

Urinary Incontinence among Women Attending Primary Health Center at El-Kharaga City, New Valley, Egypt

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Abstract:

Background: Urinary incontinence (UI) is a common health problem, particularly in females and elderly population. Urinary incontinence has a negative effect on the affected individuals' quality of life (QoL). **Objectives:** the purpose of this study is to estimate the prevalence of UI and to identify its possible association among women above 18 years and evaluate its impact on their quality of life. **Methods:** Cross-sectional study conducted on 325 women aged more than 18 years attending to the medical center. Demographic, medical and quality of life data were collected using Arabic previously validated questionnaires. **Results:** The study shows that 27.7% of the studied women suffered from urinary incontinence of them, urge, stress and overflow were the most common with prevalence of 72%, 45% and 32% respectively. Significant associations with UI were women's older age, lower level education level, unfavorable obstetrical history, positive history of chronic diseases, excessive coffee drinking, family history of UI. 65% of incontinent women were negatively affected in emotional health, social relationships, travel and prayer. **Conclusion:** The most significant risk factors of urinary incontinence were vaginal deliveries, family history and chronic diseases (chronic constipation, chronic cough, DM, HTN). Urinary incontinence had a great negative effect on quality of women's life.

Key Words: Incontinence, Women, Quality of Life

Introduction:

Urinary incontinence (UI) is a common health problem dominant particularly in females and the elderly population.⁽¹⁾ Recent findings show that 348 million (8.2%) out of 4.3 billion people worldwide experienced at least one type of UI in 2008. This number was projected to increase to 423 million (8.5%) out of 5 billion people worldwide by the year 2018.⁽²⁾

Generally, UI is more common in women, and the burden of this condition is greatest in developing countries of Asia,

South America and Africa.⁽²⁾ According to the International Continence Society (ICS), urinary incontinence (UI) has been defined as the involuntary leakage of urine, which may result in physical, psychological, sexual, and economical problems.⁽⁵⁾ UI is categorized into the following subtypes: stress urinary incontinence (SUI), Urge urinary incontinence (UUI), and Mixed urinary incontinence (MUI).⁽⁵⁾ In a previous study that explored the barriers against seeking help for UI among Middle Eastern women⁽³⁾, 26.6% reported having UI

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among women participating in this study. In Egypt, a study conducted in Assuit governorate showed that the prevalence of UI among women was 54.8%. The prevalence of urge, stress and mixed incontinence was 15%, 14.8%, and 25%, respectively.⁽⁴⁾

Although UI has become a medical issue with high incidence level, relatively few sufferers seek medical help.⁽⁴⁾ In a previous study in Egypt,⁽⁴⁾ consultations for UI was as low as (4%). Many studies have suggested possible reasons for the delay to treatment for UI, e.g. viewing UI as a natural outcome of aging and/or childbirth and the fact that it is untreatable⁽⁶⁾, psychosocial barriers (shame, embarrassment, fear of discrimination)^(7,8), fear of invasive treatment, and adequate self-coping strategies⁽⁹⁾ as some of the common barriers to seeking treatment.

Determining the prevalence and the risk factors of urinary incontinence is an essential first step in devising treatment resources and providing preventive services. Therefore, there was an immense need to conduct the current study aimed to estimate the prevalence of UI among women above 18 years, to identify associated risk factors of urinary incontinence among women and to evaluate the impact of UI on the quality of life (QoL) of incontinent women.

Methods:

This was a cross-sectional study conducted in the Medical Center in Al-Kharaga, New Valley Governorate. The Medical Center is the largest medical center in Al-Kharaga city. Al-Kharaga Oasis is situated in the western desert of Egypt in a depression about 160 kilometers long and 80 kilometers wide. It is the capital of New Valley governorate. The total number of women who participated in this study is 325 women. This number constitutes the number of eligible women who agreed to participate in the study in the period from October 2017 to April 2018.

Eligible women met inclusion criteria if they were more than 18 years, if they voluntarily agreed to participate, and if they were either patients with complaint not related to UI or health companions. Exclusion criteria included pregnant women or women who delivered a child within the past 3 months before the date of the study.

Data were collected using face-to-face interviews in the Medical Center. First, women were informed about the aims of study and its privacy terms. Researchers informed them about the abdominal and pelvic examination that would be conducted. After obtaining an oral approval from participation, they were asked to answer all questions honestly without

shame. Two female physicians in the medical center participated in collecting data from women. To protect the privacy, physicians interviewed women alone without their accompanying people.

Ethical Considerations: The protocol of this study was approved from the Ethics and Research Committee in faculty of medicine, Assuit University. An oral informed consent was obtained from the study participants prior to intervention after full explanation of nature of the study, benefits and possible harm.

Data collection tools and techniques:

Two female physicians in the medical center participated in collecting data from women by using face-to-face interviewing questionnaire covering the following items:

- Demographic data (Age, educational level, menstrual status, parity, abortion, mode of previous deliveries (i.e. normal or caesarean delivery), newborn weight > 4 kg, history of hysterectomy, family history for similar condition, history of previous pelvic surgery, presence of chronic diseases, including diabetes mellitus (DM), hypertension, chronic cough or constipation, lifestyle habits like coffee drinking, history of smoking and physical exercises).
- Clinical data: BMI, blood pressure, abdominal examination looking for (hernia, organomegaly, surgical scars,

masses, distended bladder) and pelvic examination looking for (masses, uterus prolapse, bladder prolapse, evidence of atrophy).

- Laboratory tests: urine analysis to detect urinary tract infection among studied women and random glucose test to detect prediabetic and diabetic women.
 - UDI-6 and IIQ-7: a previously Arabic validated questionnaire⁽¹⁰⁾, (two tools). The validation consists of translation of the questionnaire from the original (source) language to Arabic language (common speech in Egypt) and adapt the IIQ-7 to suit the Egyptian culture. An item (prayer) was added, an item (social activities) was modified and another one (entertainment activities such as going to a concert) was deleted.
1. UDI-6 (6 questions) to diagnose the prevalence and the types of UI by asking about the frequency of micturition during the day, the presence of sudden desire to urinate that could not be deferred, the leakage of urine on coughing or sneezing, leakage without effort and difficulty in emptying bladder. Each question has a 4-point response scale and patients were asked to rate the extent to which their UI affects their daily functioning (0, not at all; 1, slightly; 2, moderately; 3, greatly). The UDI-6 can be divided

into three subscales: the first (irritative) subscale (Q1 and 2), the second (stress) subscale (Q3 and 4) and the third obstructive/discomfort subscale (Q5 and 6).

2. IIQ-7 (7 questions) to evaluate UI effect on quality of life for women covering four domains: prayer, physical activity, social relationships / travel, and emotional health. Subscales were created for the IIQ as follows: prayer (item 1), physical activity (items 2 and 3), social/travel (items 4 and 5) and emotional health (items 6 and 7). Questionnaire was scored such that 0 for "not at all," 1 for "slightly," 2 for "moderately," and 3 for "greatly".

Data analysis: Data were checked for accuracy, completeness and were then coded. Data entry and data analysis were done using SPSS version 19 (Statistical Package for Social Science). Results were presented as number, percentage, mean and standard deviation. Chi-square test was used to compare between qualitative variables. Spearman correlation was done to measure correlation between quantitative variables. P-value considered statistically significant if its value is < 0.05

Results:

The women attending the Medical Center of Al-Kharaga (406) were approached and were offered to participate in the study.

While 325 consented to participate, 81 refused to for variable reasons. The reasons for refusal were lack of knowledge regarding UI problem, shame, refusal for examination and considering UI a natural outcome of aging or childbirth and that it is untreatable.

The mean age of women in the present study subjects was 39.7 ± 13.15 (range 19 to 85 years). 50% of the studied women had high educational level (university education). One third of the studied women were postmenopausal. Regarding parity, mean parity was (1-3 children). 19% of the studied women had a history of hypertension and the equal percentage of women had a history of diabetes. More than the third of the studied women consumed coffee, while only 3% was exercising regularly. Other demographic criteria are tabulated in (**Table 1**).

The study shows that 27.7% of the studied women suffered from urinary incontinence in EL-Kharaga. 6.4% of women reported severe UI. The prevalence of urinary incontinence according to its type was 72% urge incontinence, 45% stress incontinence, 32% overflow incontinence, and 16% mixed incontinence. The study also shows that the prevalence of urge incontinence and mixed incontinence were significantly higher in the age group \geq

50 years. While the prevalence of stress incontinence was more common in younger age. As shown in **(Figure 1)**.

Regarding the impact of urinary incontinence on incontinent women's life, the study shows that about 65% of incontinent women negatively affected emotional health, social relationships, travel, and prayer. Nearly half of women negatively affected in physical activity as shown in **Table 2**.

Urinary incontinence among the studied women was significantly associated with women's age, their education level, women's obstetrical history, women's history of chronic diseases, coffee drinking, family history, BMI, and UTI being more in those who aged ≥ 50 years. UI symptoms also showed in those who had secondary or less education level, in postmenopausal, in those who had a history of more than 3 parity, in case the woman had more than 2 abortions, in case if the woman had 3 or more vaginal deliveries, in those who had a history of newborn weight > 4 kg, and more in those who had a history of diabetes mellitus, hypertension, chronic cough and chronic constipation.

However, the prevalence of urinary incontinence was significantly least in 3 or more cesarean deliveries. Additionally, there was a significant association between UI and the duration of diabetes being more

in women who had a history of diabetes for more than 15 years. There was no significant association between the urinary incontinence and regular physical exercise **(Table 1)**.

Age, education level, postmenopausal, parity, abortion, number of vaginal deliveries, number of cesarean deliveries, pelvic surgery, DM, HTN, chronic cough, constipation, coffee consumption, and family history were entered in logistic regression analysis. The study shows that vaginal deliveries, family history, and chronic diseases (chronic constipation, chronic cough, DM, HTN) were the most significant risk factors of urinary incontinence. Women with history of constipation have about 8 times chance to have UI compared to those with no history of constipation.

Regarding the types of urinary incontinence, the most significant risk factors of urge urinary incontinence were age, postmenopausal and hypertension. Hypertensive women have about 5 times chance to have UUI compared to non-hypertensive. Chronic cough, chronic constipation, and family history were the most significant risk factors for stress urinary incontinence. Women with history of constipation have about 17 times higher chance to have SUI compared to those with no history of constipation. The number of

vaginal deliveries was the most significant risk factor that increased the prevalence of overflow urinary incontinence. Women with history of repeated vaginal deliveries have about 2 times chance to have overflow UI (**Table 3**).

Discussion:

In the present study, the overall prevalence of urinary incontinence was 27.7%. The prevalence of urinary incontinence according to its type was 72% urge incontinence, 45% stress incontinence, 32% overflow incontinence, and 16% mixed incontinence. The most significant risk factors of urinary incontinence were vaginal deliveries, family history and chronic diseases (chronic constipation, chronic cough, DM, HTN). The urinary incontinence had a major negative effect on quality of life of incontinent women.

Estimating the prevalence of UI is very difficult due to differences in definition, methodologies and populations studied ⁽¹⁾. Our definition of UI was consistent with the new recommendations of the ICS thus; any urinary leakage was considered UI. The overall prevalence of urinary incontinence in the present study is consistent with the published studies about prevalence of urinary incontinence in the Middle East which ranges from 20.3% to 66.5%.^(11-13, 4) The prevalence in this study is higher than that in Qatar (20.6%)⁽¹¹⁾ and

United Arab Emirates (20.3%)⁽¹²⁾, similar to that of Saudi Arabia (29%)⁽¹³⁾, and lower than that in Egypt (54.8%).⁽⁴⁾ Additionally, the prevalence percentage of urinary incontinence in this study conforms to the reported prevalence of urinary incontinence outside the Middle East which ranges from 4.8% to 58.4%.⁽¹⁴⁻¹⁷⁾ The prevalence in the present study is higher than that in Singapore (4.8%)⁽¹⁴⁾, similar to that in France (26.8%)⁽¹⁵⁾, lower than that in United States (58.4%).⁽¹⁷⁾

In the present study, 6.4% of participants reported severe UI, similar to the 8.4% rate of severe UI observed in the Egyptian study ⁽⁴⁾, but less than the rate of 21.7% reported in the UAE ⁽¹²⁾ and 17.2% reported in Jeddah, Saudi Arabia ⁽¹⁸⁾.

The current study showed; urge urinary incontinence (UUI) was the most common type of UI followed by stress urinary incontinence (SUI). This result is consistent with results from a study in Turkey, UUI was the most prevalent type of UI in 20-80-years old women.⁽¹⁹⁾ However, In other studies in Turkey ⁽²⁰⁾ and in Saudi Arabia,^(13, 18) the most common type of UI in was SUI. Other studies have reported mixed UI as being more common as studies in Egypt^(4,21) and in Iran.⁽²²⁾

These differences in results are due to different ages of women participating in each study.

In the present study, stress incontinence was most common among younger women (> 30 years old) while urge and mixed were most common in old aged women \geq 50 years. This result is in line with studies among Australian women^(23,24) and a study in Egypt⁽⁴⁾ detected that mixed urinary incontinence (MUI) increased with age while urge and stress did not increase.

The present study detected a significant correlation between UI and age, education level, BMI, family history of urinary incontinence, postmenopausal status, parity, vaginal deliveries, cesarean deliveries, newborn weight > 4 kg, repeated abortion, UTI, history of pelvic surgery, chronic diseases, and coffee drinking. The findings of the present study have been supported by several studies.^(25, 13, 18, 21-22)

In the present study, the most significant risk factors of urge urinary incontinence were age, menopausal and HTN. These findings are consistent with a study⁽²⁶⁾ that reported UUI is common among older adults receiving diuretics. Different studies⁽²⁷⁻²⁸⁾ reported that chronic cough and chronic constipation were the most risk factors for stress urinary incontinence which is consistent with the present study.

In the current study, it is detected that QoL was negatively affected by UI. More importantly, 65% of the women with UI

were unable to pray on time. This issue is of great importance for Muslim women. This result is similar to findings in Qatari study, 64% of the women were unable to pray⁽¹¹⁾, higher than in Saudi Arabia 33.8%,⁽¹⁸⁾ while in the UAE and Egyptian studies, 90% were unable to pray.^(12,4)

Study limitations: The strength of this study was that our data was based on standardized questionnaires, and the fact that UI diagnosis was confirmed with examination. Some limitations of this study must be considered. the present study was conducted in a select group of women attending to the medical center so the sample may not be representative of the whole governorate, especially of women living in rural areas. The authors did not collect information on all possible confounders that may modify these risk factors such as specific aspects of obstetric history (like interventional delivery, vaginal delivery with or without episiotomy...), and the age at first pregnancy.

The results of the study do not be interpreted to mean that 27.7% of women suffer UI and require intervention. Only those with severe UI (6.4% of women) and possibly those with moderate UI can be considered potential patients. However, this study may help to raise awareness about the problem of UI in Egypt. Primary health care

providers and health policy makers must suppose additional roles to educate the population about UI problem and its risk factors and also to encourage women seeking medical help.

Conclusion: The UI among Egyptian women is an important problem as reported by our study, 27% of women suffer from this problem. UI has a great negative impact on the quality of life of sufferers and most of them have never sought medical advice for their problem. In our study, the most significant risk factors of urinary incontinence are vaginal deliveries, family history and chronic diseases (chronic constipation, chronic cough, DM, HTN).

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Table (1): Demographic characteristics and its association with urinary incontinence among the studied women attending to the medical center in El Kharaga, The New Valley

	Total (325) No. (%)	Continent (n= 235) (%)	Incontinent (n= 90) (%)	P-value
Age*: (years)				
▪ < 30	83 (25.5)	78 (94.0)	5 (6.0)	0.000*
▪ 30 - < 40	99 (30.5)	85 (85.9)	14 (14.1)	
▪ 40 - < 50	77 (23.7)	54 (70.1)	23 (29.9)	
▪ ≥ 50	66 (20.3)	18 (27.3)	48 (72.7)	
Education level:				
▪ Secondary or less	165 (50.8)	100 (60.0)	65 (39.4)	0.000*
▪ High	160 (49.2)	135 (84.4)	25 (15.6)	
Menstrual status:				
▪ Premenopausal	229 (70.5)	196 (85.6)	33 (14.4)	0.000*
▪ Postmenopausal	96 (29.5)	39 (40.6)	57 (59.4)	
Parity:				
▪ Nulliparous	42 (12.9)	40 (95.2)	2 (4.8)	0.000*
▪ 1 – 3	179 (55.1)	148 (82.7)	31 (17.3)	
▪ > 3	104 (32.0)	47 (45.2)	57 (54.8)	
Abortion:				
▪ No abortion	232 (71.4)	183 (78.9)	49 (21.1)	0.000*
▪ 1 – 2	67 (20.6)	43 (64.2)	24 (35.8)	
▪ > 2	26 (8.0)	9 (34.6)	17 (65.4)	
No. of vaginal deliveries:				
▪ None	137 (42.2)	133 (97.1)	4 (2.9)	0.000*
▪ 1 – 2	73 (22.5)	64 (87.7)	9 (12.3)	
▪ 3 or more	115 (35.4)	38 (33.0)	77 (67.0)	
No. of cesarean deliveries:				
▪ None	161 (49.5)	86 (53.4)	75 (46.6)	0.000*
▪ 1 – 2	126 (38.8)	111 (88.1)	15 (11.9)	
▪ 3 or more	38 (11.7)	38 (100.0)	0 (0.0)	
Newborn weight > 4 Kg:				
▪ Yes	39 (13.8)	5 (12.8)	34 (87.2)	0.000*
▪ No	244 (86.2)	190 (77.9)	54 (22.1)	
History of hysterectomy:				
▪ Yes	10 (3.1)	1(10.0)	9 (90.0)	0.000*
▪ No	315 (96.9)	234 (74.3)	81 (25.7)	
History of any pelvic surgery:				
▪ Yes	57 (17.5)	33 (57.9)	24 (42.1)	0.007*
▪ No	268 (82.5)	202 (75.4)	66 (24.6)	
History of chronic diseases:				
▪ Diabetes mellitus	61 (18.8)	27 (44.3)	34 (55.7)	0.000*
▪ Hypertension	62 (19.1)	23 (37.1)	39 (62.9)	0.000*
▪ Chronic cough	34 (10.5)	15 (44.1)	19 (55.9)	0.000*
▪ Chronic constipation	45 (13.8)	18 (40.0)	27 (60.0)	0.000*
▪ None	169 (52.0)			
Habits:				
▪ Coffee drinking	123 (37.8)	102 (82.9)	21(17.1)	0.001*
▪ Regular exercise	10 (3.1)	6 (60.0)	4 (40.0)	
Family history of incontinence				
	46 (14.2)	14 (30.4)	32 (69.6)	0.472
BMI:				
▪ Normal (< 25)	65 (20.0)	59 (90.8)	6 (9.2)	0.000*
▪ Overweight (25-<30)	107 (32.9)	81 (75.7)	26 (24.3)	
▪ Obese (30-<35)	113 (34.8)	80 (70.8)	33(29.2)	
▪ Morbid obesity (≥ 35)	40 (12.3)	15 (37.5)	25 (62.5)	
Urine analysis:				
▪ Urinary tract infection	175 (53.8)	116 (66)	59 (33.7)	0.009*
▪ No urinary tract infection	150 (46.2)	119 (79)	31 (20.7)	

*Mean ± SD (Range) 39.70 ± 13.15 (19.0 - 85.0)

Table (2): The impact of urinary incontinence on quality of life among the incontinent women in the medical center in El Kharaga, The New Valley

	No. (n= 90)	%
Prayer schedule:		
▪ Affected	59	65.6
▪ Not affected	31	34.4
Physical activity:		
▪ Affected	42	46.7
▪ Not affected	48	53.3
Social relationships/ Travel:		
▪ Affected	62	68.9
▪ Not affected	28	31.1
Emotional health:		
▪ Affected	62	68.9
▪ Not affected	28	31.1

*Affected: who had a negative impact of UI on quality of life (slight, moderate, severe).

* Not affected: not had a negative impact of UI on quality of life (not at all).

Table (3): Risk factors associated with all urinary incontinence and with its types among the studied women in the medical center in El Kharaga, The New Valley

	Types of Urinary Incontinence							
	All		Urge		Stress		Overflow	
	OR	95%C.I.	OR	95%C.I.	OR	95%C.I.	OR	95%C.I.
▪ Age	1.042	(0.968-1.121)	1.149	(1.054-1.251)	1.065	(0.992-1.143)	1.029	(0.963-1.100)
▪ Postmenopausal	0.363	(0.095-1.387)	0.037	(0.005-0.270)	0.480	(0.129-1.782)	0.357	(0.071-1.790)
▪ Vaginal deliveries	2.588	(1.429-4.689)	1.577	(0.920-2.702)	1.806	(0.935-3.488)	1.885	(1.060-3.351)
▪ DM	3.144	(1.192-8.297)	1.784	(0.698-4.565)	1.864	(0.503-6.908)	0.864	(0.270-2.765)
▪ HTN	2.983	(1.156-7.697)	4.741	(1.929-11.654)	0.785	(0.203-3.034)	1.068	(0.333-3.428)
▪ Chronic cough	4.158	(1.247-13.863)	1.250	(0.408-3.830)	5.837	(1.607-21.201)	1.074	(0.304-3.798)
▪ Constipation	8.156	(2.642-25.176)	1.144	(0.365-3.589)	17.417	(4.778-63.489)	1.267	(0.397-4.048)
▪ Family history	6.227	(2.125-18.246)	1.692	(0.654-4.382)	3.462	(1.106-10.840)	1.426	(0.498-4.083)
▪ Constant	0.003		0.003		0.000		0.006	

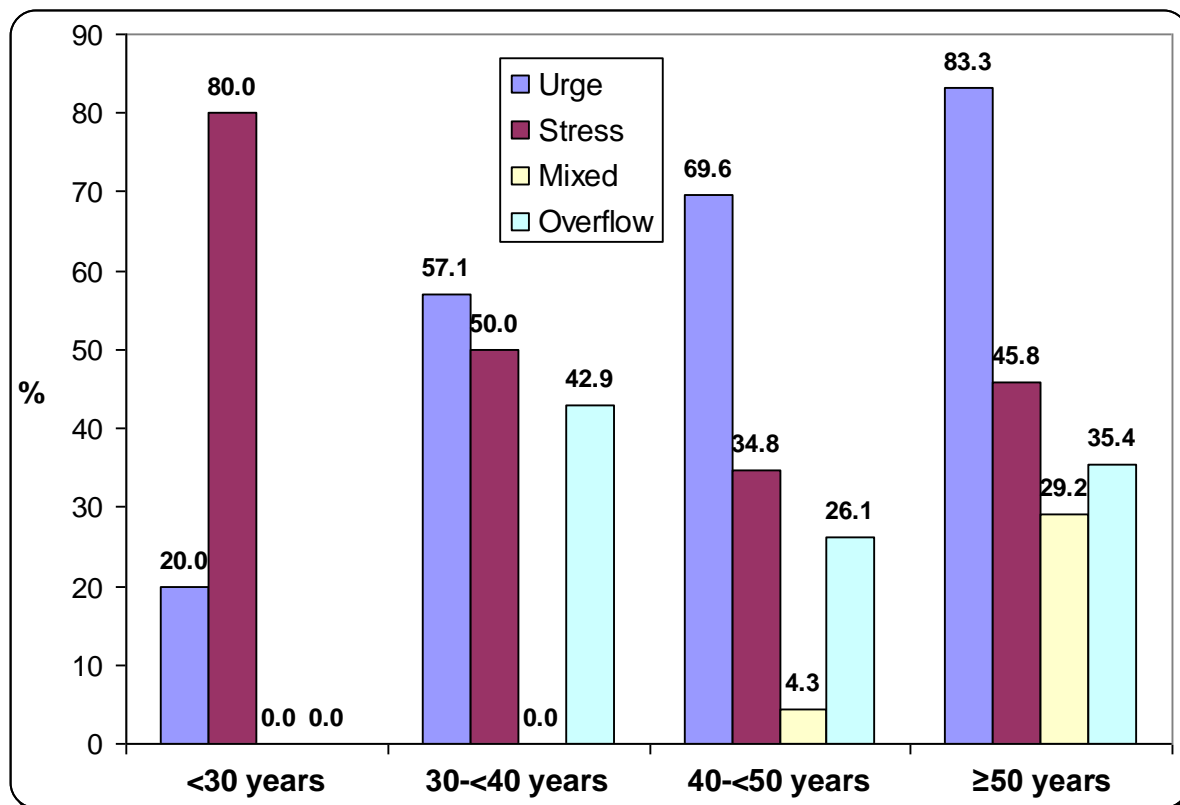


Figure (1): The prevalence of the types of urinary incontinence by age among the incontinent women in the medical center in El Kharaga, The New Valley

*Any given case may have more than one type so total more than 100%.

الملخص العربي

سلس البول لدي النساء المترددات على مركز الرعاية الصحية الأولية -مدينة الخارجة - الوادي الجديد -مصر

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الخلفية العلمية: تحتاج المجتمعات الى سيدات اسوياء جسديا ونفسيا لكي تتقدم ثقافيا واجتماعيا واقتصاديا. ومن هذا المنطلق كان من الضروري التركيز على تحسين صحة المرأة، ورفع مستوى وعيها بمسألة السلس البولي وإعطاء التوجيهات للتحكم فيه. ويهدف هذا البحث الي تقييم مدي انتشار السلس البول بين السيدات فوق ١٨ سنة وتحديد عوامل الخطر له وتقييم مدي تأثيره على نوعية حياة السيدات اللاتي يعانين منه.

منهجية البحث: أجريت هذه الدراسة المقطعية في مدينة الخارجة، محافظة الوادي الجديد، على ٣٢٥ سيدة تزيد أعمارهن عن ١٨ سنة. تم جمع البيانات بواسطة استبيان باللغة العربية وتم جمع البيانات الشخصية والمرضية. **نتائج البحث:** بلغت النسبة المئوية للسلس البول بين السيدات في الخارجة 27.7%. نحن سلس البول الأكثر انتشارا بين السيدات اللاتي يعانين من السلس البولي بنسبة ٧٢% يليه سلس الضغط بمعدل انتشار ٤٥%. وقد كان السلس البولي لدي السيدات المدروسات مرتبطاً بشكل كبير بالسمن ومستوي التعليم وتكرار الولادات خاصة الولادات الطبيعية والإجهاض المتكرر وزيادة وزن المواليد الجدد والسمنة والتهابات الجهاز البولي والأمراض المزمنة والتاريخ المرضي للعائلة بنفس المرض بينما كانت الولادات القيصرية عاملا وقائيا من السلس البولي، ولم يكن هناك علاقة بين السلس البولي وممارسة الرياضة يوميا. أظهرت الدراسة ان السلس البولي أثر تأثيرا سلبيا علي جودة الحياة حيث تأثر ثلثي المرضي نفسيا واجتماعيا وفي انظام الصلاة وتأثر نصفهم تقريبا جسديا.

الاستنتاجات: قد تساعد هذه الدراسة علي زيادة الاهتمام بمشكلة السلس البول وتوصي الدراسة مقدمي الرعاية الصحية الأولية بضرورة تثقيف السكان حول هذه المشكلة.