjects had normal vaginal delivery and less than one-quarter had complications of last delivery. This can be attributed to the injuries that may be caused in the musculature and innervation in the pelvic floor. This musculature and innervation represent an important factor in the development of the stress urinary incontinence.

The results of the present study agree with the results of at least two other researches. *First*, Rortveit G et al(2003) <sup>(31)</sup> who had studied urinary incontinence after vaginal delivery or cesarean section. study data on parity and urinary incontinence were obtained from 15307 women under age 65. They had reported that The prevalence of urinary incontinence of any type was 10.1% for nulliparous women, 15.9% after Cesarean section, and 21.0% after vaginal delivery. *Second*, Nezam A (2011) <sup>(32)</sup> who found more than one- half of the study subjects had normal vaginal birth. She further elaborated that women suffer from SUI due to multiple trauma from childbirth which affects urethral sphincter function.

Furthermore, medical conditions such as diabetes mellitus and hypertension with drug therapy among more than three-quarters of the study subjects explained the development of SUI among them. Through which medication is used as diuretics that can directly contribute to bladder over activities along with neurologic conditions that can be associated with diabetes mellitus and led to the compromise of central nervous system control of bladder causing urge incontinence. <sup>(33,34)</sup> The present finding falls in line with the study of Persson j et al (2010) <sup>(35)</sup> who showed that one-half of the study subjects had medical conditions such as hypertension and diabetes mellitus and found a strong relationship between chronic disease and incontinence degree. They further added that this can be related to the increased vulnerability of the pelvic floor due to the changes in connective tissue biology and the innervation of pelvic muscles which are pathogenesis factors of developing stress incontinence in women. On the other hand, the current results are not consistent with the findings of a study conducted by Shlain I et al, (2018) titled" urinary incontinence type, symptoms, and quality of life: A comparison between grand multipara and non-grand multipara women aged 50 years" that reported only less than one-third of the study subjects suffer chronic illness. <sup>(36)</sup>



Assessment of severity of urinary incontinence revealed that about one-half of the studied women had moderate degree of urinary incontinence and more than one-quarter had severe degree. This can be attributed to the fact that some women with SUI of a mild nature do not feel that treatment of the condition is warranted. Others are embarrassed to speak with a health care provider about their conditions or fear that treatment requires surgery treatment which in turn resulted in gradual increase in the severity of SUI and often led to the point of causing women to stop doing their normal activities.

The present finding is supported by the study of Bhanupriya and Goel (2015) about "Prevalence and risk factors of urinary incontinence among women delivering in a tertiary care center" in Northern India, where they found that half of the study subjects have moderate urinary incontinence.<sup>(37)</sup> In addition, the current finding is relatively in harmony with the study of Orhan C et al. (2019) titled "the effect of incontinence severity on symptom distress, quality of life, and pelvic floor muscle function in women with urinary incontinence" in Turkey. They found that that two-thirds of the study subjects had mild and moderate degrees urinary incontinence.<sup>(38)</sup> On the contrary with this present study result, Kobashi K (2011) who had concluded that stress urinary incontinence generally is considered in the majority of studied women who were mild degree where they only experience light leakage during vigorous activity such as playing sports or exercising, or while sneezing, laughing and coughing.<sup>(39)</sup>

However, it is documented that UI is common but yet under reported among Egyptian women where such condition is posed by ignorance and negative attitude toward UI. Within the Egyptian community, UI is a very sensitive issue that is considered to be shameful to discuss especially with those who have no educational back ground.<sup>(40)</sup> The results of the present study are in line with this where; severe UI was more prevalent among illiterate women compared to those with secondary and university education. These finding is consistent with the study of Sharaf A et al (2010) titled "The impact of nursing interventions on the control of urinary incontinence among women" who found that severe urinary incontinence was more prevalent among illiterate women compared to educated women.<sup>(41)</sup> In contrast with these, Melville J et al (2015) denoted that lower levels of education were associated with lower levels of incontinence.<sup>(42)</sup>

PRAFAP assessment used to obtain a brief yet comprehensive summary of SUI severity.<sup>(24)</sup> The current study revealed that most of the studied women use protection for urine loss or have to change underwear either sometimes, normally or several times a day depending on the amount of urine loss that may be a trickle or so much that make protection is soaked or leaks. These results can be explained by the fact that three-quarters of the study subject were urban residence which result in spending more time in transportation and outdoor activities where life in the city is more active and need more protection. Also, half of the study subjects are working and they spend at least 6 hours daily at work place and have to keep themselves dry and clean during that time.

This present study result is consistent with the studies of Berger M et al (2011)<sup>(43)</sup> & Bilgic D et al (2017a).<sup>(44)</sup> The first had studied the Racial differences in self-reported healthcare seeking and treatment for urinary incontinence in community-dwelling women from the epidemiologic study. They had reported that one-half of the studied women reported more use of pads or other protection to deal with activity of daily living. The second had investigated coping and help-seeking behaviors for management of urinary incontinence Their results showed that three-quarters of the studied women change pads frequently.

As regards physical activities, It was observed that more than one-quarter of the study subjects stopped most physical activities that caused involuntary loss of urine. Similar result was noticed by Mohamed H et al. (2018) who concluded that SUI disturbs social life, with many boundaries and constrains regarding going to open places, traveling for recreation or even work, and sometimes having a spare time with relatives or friends.<sup>(45)</sup>

On discussing body image, the present finding revealed that more than two-fifths of the study subjects who either were not bothered by urine loss or think that urine loss is annoying and troublesome, but not greatly bothered. The current study is in congruence with the study of Mohamed AM et al (2010) they found a significant high proportion of females believed that UI was not a stigmatized disease and is a normal part of being a female, being overweight or obese or due to using certain medication.<sup>(46)</sup>

On the other hand, this same result-of the current study denoted that less than one-third of study subjects stated that they feel disgusted with themselves because of urinary incontinence. This result can be referred to less than two-thirds of the studied women were married which result in feeling embarrass from their husband and fear of odor, shame, loss of

self-esteem and fear of actual occurrence of incontinence during sexual function. This result is supported with the finding of Bilgic D et al. (2017b) who conducted a study titled "Approaches to cope with stress and depression in individuals with urinary incontinence", they reported that the majority of studied women especially Muslim women resort to prayers to overcome their problem, but the feeling of being dirty during praying may cause discomfort.<sup>(47)</sup>

Concerning the relationship between severity of stress urinary incontinence and socio-demographic characteristics., the present study revealed a significant difference between severity of stress urinary incontinence and women's age where severe UI was more encountered among those women aged 55-60 years than those aged less than 50 years. This result is concordant with MacArthur C et al (2006) who found a significant association between SUI and older maternal age. Such an agreement between the results of the present study & the aforementioned results is emphasized by some literatures which had reported that the decline in estrogen levels that occurs in menopause cause uro-genital impairment.<sup>(48)</sup>

The current study also revealed a statistically significant relation between nature of Physical activities and UI level. Severe UI was more encountered among those women with vigorous working activities in comparison to those with light activities. The current finding doesn't match with that of Lee and Hirayama (2012) who found an inverse association between UI and walking. They further added that the degree of UI was decreased with vigorous and moderate activity levels.<sup>(49)</sup>

Moreover, a statistically significant relation was observed between marital status and level of SUI. Severe SUI was more encountered among married women than divorced and widowed women. This result is in line with the study of Kreydin E, et al (2016) who reported significant association between marital status and UI levels where severe UI more prevalent among married women who were more likely to report stress incontinence than divorced or widowed.<sup>(50)</sup>

The results of the present study indicated that severe UI was more frequent among obese class III than those with obesity class II and I. These results are in congruence with the study conducted by Subak LL et al. (2009) titled "Obesity and urinary incontinence: epidemiology and clinical research Update" that revealed each 5-unit increase in BMI was associated with about a 20% to 70% increase in the risk of daily incontinence. This can be attributed to an increasing intra-abdominal pressure that can lead to increasing body weight with increased incidence of stress incontinence.<sup>(51)</sup> In addition, the current finding is in accordance with the study of Griffiths D (2015) titled "Brain mechanisms underlying urge incontinence and its response to pelvic floor muscle training. They found that Obesity is an increasingly prevalent health condition that was shown to have detrimental impact on SUI development, while weight reduction was proven to reduce SUI.<sup>(52)</sup>

On assessing the Relation between severity of stress urinary incontinence and obstetrical characteristics. The finding of the current study showed that there was a Statistically significant relationship between the type of last delivery and the degree of UI. The present finding is in harmony with the studies of Shlain et al. (2018) & MacArthur C et al. (2016)) they found a positive association between the number of vaginal birth and the degree of SUI.<sup>(53,54)</sup> On the other hand, Hsieh C H et al , (2012) reported that there was no association between vaginal birth and SUI in menopausal women. They explained that SUI among menopausal women occur as a result of estrogen depletion which leads to decline in the elasticity of the connective tissue secondary to collagen reduction, with a decrease in bladder vascularity and a thinning of the urethra.

According to the relevant literatures Quality of life is multidimensional health concept which represents chiefly subjective symptoms that may influence the sense of wellbeing and day-to-day function. It includes several important domains such as, perceived wellbeing, role disability, physical, psychological, and social function. The present study results revealed out that more than one half of the study women were mostly satisfied followed by satisfied , neutral, mostly dissatisfied, and then dissatisfied.<sup>(55)</sup>

The present finding is relatively in conformity with the study of Mahrouse A (2012) titled "The relationship between menopausal symptoms and quality of life among working women, in Alexandria, Egypt, which reported that the most commonly quality of life scores was neutral feeling after that mostly satisfied , satisfied, the mostly dissatisfied, and then no scoring as dissatisfied.<sup>(56)</sup> The possible reason is that in assessing quality of life is whether it should be regard as subjective, based on the woman's own feelings and judgments. In addition, Arabs are religious people and they accept all change as they consider that the whole thing is coming from god.

The result of the present study showed that there was statistically significant difference between SUI and quality of life; this might be because throughout menopause, women frequently experience some symptoms which could affect their daily activities. This may be explained by the fact that well being in general is related to self rated health status, symptoms, stresses, and attitude to menopause and aging.

The current finding is relatively similar to the study of Bushnell's idea (2005) who mentioned that UI is not just a simple physiological problem, but also it should be considered in relation to different factors like UI type, frequency, severity, stimulating factors, social effects and influences on quality of life physical, emotional and social.<sup>(57)</sup> The present finding is also relatively consistent with the study of Nilsson M et al (2009) who concluded that female with urinary incontinence significantly impair the quality of life in both younger and older women, and also have negative effects on relationship with spouses.<sup>(58)</sup> in addition, it relatively matches the study of Minassian et al (2015) where they found that urinary incontinence adversely affects the social and personal QOL of women. Besides its deleterious effect on normal daily activities of life, it limits the psychological well-being, subjecting the women into higher degree of depression, shame, humiliation, and isolation from family, friends, and social gatherings.<sup>(59)</sup> Moreover, the current study results are in line with Saboia DM (2017), who mentioned that All types of urinary incontinence interfere both in the general and specific quality of life.<sup>(60)</sup> It also relatively corresponds with the study of Kołodyńska G (2019), Who found that urinary incontinence is a problem that significantly affects the quality of life of affected women. It negatively affects numerous aspects of life , significantly reducing the daily functioning associated with work, physical activity or the intimate sphere.<sup>(61)</sup>

#### 4. CONCLUSION

Based on the findings of the current study, it can be concluded that:

SUI is negatively affecting the quality of life. There were a statistically significant differences between quality of life and degree of stress urinary incontinence among menopausal women.

A statistically significant relation was noticed between study subjects' degree of stress urinary incontinence and ages, marital status, nature of daily activities, type of last delivery, complications associated with last delivery, previous history of abortion and gynecological surgeries as well as had medical conditions

#### 5. RECOMMENDATION

Based on the findings of this study, the following recommendations were suggested.

Health Training programs with community-based interventions that contain physical and mental health promotion programs can contribute to improvement of women's their adaptation to menopausal problems and eventually promote their quality of life (QOL).

Mass media sectors (newspaper, magazine articles, radio, television programs) should be utilized in dissemination of simple information that rise awareness of menopausal women about prevention, management, health seeking behavior and coping with SUI and other health problem associated with menopause.

Continuing educational program should be developed by simple booklet to teach and train nurses about the menopausal changes, information about the available services and facilities as well as some positive life style activities.

**Further studied** are needed to investigate the effect of teaching program for menopausal women with SUI on their quality of life.

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