# Effect of Comprehensive Nursing Interventions on Quality of life among Women with Stress Urinary Incontinence

Asmaa Hamdy Mohammed Thabet[1], Zienab Abd-El-lateef Mohammad[2], Medhat Ahmed Abdalla[3], Hanan Abd-elrazik Abdelall[4]

[1]*Assistant lecturer of Medical-Surgical Nursing, Faculty of Nursing, Assiut University, Egypt.*

[2]*Professor of Medical-Surgical Nursing, Faculty of Nursing, Assiut University, Egypt*

[3]*Professor of Urology, Faculty of Medicine, Assiut University, Egypt.*

[4]*Assisstant Professor of Medical-Surgical Nursing, Faculty of Nursing, Assiut University, Egypt.*

**Abstract:** Stress Urinary Incontinence (SUI) is called a silent epidemic which is not a life threatening condition, but a worldwide problem at the same time which contributes to poor quality of life. Aim: Design, implement comprehensive nursing interventions for adult women with stress urinary incontinence and evaluate the effect of these interventions on improving their quality of life. Quazi experimental research design was utilized to conduct this study. This study was carried out in the Urology and Nephrology Assuit University Hospital and its affiliate Clinic. A sample of 50 adult women, the mean age of studied patients was (42.22±11.84). Two tools were used by the researcher namely: Tool I: A structured interview questionnaire sheet it included two parts, part i: demographic data of patient and part ii: medical& urological data assessment. Tool II: Kings Health Questionnaire (KHQ), it is a standardized questionnaire used to assess the impact of stress urinary incontinence on quality of life. The results showed that the quality of life among adult women with stress urinary incontinence were improved after the implementation of comprehensive nursing interventions with a statistically significance difference ($p<0.05$) in all quality of life domains. . We conclude that provided comprehensive nursing interventions are effective in improving QOL in adult women with SUI. Given the study results, it is recommended that expand of public education efforts through various methods about importance of health educational interventions for appropriate management of stress urinary incontinence among women.

**Keywords:** Stress Urinary Incontinence, Quality of Life, Comprehensive Nursing Interventions, Kings Health Questionnaire.

## 1.INTRODUCTION

Stress Urinary Incontinence SUI is defined by the International Continence Society as the complaint of involuntary leakage of urine with physical exertion, effort, sneezing, straining and coughing. It is reported that about half of women with urinary incontinence UI describe symptoms of stress incontinence. SUI is considered the most common type of urinary incontinence among women [1].

Stress Urinary Incontinence SUI is also called as a silent epidemic which is not a life threatening condition, but a worldwide problem at the same time. Women are at more risk for SUI than men, because of anatomic, social, and cultural status and also because of the effects of pregnancy, and mode of labor [2].

Basic cause of stress urinary incontinence is the weakness of pelvic floor muscles that supporting the proximal urethra. Hence, the intra vesicle pressure exceeds the maximal urethral pressure during exertion which results in increased intra-abdominal pressure. The influencing factors of SUI can be divided into categories that predispose, incite, promote or intervene disorders or change pelvic floor muscle. Predisposing factors such as gender, genetics, and menopause. Inciting factors such as pregnancy, childbirth, pelvic or vaginal surgery that cause damage to the pelvic floor. Promoting factors such as obesity, smoking, constipation, and infection. Finally interventional factors include drug therapies and surgery [3].

Quality of Life QOL is a multidimensional concept which incorporates the social, physical and mental aspects of the individual. QOL also considers a reflection of individual's sense of well-being and satisfaction with life and it

includes dimensions: physical activity, social relationships, travel and emotional health. QOL is affected by experiences in life, medical disabilities, disease, accidents, social interactions, beliefs and expectations [4].

Stress urinary incontinence makes possible impairment in physical and mental wellbeing and thought to have a negative effect on the other domains of QOL. Literally, evidence reveals that SUI exerts a negative impact on multiple components of health related quality of life, including working, emotional and social life, finances, sexual life, self-esteem, and negative impact on activities of daily living ADL [5].

Comprehensive nursing interventions for stress urinary incontinence should start with non-invasive measures because the benefits are associated with limited expense and low risk. Lifestyle modifications including: (controlling chronic constipation, smoking cessation, limited caffeinated, carbonated or diet beverages, avoid heavy lifting, weight loss, frequent intake of small amounts of fluids up to 2 L a day and stop drinking fluids three to four hours before go to bed). Behavioral therapy including: (timed voiding measures, prompted voiding, bladder training and pelvic floor muscle exercises instructions). Literally, psychological support is also important as women with stress urinary incontinence are prone to depression and poor self-esteem so psychological support can improve self-esteem, quality of life and enhance patient satisfaction with the treatment [6].

### 1.1 Significant of the Study

Stress urinary incontinence (SUI) is an enormously common complaint in every part of the world and there is universal agreement about the significance of the problem in terms of human suffering and economic cost [7]. SUI also consider a common problem, it has a significant social, psychological, occupational, sexual, and economic impact, and leading to a substantial decrease in the quality of life [8]. Subsequently, the current research is done to investigate such effect of these interventions among women with stress urinary incontinence that has less quality of life.

## 2.PATIENT AND METHOD

### 2.1. Research Design

A Quasi experimental research design was used on 50 patients, adult women with stress urinary incontinence, patients ranging in age from 20 to 65 years old; all patients were study group and received the deigned nursing instructions. The exclusion were as follow: women who have major illness that may affect quality of life as diabetes mellitus or hypertension, Women with any cognitive problems or psychological disorder affecting on alertness and communication or women with pathological disorders as (spinal injury, stroke, neurogenic bladder).This study was conducted in the Urology and Nephrology Assuit University Hospital and its affiliate Clinic. The investigator chose this outpatient clinic as it serves many patients from all the centers and villages of Assiut Governorate and other governorates**.**

**A structured interview questionnaire sheet** was developed by the investigator after reviewing recent related literature [8, 7, 9, 10, 11] to collect the necessary data related to patients with stress urinary incontinence. It was collected by the researcher at the first interview. It was divided into 2 parts: **Part (1): Demographic data of patient:** this data used to assess demographic data of patients and explore if there is a relation between demographic data of women with stress urinary incontinence and their quality of life. It included 5 items (patient age, marital status, residence, level of education and occupation). **Part (2): Medical & urological data assessment:** This data used to assess medical, urological data and risk factors for patients with stress urinary incontinence. It included 8 items (weight, height, body mass index, present patient complains, medications that may affect urination frequency as antidepressant or anticholinergic drugs, urinary tract infection, kidney or bladder stones, prior pelvic surgery, and risk factors such as obesity, caffeinated fluid intake, fluid intake at night, constipation, number of children, and mode of labor).

**Face validity:** The **questionnaire** was tested for content validity by a jury of 5 experts from related specialties (3 professors in Medical Surgical Nursing and 2 professors in Urology and Nephrology Medicine). The necessary modifications were done accordingly

**Kings Health Questionnaire (KHQ):** it is a standardized questionnaire related to quality of life used to assess the impact of stress urinary incontinence on quality of life it is done by [12] and consists of 21 items, divided into seven domains: general health perception (one item), stress urinary incontinence impact (one item), role limitation (two items), physical / social limitations (four items), personal relationships (four items), emotions (three items) and sleep/ energy (two items). It was done through three 3 times, (the first clinical visit, the second clinical visit after 6 weeks and in the third clinical visit after 3 months). Scoring system of KHQ:1-General Health Perceptions: Very good (1), Good (2), Fair (3), Poor (4), Very poor (5), Score =(Score to Q1 –1)/4) x100, 2-Incontinence Impact: Not at all (1), A little (2), Moderately (3), A lot (4), Score = (Score to Q2 – 1)/3) x 100, 3-Role limitations: Not at all (1), A little (2), Moderately (3), A lot (4), Score = (Scores to Q 3A + 3B) – 2)/6) x 100. 4-Physical limitations: Not at all (1), A little (2), Moderately (3), A lot (4), Score = (Scores to Q 4A + 4B) – 2)/6) x 100, 5-Social limitation: Not at all (1), A little (2), Moderately (3), A lot (4), Score = (Sum of scores to 5A, 5B) - 2/6 x 100, 6-Personal relationships: Not at all (1), A little (2), Moderately (3), A lot (4), Score = If (6A+6B) ≥2: 2 - 0%, 3 - 16.6%, 4 - 33.3%, 5 - 50%, 6 -66.6%, 7 - 83.3%, 8 - 100%. If (6A+6B) = 1: 1 - 0%, 2 - 33.3%, 3 - 66.6%, 4 - 100%. If (6A+6B) = 0, Then treat as missing value, many statistical tools such as SPSS calculate statistics with missing values. 7-Emotions: Not at all (1), A little (2), Moderately (3), A lot (4), Score = (Score to Q 7A + 7B + 7C) – 3) /9) X 100, 8-Sleep / energy: Not at all (1), A little (2), Moderately (3), A lot (4), Score = (Scores to Q 8A + 8B) – 2)/6) x 100, 9-Coping mechanisms (severity measures): Never (1), Sometimes (2), Often (3), All the time (4) Score = (Scores to Q 9A + 9B + 9C + 9D) – 4)/12) x 100. Each domain, ranging from 0 to 100; in that, the higher the score, the worst the quality of life related to that domain. The subscales (“domains”) scored between 0 (best) and 100 (worst).

**The validity of KHQ:** Kings Health Questionnaire (KHQ) was found to have good content validity and feasibility to use in the clinical care [13].

**Reliability of KHQ:** Test-retest reliability was reported and found that KHQ is a reliable tool recommended for use in clinical care of patients with urinary incontinence and suggesting good internal consistency, r = 0.803 [13].

### 2.2. Comprehensive Nursing Interventions

Comprehensive nursing interventions were formulated by the investigator based on patients' assessment needs after reviewing current national and international literature [8, 7, 9, 10, 11] to improve quality of life in women with stress urinary incontinence. Nursing interventions covered the following: life style modifications in order to control the problem included (limited caffeinated beverages, stop drinking fluids three to four hours before go to bed, avoid heavy lifting, weight loss, controlling chronic constipation etc...), behavioral therapies as (bladder training by making a schedule to go to the toilet at determined interval all the day and going to the toilet at these times whether or not feeling the need, pelvic floor muscle exercises by giving information to patients to contract the muscles that used to stop urinating and hold for five seconds, and then relax for five seconds and hold contractions for 10 seconds at a time, biofeedback by giving information also to patients on how contracting their pelvic floor muscles in patients experiencing difficulty in doing pelvic floor exercises), and psychological support as women with stress urinary incontinence are prone to depression and poor self-esteem so psychological support can improve self-esteem, quality of life and enhance patient satisfaction with the treatment.

### 2.3. Data Collection Procedure

An official approval and permission were obtained from the head of the Urology Department to collect the necessary data. Each patient was informed with the purpose of the study to gain cooperation. The researcher emphasized that the participation was voluntary, confidentiality was assured and there was no hazards. Verbal consent was obtained from each patient for her contribution in the present study.

**2.4. Pilot Study**

A pilot study on (10%) 5 women was conducted during August 2022. Its purpose was to assess the feasibility of the study and clarity of the data collection tools. It also helped to estimate the time needed for filling the questionnaire. The data obtained from the pilot study. The pilot study sample was included in the actual study sample because no modifications needed.

**2.5. Procedure:** Data collected in (3) sessions. Each session took about 55 minutes. Topic explanations depending on the level of education of the patients.

**The first session**

It was conducted at outpatient clinic or in the waiting area of the outpatient clinic in the Urology and Nephrology Assuit University Hospital that opened in Tuesday from each week at the morning and afternoon from 9:00 am to 1:00 pm. Each patient was interviewed individually by the researcher. In the first session, the researcher introduced herself to the patients, clarified the nature and the purpose of this study. The researcher collected demographic, medical and urological data of . The researcher also assessed the effect of stress urinary incontinence on quality of life among selected women .Finally the researcher made a demonstration about designed nursing interventions that includes: life style modification (limited caffeinated beverages, stop drinking fluids three to four hours before go to bed, avoid heavy lifting, weight loss, controlling constipation etc...), behavioral therapies such as (pelvic floor muscle exercise, bladder training and biofeedback), psychological support that can improve self-esteem, quality of life and enhance patient satisfaction with the treatment.

After demonstrating the designed nursing interventions, the researcher gave patients (a booklet) prepared in Arabic language including all items of comprehensive nursing interventions and photos to remember them about how to apply these interventions by themselves at their homes. This session took about 55 minutes. At the end of the session, the researcher arranged with patients time and place of the second session if in the outpatient clinic or in phone and a summary was given to patients by the researcher and emphasizing the most important points.

**The second session**

It was conducted at outpatients' clinics in the Urology and Nephrology Assuit University Hospital for women with stress urinary incontinence after arrangement with them in the first session or arrangement through phone for follow up appointment that done in the outpatient clinic if possible or done by phone if the patient couldn't come to the clinic, this session was after 6 weeks from the first session and took about 55 minutes. Before starting of this session, patients were asked questions related to the comprehensive nursing interventions discussed in the previous session to identify their learning achievement. Patients were evaluated the effect of provided interventions on quality of life of patients from in the first session.

**According to the third session;** it also was done in the outpatient clinic if possible or done by phone if the patient couldn't come to the clinic and took about 55 minutes. Patients were also evaluated the effect of provided interventions on quality of life of patients after 3 months from the first session. The implementation of comprehensive nursing interventions took 9 months from the beginning of September 2022 to the end of May 2023.

**Methods of teaching used in sessions:** Lectures, discussion, demonstration, and re-demonstration as a teaching method.

**Media used in teaching:** Pictures and colored booklet.

**2.5. Ethical considerations:**

- Research proposal was approved from Ethical Committee in the Faculty of Nursing.

- There was no risk for study subject during application of the research.
- The study followed common ethical principles in clinical research.
- Oral consent was obtained from patients or guidance that is willing to participate in the study, after explaining the nature and purpose of the study.
- Confidentiality and anonymity was assured.
- Study subject had the right to refuse to participate or withdraw from the study without any rational at any time

### 2.6 Statistical Analysis

Data were analyzed using the statistical package for social science (SPSS) version 20. Numerical data were expressed as means and SD. Quantitative data were expressed as frequency and percentage. For quantitative data; comparison between two variables were done using t-test, and comparison between more than two variables used ANOVA test paired t-test. Relations between different numerical variables were tested using Pearson correlation. Probability (P value) less than 0.05 was considered significant and less than 0.01 was considered highly significant.

## 3.RESULTS

Table (1): Illustrates demographic data of patients with stress urinary incontinence; it clears that 64% of them aged 40-65 years. Concerning marital status; 76% of them were married, also the table reveals that 54% from were from rural areas and were educated. Moreover; 64% of patients were housewives.

Table (2): Clears risk factors of stress urinary incontinence of studied sample; it demonstrates that the most predisposing factors for stress urinary incontinence founded among the studied sample are (obesity, fluid intake at night, caffeine intake, chronic constipation, vaginal delivery, children more than three) with percentages of (78%, 66%, 60%, 58%, 52% & 40%) respectively.

Table (3): Clears medical and urological data of studied sample; it clears that approximately more than two thirds (70 %) of the studied patients suffering from stress urinary incontinence and (28%, 32%, 16%, 2%) were overweight, obesity class I, obesity class II, and extreme obesity respectively. Regarding to present patient complains first reported, it was observed that (50%) of them experienced leaking urine when coughing, sneezing, and laughing. Also the table displays that only (30%, 32%, 8% and 10%) took medications as antidepressants, exposed to urinary tract infection, kidney or bladder stones and Prior pelvic surgery respectively.

Table (4): Reflects that; the quality of life domains among women with stress urinary incontinence were improved after the implementation of comprehensive nursing interventions with a statistically significance difference ($p<0.05$) in all quality of life domains except in the domain of personal relationships in (first visit, after 6 weeks and after 3 months).

Table (5): Shows that; there were a statistically significant differences between total mean average score and standard deviation of Kings Health Questionnaire at pre(first visit)& post(after 6 weeks and after 3 months) selected nursing interventions given ($p=.045$).

Table (6): Describes the relation among the age of the studied women and their QOL domains. It was observed that the age group (40-65 years old) had the higher scores in all QOL domains (worse QOL) there were statistically significant relations in all QOL domains ($p < 0.01$) except for the domains of severity measures.

Table (7): Denotes the relation among health perception of women and their QOL domains .The present study reveals that all QOL domains scores were higher in the group of women who described their health as poor and very poor (worse QOL) There were a statistically significant relations in all QOL domains ($p < 0.05$).

Figure (1): Clears that; there was positive correlation between total quality of life domains and age of the studied sample ($r = 0.350$, $p = 0.001$).

Figure (2): Clears that; there was positive correlation between total quality of life domains and educational level of the studied sample ($r = 0.413$, $p = 0.001$).

**Table (1): Frequency and percentage distribution of studied sample according to their demographic characteristics (n=50).**

| Characteristic | (n= 50) | % |
|---|---|---|
| **Age:** | | |
| 20<40years | 18 | 36 |
| 40<65years | 32 | 64 |
| **Mean ± SD** | 42.22±11.84 | |
| **Marital status:** | | |
| Single | 12 | 24 |
| Married | 38 | 76 |
| **Residence** | | |
| Urban | 23 | 46 |
| Rural | 27 | 54 |
| **Educational level:** | | |
| Non educated | 23 | 46 |
| Educated | 27 | 54 |
| **Occupation** | | |
| Working | 18 | 36 |
| House wife | 32 | 64 |

**Table (2): Frequency and percentage distribution of studied sample according to risk factors of stress urinary incontinence (n=50).**

| Characteristic | (n= 50) | % |
|---|---|---|
| **Obesity** | | |
| Yes | 39 | 78 |
| No | 11 | 22 |
| **Caffeine fluid intake** | | |
| More | 30 | 60 |
| Less | 20 | 40 |
| **Fluid intake at night** | | |
| More | 33 | 66 |
| Less | 17 | 34 |
| **Chronic constipation** | | |
| Yes | 29 | 58 |
| No | 21 | 42 |
| **Number of children** | | |
| NO children | 13 | 26 |
| Two children | 7 | 14 |
| Three children | 20 | 40 |
| Four children | 7 | 14 |
| Five children | 3 | 6 |
| **Mode of labor** | | |
| Vaginal labor | 26 | 52 |
| Cesarean section | 12 | 24 |
| No labor | 12 | 24 |

**Table (3): Frequency and percentage distribution of studied sample according to their medical and urological data (n=50).**

| Characteristic | (n= 50) | % |
|---|---|---|
| **Body mass index** | | |
| < 18.5 under weight | 1 | 2 |
| 18.5-24.9 normal weight | 10 | 20 |
| 25-29.9 over weight | 14 | 28 |
| 30 -34.9 obesity class I | 16 | 32 |
| 35 - 39.9 obesity class II | 8 | 16 |
| > 40 Extreme obesity | 1 | 2 |
| **Present patient complains** | | |
| Leaking urine when coughing, sneezing, laughing | 25 | 50 |
| Lower abdominal pain | 7 | 14 |
| Frequent nocturnal leakage | 6 | 12 |
| Post void residual volume | 7 | 14 |
| Usually worse standing than supine | 5 | 10 |
| **Medications that may affect urination frequency as antidepressant or anticholinergic drugs:** | | |
| Yes | 15 | 30 |
| No | 35 | 70 |
| **Urinary tract infection** | | |
| Yes | 16 | 32 |
| No | 34 | 68 |
| **kidney or bladder stones** | | |
| Yes | 4 | 8 |
| No | 46 | 92 |
| **Proir pelvic surgery** | | |
| Yes | 5 | 10 |
| No | 45 | 90 |

**Table (4): Comparison between studied sample before and after the implementation of comprehensive nursing interventions regarding Kings Health Questionnaire (KHQ) (n=50).**

| Variable | Kings Health Questionnaire (KHQ) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | First visit | | After 6 weeks | | After 3 months | | F | Sig. |
| | Mean | SD | Mean | SD | Mean | SD | | |
| General health perception | 2.800 | 0.808 | 2.22 | 0.464 | 2.100 | 0.543 | 18.044 | 0.001* |
| Incontinence impact | 2.180 | 0.940 | 1.980 | 0.844 | 1.940 | 0.818 | 1.093 | 0.028* |
| Role limitation | 4.640 | 1.257 | 4.240 | 1.270 | 2.00 | 6.00 | 11.84 | 0.001* |
| Physical limitation | 4.640 | 1.410 | 4.340 | 1.334 | 3.540 | 1.44 | 8.276 | 0.001* |
| Social limitation | 4.460 | 1.487 | 4.320 | 1.361 | 3.200 | 1.564 | 10.979 | 0.001* |
| Personal relationships | 4.340 | 2.479 | 4.020 | 2.543 | 3.360 | 1.881 | 2.318 | 0.102 ns |
| Emotions | 6.680 | 1.878 | 5.700 | 2.533 | 4.700 | 2.887 | 8.041 | 0.001* |
| Sleep/Energy | 4.220 | 1.313 | 3.880 | 1.379 | 3.400 | 1.603 | 4.106 | 0.018* |
| Severity measures | 5.980 | 2.889 | 9.060 | 1.952 | 9.060 | 2.226 | 27.714 | 0.001* |

*** p≤0.05 (significant)**

**Table (5): Comparison between studied sample before and after the implementation of comprehensive nursing interventions regarding mean and standard deviation of Kings Health Questionnaire (KHQ) (n=50).**

| Variables | Kings Health Questionnaire (KHQ) | | | P.value |
|---|---|---|---|---|
| | first visit | After 6 weeks | After 3 months | |
| Mean | 39.9400 | 39.7600 | 34.6600 | 0.045* |
| Std. Deviation | 11.73241 | 11.56271 | 12.46810 | |

*** p≤0.05 (significant)**

**Table (6): Relation among age of patients and their quality of life domains (n=50)**

| Quality of life domains | Age | | | | T | P .value |
|---|---|---|---|---|---|---|
| | 20-40 years | | 40-65 years | | | |
| | Mean | SD | Mean | SD | | |
| Role limitation | 3.4815 | 1.53869 | 4.4167 | 1.27045 | -4.006 | 0.001* |
| Physical limitation | 3.3704 | 1.58169 | 4.6250 | 1.18099 | -5.511 | 0.001* |
| Social limitation | 3.2593 | 1.56838 | 4.4063 | 1.41851 | -4.575 | 0.001* |
| Personal relationships | 2.6111 | 2.02267 | 4.6354 | 2.19626 | -5.572 | 0.001* |
| Emotions | 5.0370 | 2.75382 | 6.0625 | 2.41841 | -2.370 | 0.019* |
| Sleep/Energy | 3.1111 | 1.62140 | 4.2396 | 1.20302 | -4.851 | 0.001* |
| Severity measures | 8.0741 | 2.61961 | 8.0104 | 2.88552 | 0.134 | 0.894 |
| Total QOL | 32.6296 | 11.76868 | 41.2083 | 11.20518 | -4.420 | 0.001* |

*** p≤0.05 (significant)**

**Table (7): Relation among health perception of patients and quality of life domains (n=50).**

| Quality of life domains | Health perception | | | | F | P.value |
|---|---|---|---|---|---|---|
| | Good | Fair | Poor | Very poor | | |
| | M±SD | M±SD | M±SD | M±SD | | |
| Role limitation | 3.000±1.414 | 3.625±0.500 | 5.363±1.135 | 5.000±1.05 | 12.41 | 0.001* |
| Physical limitation | 3.500±0.707 | 3.562±1.314 | 5.363±1.135 | 5.000±1.054 | 8.204 | 0.001* |
| Social limitation | 4.000±2.828 | 3.2500±1.00 | 5.136±1.355 | 5.000±1.054 | 7.888 | 0.001* |
| Personal relationships | 3.000±2.828 | 3.1875±2.136 | 4.3182±2.079 | 6.5000±2.635 | 4.773 | 0.006* |

| | | | | | | |
|---|---|---|---|---|---|---|
| Emotions | 3.0000±4.424 | 6.0000±.0000 | 7.1364±2.030 | 7.5000±1.581 | 5.524 | 0.003* |
| Sleep/Energy | 3.500±2.121 | 3.250±1.290 | 4.863±1.125 | 4.500±0.527 | 6.801 | 0.001* |
| Severity measures | 4.000±1.412 | 4.625±0.957 | 6.681±3.932 | 7.000±1.054 | 2.557 | 0.067* |
| Total QOL | 26.500±13.43 | 30.500±6.05 | 44.590±10.8 | 39.940±11.7 | 11.11 | 0.001* |

*** p≤0.05 (significant)**

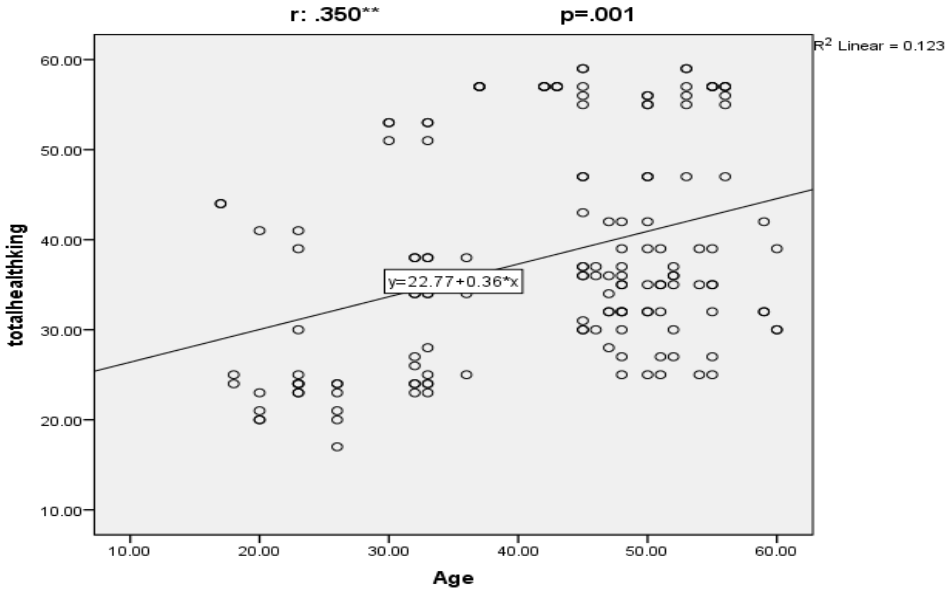


**Figure 1.** Correlation between total quality of life domains (KHQ) and age among the studied Sample (n=50).

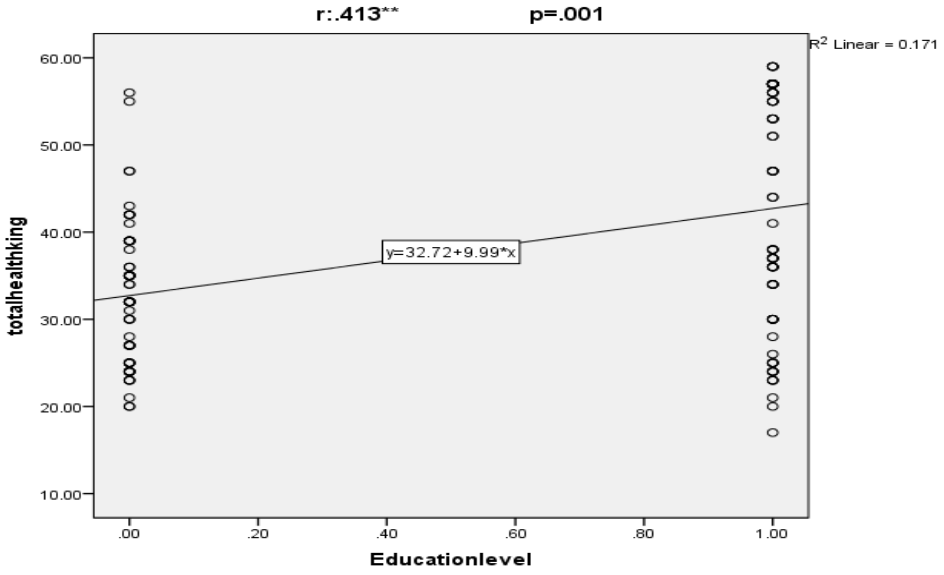


**Figure 2.** Correlation between total quality of life domains (KHQ) and educational level among the studied Sample (n=50).

## 4. DISCUSSION

Stress urinary incontinence (SUI) is defined as the involuntary leakage of urine with exertion such as coughing, sneezing, and laughing. An increase in abdominal pressure due to physical exertion places stress on the bladder, causing urine to leak. There are several risk factors associated with stress urinary incontinence include; advanced age, higher parity, menopause, obesity, heavy lifting at work, chronic cough or constipation, family history, lifestyle and dietary habits [14].

Although stress urinary incontinence is not a life-threatening disease, but the loss of bladder control can affect many aspects of life; physical, psychological, social, occupational, and sexual aspects on women. So stress urinary incontinence associated with a profound negative impact on the quality of life [11].

**The discussion covers the main results finding as follow:**

**As regarding to the demographic characteristics of the studied sample:**

Concerning the age in the present study, it was found that nearly two thirds of the studied sample their age ranged from 40 to 65 years. This was in the same line with **[15],** who reported that in their study about half cases of stress urinary incontinence were in the age group of beyond 50 years. However, this finding disagreed with [16] they reported that more than half of the studied sample age ranged between 70 to 79 years as from their point of view aging process is associated with many changes in the urinary tract that may lead to weakness of bladder muscle strength, and reduce bladder capacity so decreased bladder volume and a need for more frequent bladder emptying (urinary frequency).

The current study revealed that, about two thirds of the studied sample was married this may be related to previous number of pregnancies and labor**. These** results were matching with [17] who stated that the majority of their studied women were married.

In relation to the residence, the present study findings reported that more than half of the studied sample was living in rural areas. This finding was consistent with the finding of a study done by [7] they reported that highest percentage of stress urinary incontinence among studied women from a rural area. While this finding was mismatching with [18] who reported that the majority of the studied group were from urban area. From the researcher point of view, the women from the rural areas might be working in the farm, carry heavy object, and delivered more children because of culture in rural area encourages increased number of children.

Regarding the educational level; the present study findings showed that more than half of the studied sample has various levels of education. This matched with [19] **who** found that; women who were educated (read and write) done more visits to outpatient clinics than do the illiterate women. These outcomes were mismatching with [20] who showed that most participants were illiterate. From the researcher point of view; this can be act as a reason that educated women with (SUI) done more visit to outpatient clinics and insisted on getting cured to have normal life than do the illiterate women.

Concerning to occupation of the studied women, approximately two thirds of women were housewives. [21] is congruent with such result, who mentioned that around two thirds of studied patients were housewives. [22] were mismatching with the results of the current study they reported that more than half of the studied sample were working. From the researcher point of view, housewives have poor ways of coping with the disease and feeling embarrassed of urine leakage during their house work hours.

**As regarding to the risk factors of stress urinary incontinence that reported by the studied sample:**

The present finings indicated that the most predisposing factors for stress urinary incontinence among the studied sample are (Fluid intake at night, caffeine intake, choric constipation, obesity, vaginal delivery, children more than

three). This matching with [23] who demonstrated increased episodes of (SUI) among women who drink caffeinated beverages and discussed as such fluids can irritate the bladder.

According to risk factors of urinary incontinence among the studied participants, the current study revealed that more than half of the studied sample suffering from chronic constipation. This matching with [21] who demonstrated that more than half of the studied sample suffering from chronic constipation. From the researcher point of view; chronic constipation can lead to staining which results in increasing intra-abdominal pressure & leakage of urine.

As regards to mode of labor (delivery) and number of children the current study revealed that (SUI) was more prevalent among women who were delivered vaginally than those delivered by cesarean section. This finding is relatively just like [24] who reported that stress urinary incontinence is caused by pregnancy, and there was strong positive correlation between total number of pregnancies and urinary incontinence. This also consistent with [5] who stated that factors increasing the prevalence of stress urinary incontinence among Americans women after vaginal delivery include damage to the pubouretheral ligaments and the voluntary external urethral sphincter with its motor supply. These results are supported by [25] who were found that mode of delivery has significant impact on women life as there is increased likelihood of stress urinary incontinence and fecal incontinence in women undergoing vaginal delivery.

**As regarding to the medical and urological data of the studied sample:**

As regard to the body mass index (BMI) of women in the present study, it was found that around one third of the studied women fall in category of overweight their body mass index was between (25-30 kg/m²) and about another one third fall in category of obesity class I where their body mass index was between (30-35 kg/m²). Similarly [26] who mentioned that high BMI is correlated with higher UI chances, and leakage drops incontinence alone. Moreover [27] reported substantial correlation between a greater incidence of stress urinary incontinence and obesity (higher BMI). [15], were mismatching with the results of the current study they reported that more than two thirds of the studied women fall in category of normal weight their body mass index was between (18-25 kg/m). From the researcher point of view; obesity can increase intra-abdominal and bladder pressure that occurs with increased BMI so it considered being a factor that promotes (SUI).

As regard to present patient complain of stress urinary incontinence reported by studied women, it was found that around one half of the studied women suffered from leaking urine when coughing, sneezing and laughing this finding matching with [3] is congruent with such result, who mentioned that the greatest episode of urinary incontinence was linked to coughing, laughing or sneezing.

In relation to medications that may affect urination frequency among the studied sample as antidepressant or anticholinergic drugs, the present study revealed only one fifth of the studied women were took these medications. [21] were inconsistent with the current study they reported that more than two thirds of their studied sample took these medications.

The current results reflect that, about less than one third of the studied sample suffered from urinary tract infection and prior pelvic surgery. This matching with **[21],** who reported that only 16.5% of their studied sample suffered from urinary tract infection**.** [15] were mismatching with the results of the current study they reported that about two thirds of the studied women suffered from urinary tract infection and prior pelvic surgery.

**As regarding to quality of life of studied sample before and after the implementation of comprehensive nursing interventions:**

The current results reflect that; the quality of life among women with stress urinary incontinence was improved after the implementation of comprehensive nursing interventions and also shows that there were statistically significant differences between total mean average score and standard deviation of quality of life domains at pre & post giving designed interventions. [3] Showed that twelve weeks of Kegel's exercise elucidate statistically

significant increase in pelvic floor muscle strength. On the other hand, [5] found that; it takes near fifteen weeks of regular Kegel exercise for result on (SUI) to be noticeable.

**As regarding to the relation between patient's age and their quality of life domains:**

As regarding to the incontinent women's age and their QOL; the current study showed that women category between 40-65 years old had the higher scores in all QOL domains (worse QOL) except the domains of the severity measures (coping mechanisms). These results were matching with [28] who stated that; the women category between 50-60 years old had the higher scores in all QOL domains (worse QOL) except the domains of the bladder problems and the total QOL where the age group (more than 60 years old) had the higher scores (worse QOL), However [29] stated that; the highest scored category is between (60-80) years with medical history, As old people have more than one disease which affect their general health.

## CONCLUSIONS

In the light of the present study results, it can be concluded that; comprehensive nursing interventions as life style modification, behavioral therapies (pelvic floor muscle exercise, bladder training, and biofeedback), and psychological support are significantly improving the QOL of those women which consider a vital indicator of their psychosomatic, emotional, and social functions. We **recommended that,** health professionals should kept up to date by how much SUI is affecting the patient's quality of life and provide emotional support, breaking the stigma associated with loss of urine and control.

## AUTHOR CONTRIBUTIONS

Study concept and design: Asmaa Hamdy Mohammed

Data analysis: Asmaa Hamdy Mohammed, Zienab Abd-El-lateef Mohammad, Medhat Ahmed Abdalla, Hanan Abd-elrazik Abdelall

Critical revision of the manuscript: Zienab Abd-El-lateef Mohammad, Medhat Ahmed Abdalla, Hanan Abd-elrazik Abdelall

## CONFLICTS OF INTEREST

Authors declare no conflict of interest

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