

## Health Education Intervention for Controlling of Stress Urinary Incontinence among Elderly Women at Zagazig City

Reda El-Sayed El Badawy <sup>(1)</sup>, Salwa Abbas Ali Hassan <sup>(2)</sup>,  
Amany Rashed Abo El-Seoud <sup>(3)</sup> & Eman Shokry Abd Allah <sup>(4)</sup>

<sup>(1)</sup>Assistant lecturer of community health nursing, faculty of nursing, Zagazig University, <sup>(2)</sup> Professor of community health nursing, Faculty of nursing, Zagazig University, <sup>(3)</sup>Professor of community Medicine, Faculty of medicine, Zagazig University, <sup>(4)</sup>Assistant Professor of community health nursing, Faculty of nursing, Zagazig University

### Abstract:

**Background:** Urinary incontinence is the involuntary or uncontrolled loss of urine from the bladder. Stress incontinence is the most common types of urinary incontinence. **The aims of the study:** to evaluate the interventional study for controlling of stress urinary incontinence among elderly women; **Research design** Quasi- Experimental design was utilized in this study. **Setting:** the geriatric social club at Zagazig City. **Sample;** a purposive sample composed of 80 elderly women complain from stress urinary incontinence. **Tools used in the present study were;** an interview questionnaire sheet which composed of five parts The first part entails data about socio-demographic characteristics of the elderly women, the second part composed of questions to collect data about medical, obstetric, and problem of urinary incontinence history, the third part covered the women's knowledge about urinary Incontinence problem, the fourth part covered daily living activities and, level of independence. , and the fifth part deal with the psychological impact of urinary incontinence on the elderly women, and voiding training record. **Results;** of the current study revealed that more than half of elderly women with stress urinary incontinence aged 65 years, with a statistically significant difference was found between both groups (p- value= 0.001). More than half of the studied group reported that there were improvement, and nearly all of control group reported no improvement after the intervention of the health program. **Conclusion;** the health education, and training program improve stress urinary incontinence knowledge among the study group, and more than half of them reported their condition improved post health education intervention. **The study recommended that;** provide geriatric, social club, clinic with necessary education media about urinary incontinence, and implement practice session for kegel exercise.

**Keywords:** Stress urinary incontinence, Elderly women, Health education.

### Introduction:

Aging is a normal process of time, related to changes beings with birth and continues throughout life .Older adulthood traditionally begins after retirement, usually between 65 and 75 years of age. <sup>(1)</sup> Furthermore, elderly age have many problems that affect their health, special problems with incontinence because of many changes may occur in the lower urinary tract due to aging, physical limitation and the environments in which they live. <sup>(2)</sup>

Urinary incontinence is the involuntary or uncontrolled loss of urine from the bladder. Urinary incontinence affects people of all ages but particularly in elderly people. It is not a disease in itself, but a symptom of many different disease processes. Incontinence can be classified according to the mechanism causing the leakage of urine or according to the type of symptoms. The main types of urinary incontinence are" Stress

urinary incontinence, urge incontinence, overflows incontinence".<sup>(3)</sup>

Stress incontinence (SUI) is the most common type of urinary incontinence which is defined as involuntary leakage of urine on effort or exertion, or on sneezing, coughing, laughing, standing up, aerobic exercise (playing ball), and pelvic muscle weakness.<sup>(4)</sup> There are several factors that increase the risk of stress urinary incontinence such as pregnancy and childbirth in which the increasing weight of the developing baby in pregnancy exerts increased stress on the pelvic floor. Furthermore, the hormone, relaxing, which is produced in pregnancy, softens the pelvic floor muscles in preparation for childbirth. These changes result in stress urinary incontinence (SUI) in about half of all pregnant women. Also the other causes of urinary incontinence in women include, Menopause, spinal cord injury, excessive caffeine intake, and as side effects of drugs.<sup>(5)</sup>

Stress urinary incontinence (SUI) is a very common problem in all age group but most frequently in elderly women.<sup>(6)</sup> On addition stress urinary incontinence (SUI) reduced social and mental well-being such as loss of self-esteem, impaired body image, decreases their ability to maintain an independent life style, social isolation, and clothing may become wet with urine which leads to embarrassment, in particular fear of unpleasant odor and sometimes sexual difficulties.<sup>(7)</sup>

Pelvic muscle exercises, known as Kegal exercises these exercises strengthen the muscles of the pelvic floor, thereby improving urethral resistance and urinary control. Kegal exercises need to be performed 30 to 80 times a day for at least 6 weeks to be effective. Kegal exercises are helpful for women with stress urinary

incontinence rates vary from 31 to 91 percent.<sup>(8)</sup>

In this area the nurse can make a significant contribution to the comfort, dignity, and wellbeing of those who come into her care from stress incontinence condition.<sup>(6)</sup>

### **Significance of the study:**

Urinary incontinence is a significant health problem with serious physical, psychological, and social consequence, particularly among elderly women. Approximately 13 million people in United State suffer from urinary incontinence, with prevalence of stress urinary incontinence (SUI) varying between 10% and 30% in women between the age 15 and 64 years<sup>(9)</sup>, as well as the prevalence of urinary incontinence in Egypt was 54.8% for all cases, and 14.8% of them suffer from stress urinary incontinence (SUI).<sup>(10)</sup> The majority of incontinent women had symptoms of depression, isolation, low self –esteem, a negative effect on social activities, and the percentage of women having satisfactory knowledge is very low. So that they need a health education intervention to improve their self-care practices for management of incontinence problem and to improve their quality of life.

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

Assess the effect of health education intervention for controlling of stress urinary incontinence among elderly women through:

1. Assess elderly knowledge, and practice about physical and psychological complaints associated with stress urinary incontinence.
2. Develop, and evaluate of the effect of health education and training program for controlling stress urinary incontinence among elderly women.

**Hypothesis:**

Health education and training program improve stress urinary incontinence among elderly women attended social geriatric club at zagazig city.

**Subjects and methods:**

**Research-design:**

A quasi- Experimental design was used in conducting the study.

**Sample size:**

Population size is 2000 in club. Expected worse 30-40% frequency. Confidence level 95%. Sample size would be 80 elderly.

A purposive sample composed of 80 elderly women complains from stress urinary incontinence, they were divided into two equal groups randomly (40 as study group & 40 as control group), to assess their knowledge, and physiopsychological complains pertaining to stress urinary incontinence, and having the following inclusion criteria:

- Age: 60-80 years.
- Independent in performing their daily activity.
- Free from diabetic and renal disease.
- Not take any treatment for urinary incontinence.

**Setting:**

The study was conducted at the geriatric social club in Zagazig City; it is one of two geriatric social clubs present at Zagazig city.

**Tools of data collection:**

**I-An interview questionnaire:**

composed of five parts:

**The first part:** Entails data about general characteristic of the study sample such as (age, education level, occupation, residence, marital status, family size, income, crowding index, and social class).

**The second part:** collection data regarding medical, obstetric, and urinary incontinence history.

- A. Composed of questions to collect data about medical history (past and present history), such as, presence of chronic disease, presence of gastrointestinal disease, and Taking of regular medication.
- B. Obstetric history such as, number of gravidity, parity, and abortion, mode of deliveries, and labour complication.....etc.
- C. Problem of urinary incontinence history, which covered duration of illness, frequency and time of occurrence, dribbling of urine, timing (day and night), quantity of dribbling urine, direct cause of incontinence, and action taken regarding to dribbling urine.

**The third part:** Knowledge about urinary incontinence which Consisted of questions cover the women knowledge about urinary Incontinence problem (pre –post test for mate) such as (definition, types, causes .....etc).

**The fourth part:** It was used after modification of Kan <sup>(11)</sup> to cover daily living activities and the extent of independence in their achievement such as, personal hygiene activities, and home chore.

**The fifth part:** Deal with the psychological impact of urinary incontinence on the elderly women. <sup>(12)</sup>

**II- Voiding training record:**

Especially designed for elderly women. <sup>(13)</sup> The record starts at 7 AM and is completed at 7PM for seven days. Woman has to check every 2 hours items related to wetting underwear's. The record will fill out for week preceding the intervention, and will repeat during the last week of the six-month intervention of health education and training exercises.

**\*Outcome assessment sheet:** The elderly used to self assessment of her condition of urinary incontinence post intervention, and provocation test grade.

**Validity and reliability:**

The tool was distributed among group of experts (five in the field of community health nursing), and (two urologists) .No modification reported by experts.

The reliability for three scales, and knowledge of these tools was tested through measuring its internal Consistency. It demonstrated a good level of reliability as following:

| SCALE                         | CRONBACH ALPH COEFFICIENT |
|-------------------------------|---------------------------|
| - Knowledge                   | 0.92                      |
| - Daily living activity       | 0.84                      |
| - Psychological questionnaire | 0.81                      |
| - Social questionnaire        | 0.87                      |

**Field work:**

**Health education intervention**

The intervention was developed through four phases as the following:

1. **Assessment phase:** Pre –test to specify the women's problem, determine the baseline of knowledge, and build up a health education intervention program.
2. **Planning phase:** After determining objectives of the program, the content was selected after careful study of the elderly women with stress urinary incontinence needs. The subject materials were organized according to priority of the need.
3. **Implementation phase:** A health education intervention about self care and bladder training (Kegals exercise) according to Eberso and Hess<sup>(14)</sup> has implemented for elderly women

having stress urinary incontinence to strengthen the pelvic floor muscles.

The educational program was offered to the study group, the program duration was six months, they were divided into 4 groups, and each group consists of 10 women. The program was divided into 12 sessions; each section took 30-45 minutes, and was applied twice per week, and covered the following:

- Session (1) focused on anatomy of urinary system.
- Session (2) focused on knowledge about stress urinary incontinence.
- Session (3) focused on knowledge concerning the impact of stress urinary incontinence in women.
- Session (4) focused on knowledge regarding personal hygiene for protection against stress urinary incontinence.
- Session (5) focused on continues knowledge regarding personal hygiene for protection against stress urinary incontinence (SUI).
- Session (6) focused on healthy nutrition for control of stress urinary incontinence.
- Session (7) focused on knowledge for prevention of constipation.
- Session (8) focused on knowledge regarding foods and fluids that should be prevented
- Session (9) focused on knowledge for reduction problem of stress urinary incontinence.
- Session (10) focused on continues health education for reduction problem of stress urinary incontinence (SUI).
- Session (11) focused on knowledge concerning the management problem of stress urinary incontinence (SUI).
- Session (12) focused on knowledge concerning the management problem of stress urinary incontinence (SUI) through Kegel exercise.

**4. Evaluation phase:** Post – test after intervention of the health education, and follow up (4 months later), which include:

- **Subjective evaluation:** according to Hahn et al.,<sup>(15)</sup> Subjective evaluation by asking the patient about her condition after intervention. The patient was assessed as cured, improved, unchanged or worse.
- **Provocation test:** According Hahn & Fall <sup>(16)</sup> the patient was not permitted to void for 1 to 2 hours prior to the start of the test.

**Pilot study:**

A pilot study was carried on 10% women having urinary incontinence, who attended geriatric social club at Zagazig City, and those were excluded in the study subject sample, the sample was used to test applicability and clarity of the tool of data collection, and estimating the time needed for assessment, and intervention.

**Administrative and ethical consideration:**

Permission to conduct the study was obtained by submission of an official letter issued from the Dean of the Faculty of Nursing at Zagazig University to the directors of the geriatric social club at Zagazig City. The agreement for participation of the subjects was taken after the aim of the study explained to them, they were given an opportunity to refuse to participate, and also they were assured that the information would be confidential and used for the research purpose only.

**Statistical design:**

Data entry and statistical analysis were done using SPSS 14.0 statistical software package. Qualitative categorical variables were compared using chi-square test. Whenever the expected values in one or more of the cells in a 2x2 tables was less than 5, Fisher exact test was used instead. In

larger than 2x2 cross-tables, no test could be applied whenever the expected value in 10% or more of the cells was less than 5. Statistical significance was considered at p-value <0.05.

**Results:**

**Table (1):** shows that the mean age of (studied & control) groups were (65.5±3.5 years & 64.6±4.5 years) respectively. The majority (97.5%) of the studied group from urban area, and 57.5% of control group. Also 10% of studied group and 45% of control group were illiterate, while 52.5% of studied group and 30% of control group had university education. The table also shows 40% of studied group and about three fourths (77.5%) of control group were housewife.

The table also indicates that 35% of studied group, and 12.5% of control group lived alone. More than half (55%) of studied group and quarter (25%) of control group belonged to high social class, and the 15% of studied group and more half (52.5%) of control group belonged to low social class. the difference between two groups where statistical significant difference (P = 0.001).

**Table (2):** reveals that 85% & 75% of both study, and control group respectively they delivered at home, and 12.5% & 25% of both study, and control group respectively reported they suffered from prolonged obstructed last delivery. The table also reveals that the lowest percentage (7.5%) of each group received hormonal therapy.

**Table (3):** Shows that the highest percentage of urinary dribbled as reported by study and control group (65% & 85%) respectively were coughing .While the lower percentage was due to leaf ting heavy weight (7.5% & 15%) respectively.

**Table (4):** illustrates that the percentage distribution of action taken

for stress urinary incontinence (SUI) among women in the studied and control groups. This table presents the highest percentage (35%) of studied group was decreased tea /coffee intake and consulted doctor as action taken for controlling (SUI). Half of control group not has taken action due to their embarrassment.

**Figure (1):** indicates statistical significant improvement in elderly women level of knowledge post health education intervention ( $P < 0.001$ ).

**Tables (5):** reveals that the elderly women reported they decrease frequency of drinking tea post program .The difference between their habits regarding drinking tea pre- post intervention was statistically high significant ( $P = 0.002$ ). Also they decreased the frequency of drinking coffee and soda post intervention but the difference between pre and post educational intervention was statistically insignificant (0.14 , 0.09 respectively).

Concerning drinking water in the evening before program 55% reported they drink water at evening and decreased to reach 30% post program the difference was statistically significant ( $P = 0.02$ ).

**Figure (2):** illustrates that mean of wetting underwear among studied and control groups one week before intervention. This figure shows that highest mean of wetting underwear among studied group was ( $1.4 \pm 0.8$ ) at 7 AM, compared to ( $1.7 \pm 0.9$ ) among control group, at 1 PM. This figure also reported that the lowest mean of wetting underwear among studied group was ( $0.2 \pm 0.4$ ) at 7 PM, but among control group it was ( $0.4 \pm 0.9$ ) in the same time. The total number of days/week wetting under wear in studied and control groups, and week before health education intervention were ( $5.1 \pm 1.8$  &  $9.2 \pm 2.9$ ) respectively.

**Figure (3):** presents the mean of wetting underwear among studied and control groups one week after intervention. This figure illustrate that decreased of mean of wetting underwear among studied group to ( $0.5 \pm 0.6$ ) at 9 AM, and 11, 1, 3 PM compared with before intervention program. But among control group it was noticed an increase of wetting underwear after intervention at 5 and 7 PM with mean ( $1.4 \pm 1.1$  &  $0.6 \pm 0.9$ ) respectively. Total number of days/week wetting under wear in studied and control groups after implementation of program were improved to ( $3.9 \pm 1.9$  &  $8.4 \pm 2.7$ ) respectively.

**Table (6):** indicates that more than half (65%) of study group reported that there was improvement, and approximately all (97.5%) of the control group reported no improvement, significant statistically difference between the two group (study & control) with p-value = 0,001.

Regarding to provocation test grade after implementation health education program 47.5% of studied group had few drops of urine leakage, and 67.5% in control group had moderate amount of urine leakage. With significant statistically difference present between the two group (study & control) p-value = 0,001.

#### **Discussion:**

Regarding to age the current study revealed that more than half of study and control group, their age ranged from 70-80 years suffered from stress urinary incontinence. In the same line with study conducted by El-Sayied<sup>(10)</sup> in out patient geriatric clinic at Ain Shames University who reported that 33% of female attended to clinic ,and suffered from stress urinary incontinence were in the age group 50 years ,and above ,and the same finding was reported by Taha<sup>(17)</sup> in his study carried at Manoufiya University.

Approximately 13 million people in United State suffer from urinary incontinence, with prevalence of stress urinary incontinence (SUI) varying between 10% and 30% in woman between the age 15 and 64 years. From researcher point of view aging process associated with many changes in body organs, and also urinary tract in addition pregnancy, and reported delivery may lead to weakness of urinary tract muscles.<sup>(9)</sup>

The majority of the studied group and nearly half of control group were from urban area, this finding was contradicting with Taha<sup>(17)</sup> pointed that highest percentage of stress urinary incontinence among women especially those from a rural area. The women from rural area might be working in the farm, and carry heavy object, and delivered more children because culture in rural area encourages increased number of children.

As regarding to education the current study showed that one quarter of studied group, and less than half of control group were illiterate. This result disagree with study done in Virginia by Join<sup>(18)</sup> Stated that there was a significant relation between the prevalence of stress urinary incontinence ,and illiterate women ,this rational is that women with (SUI) don't think that they are need in medical advice.

The current study findings revealed that 40% of studied group and about three fourths of control group was housewife. Taha<sup>(17)</sup> supported this result, and stated that there was a significant relation between the prevalence of (SUI) and unemployed female among Menoufiya women .One the same way, the prevalence of (SUI) increases with high impact physical activities among Americans women. This could be explained by the largest physical effort sustained by these

unemployed women during their daily activities at home.<sup>(18)</sup>

As regards to mode of delivery Bogner et al.,<sup>(19)</sup> stated that factors increasing the prevalence of stress urinary incontinence among Americans women after vaginal delivery include damage to the pubourethral ligaments ,and the voluntary external urethral sphincter with its motor supply. this is agree with the current study finding which showed that (SUI) was more prevalent among women who were delivered vaginally than those delivered by Cesarean section (table 2) .This also consistent with Kelly and Vichayavilas<sup>(20)</sup> Done study in a England who mentioned that Cesarean section appears to be protective especially if the women does not labour before vaginally. That is might be because vaginal delivery can damage bladder nerves, and supportive tissue, also may occur obstructed labor, and perineal laceration may occure, and this main causes of stress urinary incontinence.

Regarding to precipitating factors of stress urinary incontinence table (3) revealed that higher percentage among studied and control groups occurred during coughing. The result is disagreed with study conducting by Mohamed<sup>(21)</sup> in Fakous at Sharika government who found that stress urinary incontinence (SUI) was less prevalence among women who had a history of chronic cough .while the result of Cardozo<sup>(22)</sup> consistence with the present study finding, and stated that the chronic cough likely to increase the risk of developing stress urinary incontinence. Also in line with Leppert and Howard<sup>(23)</sup> who reported that (SUI) was associated with chronic cough among women in New York. That is may be due to having a chronic cough puts pressure on the pelvic floor and makes stress urinary incontinence worse.

On the other hand the lower percentage of the same groups they mentioned that stress urinary incontinence (SUI) occurred during lifting heavy objects. This result is congruently with Taha<sup>(17)</sup> who pointed that there was a significant relationship between the prevalence of stress urinary incontinence and lift heavy objects. This result supported with Thom et al.,<sup>(24)</sup> who stated that women whose jobs require them to lift heavy objects (e.g. waitresses' nurses or factory workers) are prone to develop stress urinary incontinence than others. Also that may cause pressure on the pelvic floor muscles.

The present study illustrated that half of control group not taken action due to their embarrassment, and there was a significant relationship between prevalence of stress urinary incontinence and their embarrassment in table (4). This result supported by Weber and Kelley<sup>(6)</sup> who stated that stress urinary incontinence (SUI) a very common problem in all age group among Americans' women but most frequently in elderly women, despite its has higher prevalence affected women do not seek help for incontinence, because of embarrassment. On the same line Fialkow et al.,<sup>(25)</sup> added that fewer than half of women in United State of America consider their incontinence a problem seek help. The rational for this result may be due to this group belonged to high social class, high educational level.

The current study also showed that there was a significant relationship between prevalence of stress urinary incontinence and intake of tea. Similar finding was reported by Taha<sup>(17)</sup> reported that (SUI) was more prevalent among women who drink tea than among women who didn't drink. But this result was contradicted by Burgio et al.,<sup>(26)</sup> who stated that continence

status was significantly not related to caffeine or alcoholic intake. This might be due to carbonated drinks, tea and coffee, artificial sweeteners, and foods that are high in spice, sugar and acid, such as tomatoes, can irritate the bladder.

Concerning the effect of self – care intervention, the habit (voiding) training, the present study revealed that decreased of mean of wetting underwear among studied group after implementation program, comparing with before intervention program. But among control group that's notice increased of wetting underwear. This result is congruence with Abd Allah<sup>(27)</sup> Found in Zagazig City in Egypt that improvement in the mean frequencies of wetting underwear among incontinent women in the study group after implementation of the intervention, no such improvement could be revealed in the control group. That is might be due to health education intervention improve pelvic floor muscles.

This result also supported by Madjar et al.,<sup>(28)</sup> explained that training increase the function capacity of the urinary bladder, increase dry bed per week of incontinent patients, and consequently leads to improvement, and control of nocturnal incontinence. The researcher opinion that bladder training can help patient learn to empty her bladder more completely to avoid incontinence, and bladder training may involve learning to control urges to urinate.

The results of present study revealed that the elderly women with stress urinary incontinence (SUI) reported the condition improved post health education intervention; also provocation grade. This might be due to practice kegal exercise increase strength of urinary tract muscles.

**Conclusion:**

The health education and training program improve stress urinary incontinence knowledge among the study group, and most of them reported their condition improved post health education intervention.

**Recommendations:**

1. Health education of all elderly women about important of periodic medical examination to detect early any health problem, and treated.
2. Health education programs for elderly should be applied on a wide scale about self care management of incontinence by accurate information about management of incontinence in different health setting provided care for elderly, and geriatric social club health team.
3. Health education about the correction of misconceptions about urinary incontinence ,which can be an effective means of bringing incontinent women into contact with health care center for early appropriate intervention.

**Table (1): Socio-demographic characteristics of women in the study and control groups (N=80)**

| Socio-demographic characteristics | Group        |      |                |      | X <sup>2</sup> Test | p-value |
|-----------------------------------|--------------|------|----------------|------|---------------------|---------|
|                                   | Study (n=40) |      | Control (n=40) |      |                     |         |
|                                   | No.          | %    | No.            | %    |                     |         |
| <b>Age (years):</b>               |              |      |                |      |                     |         |
| ▪ 60-69                           | 15           | 37.5 | 17             | 42.5 |                     |         |
| ▪ 70-80                           | 25           | 62.5 | 23             | 57.5 | 0.21                | 0.65    |
| Mean±SD                           | 65.5±3.5     |      | 64.6±4.5       |      | 1.05                | 0.30    |
| <b>Residence:</b>                 |              |      |                |      |                     |         |
| ▪ Rural                           | 1            | 2.5  | 17             | 42.5 |                     |         |
| ▪ Urban                           | 39           | 97.5 | 23             | 57.5 | 18.35               | <0.001* |
| <b>Education:</b>                 |              |      |                |      |                     |         |
| ▪ Illiterate                      | 4            | 10.0 | 18             | 45.0 |                     |         |
| ▪ Basic/secondary                 | 15           | 37.5 | 10             | 25.0 | 12.36               | 0.002*  |
| ▪ University                      | 21           | 52.5 | 12             | 30.0 |                     |         |
| <b>Job:</b>                       | 16           | 40.0 | 31             | 77.5 |                     |         |
| ▪ Housewife                       |              |      |                |      |                     |         |
| ▪ Working                         | 24           | 60.0 | 9              | 22.5 | 11.61               | 0.001*  |
| <b>Marital status:</b>            | 20           | 50.0 | 23             | 57.5 |                     |         |
| ▪ Married                         |              |      |                |      |                     |         |
| ▪ Widow                           | 20           | 50.0 | 17             | 42.5 | 0.45                | 0.50    |
| <b>Crowding index:</b>            | 32           | 80.0 | 14             | 35.0 |                     |         |
| ▪ <2                              |              |      |                |      |                     |         |
| ▪ 2+                              | 8            | 20.0 | 26             | 65.0 | 16.57               | <0.001* |
| <b>Income:</b>                    | 17           | 42.5 | 25             | 62.5 |                     |         |
| ▪ Insufficient                    |              |      |                |      |                     |         |
| ▪ Sufficient                      | 23           | 57.5 | 15             | 37.5 | 3.21                | 0.07    |
| <b>Living with:</b>               | 17           | 42.5 | 27             | 67.5 |                     |         |
| ▪ Family house                    |              |      |                |      |                     |         |
| ▪ Children                        | 8            | 20.0 | 8              | 20.0 | 7.54                | 0.06    |
| ▪ Relatives                       | 1            | 2.5  | 0              | 0.0  |                     |         |
| ▪ Alone                           | 14           | 35.0 | 5              | 12.5 |                     |         |
| <b>Socio-economic status:</b>     | 22           | 55.0 | 10             | 25.0 |                     |         |
| ▪ High                            |              |      |                |      |                     |         |
| ▪ Middle                          | 12           | 30.0 | 9              | 22.5 | 13.26               | 0.001*  |
| ▪ Low                             | 6            | 15.0 | 21             | 52.5 |                     |         |

**Table (2): History of last delivery and menopause among women in the study and control groups (N=80).**

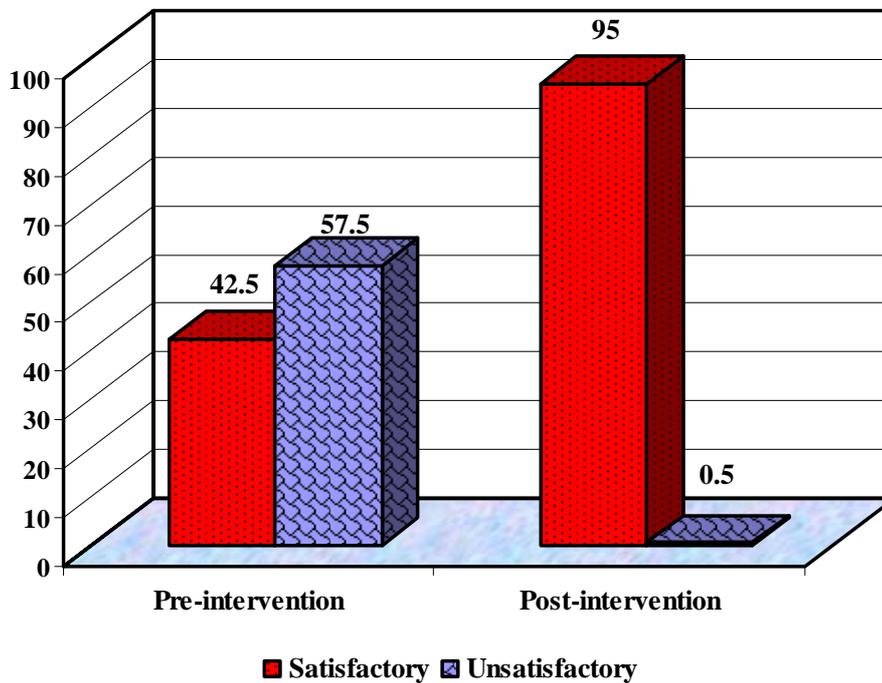
| History of last delivery                       | Group        |      |                |      | X <sup>2</sup> Test | p-value |
|--|--------------|------|----------------|------|---------------------|---------|
|  | Study (n=40) |      | Control (n=40) |      |                     |         |
|  | No.          | %    | No.            | %    |                     |         |
| <b>Last delivery:</b>                          |              |      |                |      |                     |         |
| <b>Mode:</b>                                   |              |      |                |      |                     |         |
| ▪ Normal delivery                              | 36           | 90.0 | 35             | 87.5 |                     |         |
| ▪ Cesarean section                             | 3            | 7.5  | 3              | 7.5  | Fisher              | 1.00    |
| ▪ Not applicable                               | 1            | 2.5  | 2              | 5.0  |                     |         |
| <b>Place of delivery:</b>                      |              |      |                |      |                     |         |
| ▪ Home   | 33           | 82.5 | 30             | 75   |                     |         |
| ▪ Hospital/Clinic                              | 6            | 15.0 | 8              | 20.0 | 1.89                | 0.39    |
| ▪ Not applicable                               | 1            | 2.5  | 2              | 5.0  |                     |         |
| <b>Complications (Study=15), (Control=20).</b> |              |      |                |      |                     |         |
| ▪ Obstructed labor                             | 5            | 12.5 | 10             | 25.0 | Fisher              | 0.29    |
| ▪ Postpartum hemorrhage                        | 3            | 7.5  | 2              | 5.0  | Fisher              | 0.62    |
| ▪ Puerperal pyrexia                            | 5            | 12.5 | 6              | 15.0 | Fisher              | 0.58    |
| ▪ Stillbirth                                   | 2            | 5.0  | 2              | 5.0  | Fisher              | 1.00    |
| <b>Menopausal years:</b>                       |              |      |                |      |                     |         |
| ▪ <10  | 8            | 20.0 | 10             | 25.0 |                     |         |
| ▪ 10+  | 32           | 80.0 | 30             | 75.0 | 0.29                | 0.59    |
| <b>Range</b>                                   | 1.0-45.0     |      | 1.0-28.0       |      |                     |         |
| <b>Mean±SD</b>                                 | 16.7±9.7     |      | 12.7±6.6       |      | 3.34                |         |
| <b>Use Hormonal therapy</b>                    | 3            | 7.5  | 3              | 7.5  | Fisher              | 1.00    |

**Table (3): History of stress urinary incontinence (SUI) among women in the study and control groups (N=80).**

| History of stress urinary incontinence (SUI) | Group        |      |                |      | X <sup>2</sup> Test | p-value |
|--|--------------|------|----------------|------|---------------------|---------|
|  | Study (n=40) |      | Control (n=40) |      |                     |         |
|  | No.          | %    | No.            | %    |                     |         |
| ▪ Laughing                                   | 13           | 32.5 | 14             | 35.0 | 0.06                | 0.81    |
| ▪ Coughing                                   | 26           | 65.0 | 34             | 85.0 | 4.27                | 0.04*   |
| ▪ Sneezing                                   | 18           | 45.0 | 17             | 42.5 | 0.05                | 0.82    |
| ▪ Straining                                  | 9            | 22.5 | 15             | 37.5 | 2.14                | 0.14    |
| ▪ Heavy lifting                              | 3            | 7.5  | 6              | 15.0 | Fisher              | 0.48    |

**Table (4): Action taken for stress urinary incontinence (SUI) among women in the study and control groups (N=80).**

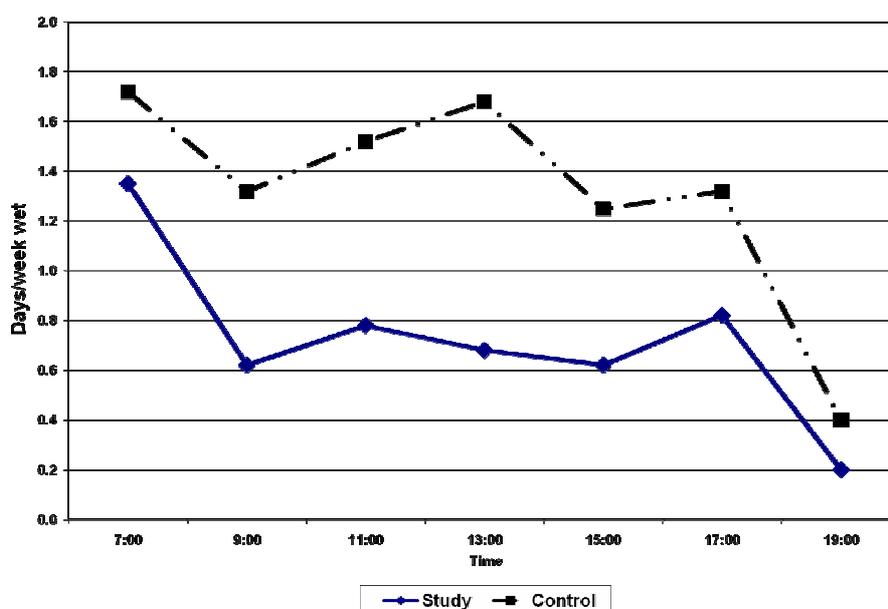
| Action taken                     | Group        |      |                |      | X <sup>2</sup> Test | p-value |
|----------------------------------|--------------|------|----------------|------|---------------------|---------|
|                                  | Study (n=40) |      | Control (n=40) |      |                     |         |
|                                  | No.          | %    | No.            | %    |                     |         |
| ▪ Nothing due to embarrassment   | 8            | 20.0 | 20             | 50.0 | 7.91                | 0.0049* |
| ▪ Increased times of micturation | 12           | 30.0 | 17             | 42.5 | 1.35                | 0.24    |
| ▪ Decreased tea/coffee intake    | 14           | 35.0 | 13             | 32.5 | 0.06                | 0.81    |
| ▪ Used pampers                   | 9            | 22.5 | 11             | 27.5 | 0.27                | 0.61    |
| ▪ Consulted doctor immediately   | 14           | 35.0 | 8              | 20.0 | 2.26                | 0.13    |



**Figure (1): The score of satisfactory and unsatisfactory level of knowledge pre – post intervention among study group (N=40)**

**Table (5): The fluid intake habits among the study group (pre – post health education intervention) (N=40)**

| Changes in the fluid intake habits      | Time       |      |             |      | X <sup>2</sup> Test | p-value |
|---|------------|------|-------------|------|---------------------|---------|
|   | Pre (n=40) |      | Post (n=40) |      |                     |         |
|   | No.        | %    | No.         | %    |                     |         |
| <b>Intake of tea:</b>                   |            |      |             |      |                     |         |
| Range                                   | 0.0-10.0   |      | 0.0-7.0     |      |                     |         |
| Mean±SD                                 | 2.8±2.0    |      | 1.7±1.2     |      | 10.08               | 0.002*  |
| <b>Intake of coffee:</b>                |            |      |             |      |                     |         |
| Range                                   | 0.0-3.0    |      | 0.0-2.0     |      |                     |         |
| Mean±SD                                 | 0.6±0.9    |      | 0.3±0.5     |      | 2.15                | 0.14    |
| <b>Intake of soda:</b>                  |            |      |             |      |                     |         |
| Range                                   | 0.0-5.0    |      | 0.0-5.0     |      |                     |         |
| Mean±SD                                 | 0.6±1.3    |      | 0.3±0.8     |      | 2.83                | 0.09    |
| <b>Intake of fluids in the evening:</b> |            |      |             |      |                     |         |
| ▪ No                                    | 18         | 45.0 | 28          | 70.0 |                     |         |
| ▪ Yes                                   | 22         | 55.0 | 12          | 30.0 | 5.12                | 0.02*   |



**Figure (2): Mean of wetting underwear among women in the study and control groups one week before intervention (N=80).**

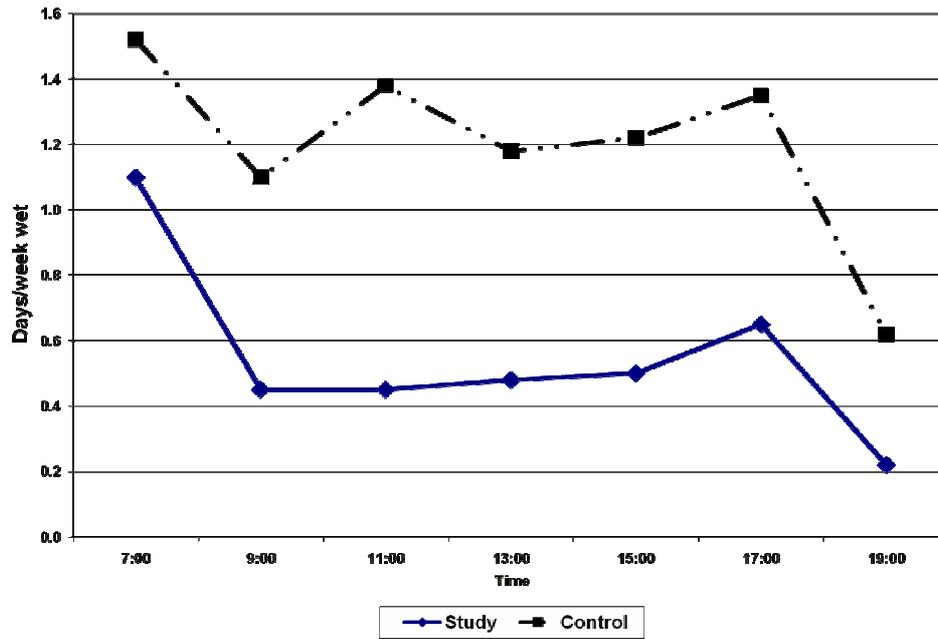


Figure (3): Mean of wetting underwear among women in the study and control group one week after intervention (N=80).

Table (6): Self-assessment of (SUI) improvement and provocation test grades among women in the study and control groups after the intervention (N=80)

| Self-assessment of (SUI) improvement and provocation test | Group        |      |                |      | X <sup>2</sup> Test | p-value |
|---|--------------|------|----------------|------|---------------------|---------|
|   | Study (n=40) |      | Control (n=40) |      |                     |         |
|   | No.          | %    | No.            | %    |                     |         |
| <b>Self-assessment:</b>                                   |              |      |                |      |                     |         |
| ▪ Improvement   | 26           | 65.0 | 1              | 2.5  | 34.94               | <0.001* |
| ▪ No improvement  | 14           | 35.0 | 39             | 97.5 |                     |         |
| <b>Provocation test grade:</b>                            |              |      |                |      |                     |         |
| ▪ No dribbling  | 8            | 20.0 | 0              | 0.0  | 14.02               | 0.001*  |
| ▪ Few drops   | 19           | 47.5 | 13             | 32.5 |                     |         |
| ▪ Moderate amount   | 13           | 32.5 | 27             | 67.5 |                     |         |

**References:**

1. Morton R.E., Fontaine D., Hudak C.M & Gallo B.M.: Critical care nursing: The critically ill older patient, 8<sup>th</sup> ed., United State of America Lippincott Williams &Wilkins CO., 2005, P.P:151-166.
2. Moyet L.J.C.: Nursing diagnosis. Application to clinical practice, 13<sup>th</sup> ed., United State of America, Lippincott Williams &Wilkins CO., 2010, PP: 686-688.
3. DuBeau C.E, (2010): Addressing the unmet needs of geriatric patients with overactive Bladder: Challenges and controversies, *clinical geriatrics*. 11(12), 16-27.
4. Nygaard I, Barber M.D, Burgio K.L, Kenton K, Meikle S, & Schaffer J.: Prevalence of symptomatic pelvic floor disorders in US women. *JAMA*. 2010; 300(11): P.1311-6.
5. Viktrup j., Lars R.S., Stephanie K.E., Kathryn L., & Joseph G.: Stress urinary incontinence in active elderly women. (Review article) *Southern Medical Journal*. 2008; located at: <http://www.goliath.ecnext.com/coms/gi/Stressurinary-incontinence-in-act>. Date of access /6/2/2009.
6. Weber J & Kelley J.H.: Health assessment in nursing, 4<sup>th</sup> ed., United State of America, Lippincott Williams &Wilkins CO., 2010; PP: 764-765
7. Hogan M.A & Modayag T: Medical – Surgical Nursing. Reviews & Rationales, 5<sup>th</sup> ed. United Sate of America, Lippincott, Prentice Hall Co. 2004; P.234-237.
8. Richter H.E, Goode P.S. & Brubaker L.: Two-year outcomes after surgery for stress urinary incontinence in older compared with younger women. *Obstet Gynecol*. 2012; 112:621.
9. World Health Organizations (WHO), blue trunk libraries. Retrieved 2009: available at: [www.who.int/gb](http://www.who.int/gb) libraries bluetr ank /en/.Date of accessed at 6/11/2012.
10. El-Sayied H.A.: Self care model management of urinary incontinence for elderly women attending Ain Shams hospital. Thesis submitted for partial fulfillment of doctorate degree in department of community health, postgraduate .Faculty of health nursing Ain Shams University Cairo. 2001; P. 46.
11. Kan M.: Essentials of clinical geriatrics, 3<sup>rd</sup> ed., U.S.A, Mosby Co., 1994; PP: 145-155.
12. Kiecolt M., Claster C., Shuttle P., Orgocki P. & Speicher C.: Chronic stress and immunity in family caregiver of Alzheimer disease victim's psychosomatic medicine; 1987; 49: 523-535
13. Shnelle N.: Managing urinary incontinence in the elderly. 1<sup>st</sup> Ed., Spring Publishing Co., New York. 1991; PP.41-44.
14. Eberso P. & Hess P.: To word health aging: Human needs and nursing practice response, 5<sup>th</sup> ed., St. Louis: Mosby Co., 2003; PP.235-240.
15. Hahn I, Sommer S. & Fall M.: A comparative study of pelvic floor training and electrical stimulation for treatment of female stress incontinence.*Neurol-Urodynam*. 1993; 10:545-554.
16. Hahn I. & Fall M.: Objective quantification of urinary incontinence.Ashort, reproductable provocation test. *Neurol-Urodynam*. 1991; 10:475-481.
17. Taha N.E.S.: prevalence of stress urinary incontinence of females' child –bearing period at Shubra-Bass Village, Menoufiya Governorate. Thesis submitted for partial fulfillment of master degree in department of Public health nursing. High institute of health nursing. 2000; PP: 97-106
18. Join.M.: Medscape Education Neurology & Neurosurgery. 2012; located at website: <http://ww.medscape.org/viewarticle>. Date of access /16/6/2012.
19. Bogner H. R, Gallo J. J, Sammel M. D, & Ford D. E, Armenian H. K, and Eaton, W. W,: Urinary incontinence and psychological distress in community-dwelling older adults. *Journal of the American Geriatrics Society*; 2010; 50:489–495

20. Kelly C.J & Vichayavilas P.E.:  
Weight loss for urinary incontinence  
in overweight and obese women"  
*N. Engl. J. Med.* 2009; 360 (21): 2256.  
Located at:  
<http://content.nejm.org/cgi/content/abstract/360/5/481>. Date of access  
5/3/2012
21. Mohamed R.E.: Family care for  
elderly in Fakous city, unpublished  
master (thesis), in Zagazig University.  
2002; PP: 122-128.
22. Cardozo L.: Epidemiology  
&classification of urinary  
Incontinence, Urogynecology, 1<sup>st</sup> ed.,  
Chuvchill Living Stone, New York,  
2012; P P: 3-20.
23. Leppert P.C. & Howard F.M.: primary  
care for Women, urinary  
incontinence,1<sup>st</sup> ed., Lippincott Ravan  
Phailadelphia. 2011; PP: 534-545
24. Thom D.H., Haan M.N., & Stephen  
K.: Medically recognized urinary  
incontinence and risks of  
hospitalization, nursing home  
admission in United State of  
America.4<sup>th</sup> ed., Chuvchil living Stone  
.USA, 2011;PP: 330-342.
25. Fialkow M, Symons R.G, & Flum D.:  
Reoperation for urinary incontinence.  
*Am. J. Obstet Gynecol.* 2008; 199:546.
26. Burgio L.D, McCormick K.A., &  
Englel B.T.: Prevalence, incidence,  
and correlates of urinary incontinence  
in healthy, middle-aged women. *J  
UrOL*, 146, 1991; PP: 1225-1229.
27. Abd Allah E.S.: Effect of health  
education intervention on controlling  
of urinary incontinence among elderly  
women in Zagaizg. *Zagazig nursing  
journal*, 2005, Vol. 2 (2): 7-11.
28. Madjar S, Sharma A.K, & Waltzer  
W.C.: Periurethral mass formations  
following bulking agent injection for  
the treatment of urinary incontinence.  
*J Urol*, 2011; 175:1408

