

The Effect of Self-care Education on Self-efficacy and Happiness of Elderly Women with Urinary Incontinence: A Randomized Controlled Trial

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Abstract--Medical and health-related progressions have caused not only the world's population but the population in our country to live longer. Among the elderly's problems, urinary problems are common among 65-year-old and older patients. One of the most significant urinary problems among the elderly is urinary incontinence. Due to cultural, social, and anatomical conditions, women are more prone to affliction to this disease. This disease can influence the patients' daily routine activities, self-efficacy, and psychological health and happiness and lead to interferences with their self-efficacy and fulfillment. Thus, this study was conducted aiming at the investigation of the effect of self-care education on the elderly women's self-efficacy and happiness suffering from urinary incontinence. This clinical investigation was done on 64 elderly women with urinary incontinence referring to Jahandidegan Center in Shiraz in 2018. The samples were included in the study by convenience sampling and divided into two interventions ($n= 32$) and control ($n= 32$) groups using simple random sampling. In the intervention group, the self-care education program was done in five 60-minutes sessions in the form of cooperative learning and lecturing two days a week but there was no interference in the activities of the control group. For the participants in the two groups, the Brome Pelvic floor muscle exercises self-care scale, chronic diseases self-care scale, and Oxford happiness questionnaire was completed in three-time intervals of before, immediately after, and two months after the intervention. Based on the obtained results, the mean score for self-efficacy pelvic floor muscle exercise scale and self-care scale in chronic diseases in the intervention group was meaningfully higher than that of the control group ($P<0/001$) immediately and two months after the intervention. Also, in the intervention group, these scores had a significant increase over time ($P<0/001$), while in the control group the increase in these scores over time has not been meaningful. The difference of happiness scores between the two groups, by considering the effect of the group alone, has not been meaningful ($P=0/530$), but the changes process is meaningful with regard to considering two factors of time and group ($P<0/001$). Self-care education, as a complement method can cause an increase in self-care and happiness on elderly women with urinary incontinence.

Keywords--education, self-care, happiness, urinary incontinence.

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I. INTRODUCTION

Urinary incontinence is any type of urine leakage or pouring out involuntarily and has three main types: emergency, by stress, and combined (1). Stress urine incontinence is the most common type and is defined as an indirect loss of urine in trying physical operations, sneezing, or coughing. Emergency incontinence is an indirect loss of urine due to anxiety; and, combined incontinence is a combination of stress and emergency incontinence (2). This disorder augments as people age, as much it is considered one of the most important urology problems among the elderly (3). The incidence of all three types of urinary incontinence is reported more in elderly women than in men (4, 5) and rather 44-57% of the elderly women are suffering this disorder (6).

Urinary incontinence in the elderly can affect their daily routine, quality of life, economic condition, and psychological health and lead to psychological disorders, depression, and anxiety and increased operational disorders (7, 8). Women suffering from urinary incontinence seek treatment less because of embarrassment, lack of specified treatment choices or the belief that this problem is a part of aging; therefore, the self-care behaviors in these groups of people are reported unsatisfactory (9, 10).

Self-care consists of activities that every person does to protect their life, health, and welfare, then, as a healthcare process, it is defined in terms of the measures taken to improve health and administrate the disease (11). Self-care increases patients' capabilities of effective confrontation with health problems in patients and it also facilitates constructive health-related decision making in chronic diseases as well as necessitating cooperation in treatments and cure processes in the long run (12). Moreover, self-care can result in the improvement of self-efficacy in a way that a positive relationship between self-care behaviors and self-efficacy among patients suffering from chronic diseases is reported (13, 14). Self-efficacy refers to the belief people have of a particular successful behavior (15). Self-efficacy shows beliefs in a person's ability to organize and apply the necessary operation for achieving certain goals (16). People with high levels of self-efficacy, determine challenging aims for themselves, they attempt to attain their goals and can confront the problems better (17).

Self-care is a vital and necessary factor for the elderly with urinary incontinence that can have a remarkable effect on the improvement of the disease symptoms (10). Self-care in these people includes various realm like lifestyle interventions, Pelvic floor muscle exercise, modifying diets, weight control, quitting smoking, constipation control, improving physical activities, and reducing alcohol intake (18, 19).

Teaching self-care can cause health protection and improvement via substituting incorrect behaviors with correct behaviors and being committed to the treatment (20, 21). According to the results of the recent studies, self-care behaviors education can be an effective intervention to control urinary incontinence and improve self-efficacy in patients suffering from it (22-24). The results of a study done in a single group by Choi and Yim in 2019 revealed that self-care educational program has meaningfully increased self-efficacy in the elderly women with urinary incontinence (25).

Improving the elderly health condition is one of the goals of caring and treatment and also, one of the most important and challenging dimensions of urinary incontinence in elderly women (3, 4). With respect to the high incidence of urinary incontinence in elderly women (4,5) and the significance of considering self-care in these people (10), the necessity of taking the education of self-care behaviors into consideration in these people is

felt. So far, various studies have investigated the effect of teaching self-care behaviors on urinary incontinence control and they have reported contradicting results (26-29). However, in the conducted investigation, it was demonstrated that only one single group study has been conducted with the aim of determining the effect of these kinds of interventions on self-efficacy in the elderly people with urinary incontinence (25). Based on the results of the mentioned study and also with regard to the positive relationship between self-care and self-efficacy (13, 14), as well as, the positive relating between self-care and happiness (30), it seems that teaching self-care behaviors can cause improvements in self-efficacy and happiness. Hence, the present study was done in the form of a controlled random clinical trial investigation with the aim of investigating the effect of teaching self-care on self-efficacy and happiness in elderly women with urinary incontinence.

II. MATERIAL AND METHODS

This clinical trial study is a pre-test, post-test, and the follow-up test type accompanied by a control group whose research community is made of elderly women with urinary incontinence referring to Jahandidegan Center in Shiraz in 2018. The criteria for entering the study include age above 60, having urinary incontinence background (stress, emergency, or both) for at least 6 months, receiving at least 4 and 6 scores respectively for stress and emergency incontinence, being able to participate in exercise programs related to urinary incontinence, language competency especially for Persian language and the ability to communicate, being interested in participation in the study, consciousness and not suffering from Alzheimer or dementia, multiple sclerosis, diabetes, Parkinson, and tumor. The criteria for withdrawal from the study were being uninterested in continuing the participation, more than two sessions absences, participating in similar educational programs, having urology surgeries histories or congenital urinary diseases, and having cancer history related to the genitourinary system.

The sample size was estimated 30 people in each group with respect to the results of similar studies (31, 32) and using Gpower software $\alpha=0.05$, $\beta=0.2$ error as well as effect size=0.75. regarding %5 fall probability, 64 people (32 per group) were considered in sum.

Data collection tools in this investigation project were individual and clinical information form (including age, weight, height, marital status, education, type of delivery, number of children, duration of urinary incontinence), Questionnaire for Urinary Incontinence Diagnosis (QUID), Broome pelvic floor muscle exercise self-efficacy scale, Chronic disease self-efficacy scale, Oxford happiness questionnaire.

QUID consists of 6 questions that the first three of it are for diagnosing stress incontinence and the second three questions are about emergency incontinence diagnosis. All the questions have 6 choices and are on Likert scale from never (zero points) to ever (five points) (33,34). The validity and reliability of QUID was measured in a study by Mokhlesi et al in 2016 on women with urinary incontinence in Qom province and Cronbach's alpha coefficient and the Intra-cluster correlation coefficient were obtained respectively 0.9 and 0.86 that shows its desirable validity and reliability (35).

Broome pelvic floor muscle exercise self-efficacy scale consists of 23 locutions in two segments. In the present study, the first part of the questionnaire (14 questions) that is about the individual's ability in doing the pelvic floor muscles constriction is used. This questionnaire has a 11 points Likert scale for each question from

zero (I do not constrict for responses at all) to 100 (for responses, I always constrict) (36). In a study by Damghanian et al (2016) the validity and reliability of this questionnaire was reported at a desirable stage with Cronbach's alpha coefficients 0.96 and inter-group correlation 0.97 to 0.99 (37). In the present study, Cronbach's alpha coefficient 0.97 was obtained for this questionnaire.

The self-efficacy scale for chronic diseases includes six questions on a 10 points Likert scale where the point zero is for "I'm never sure" and 10 for the response "I am completely sure" (38). In a study by Eslami et al conducted in 2017, the content validity index was reported 0.87, the content validity ratio 0.89, and Cronbach's Alpha coefficient 0.89 for this questionnaire which demonstrate the suitability of this tool for investigating the self-efficacy in educational programs in Iran (39). In this study, Cronbach's alpha coefficient 0.80 was attained for self-efficacy of chronic diseases questionnaire.

Oxford Happiness Questionnaire has 29 multiple choice questions which choices are based on Likert scale and is pointed respectively from 0 to 3. Reliability of this questionnaire in a study by Alipour and Nourbala (2009) has been approved through the Cronbach's alpha coefficients, description and retesting of respectively %93, %92, %79 (40). In the present investigation, the Cronbach's alpha coefficient 0.90 was obtained for Oxford Happiness Questionnaire.

For sampling, after acquiring the permission for ethical research from Shiraz University of Medical Sciences, the researcher attended the beginnings or middle times of Jahandigan classes (language, painting, music, Quran, etc.) in two morning and evening shifts for two weeks and after communicating with the elderly, he provided explanations about their urinary incontinence. Afterwards, the elderly individuals who declared their willingness to participate in the study and were suspicious of urinary incontinence were asked to complete the QUID so that their urinary incontinence could be diagnosed. After diagnosing urinary incontinence and in case they held all other criteria to enter the study, the samples were entered to the study using available sampling method and then they were divided into two experiment (n=32) and control (n=32) groups. For random dedication, two cards (A and B) were allocated to each experiment and control groups, and the samples selected a card without knowing which card belongs to which group, and, in this way, they entered one of the experiment or control groups.

After stating the aims of the study and providing explanations about the type of intervention and receiving informed consents form all the samples, the demographic information form accompanied by other questionnaires were filled out by the samples participating in this investigation. If any of the elderly people was unable to fill out the questionnaires, the researcher would read and record their information. In the experiment group, the self-care education program was held in five 60-minute sessions in the form of cooperative learning and lectures in 2 days a week by the researcher (nursing student at M.A. level) in the investigation setting. The first session was dedicated to introducing with the participant individuals and distributing the questionnaires and then a definition of the elderly age, urinary incontinence, and its related problems. In the second session, self-care education for pelvic floor muscles and the required exercises for strengthening pelvic floor muscles or Kegel was mentioned. In the third session, self-care guidelines about nourishment, drinks, how to use them and their effects, how to choose and consume food and drinks were provided. In the fourth session, the importance of the effect of administrating

the disease on happiness and self-efficacy in people was pointed to. And at last, in the fifth session, there was a sum up of all the stated guidelines and the questionnaires were recompleted again. In case of absence from an educational session, the teaching notes and pamphlets were shared with the participants under investigation and the explanations were repeated for them separately. Moreover, for people who had a lower level of education and comprehension compare to other individuals, it was attempted to convey and teach the teaching items using other educational tools and dedicating more time. Two months after the educational classes finished, the questionnaires were completed again. In the control group, no intervention was applied but the educational notes and pamphlets were distributed among them after applying the intervention.

The collected data were analyzed using the statistical SPSS software version 25. For describing absolute frequency, relative frequency, mean, and standard deviation, the descriptive statistics was used and for comparing qualitative and quantitative, demographic, and medical variables of the two groups, Independent t-test, Chi-square (or Fisher exact test) were used respectively. According to Kolmogorov Smirnov test, the only variable with normal distribution was happiness. Thus, to compare happiness scores, Analysis of variance test with repeated amounts was used and for comparing inter-group and intra-group self-efficacy (pelvic floor muscles and chronic diseases) Friedman and Mann Whitney tests were respectively utilized. In all the tests $P < 0.05$ was considered as the meaningful statistical difference.

III. RESULTS

All 64 participants of this study continued their cooperation until the end of this research project. Therefore, the final analysis was done on the 64 of them.

The average age of women in the two experiment and control groups was respectively 68.84 ± 5.85 and 70.6 ± 55.03 . the participant women in both the experiment (81.3%) and control (65.6%) had more than one-year record of suffering from urinary incontinence. Based on Chi-square test and independence t-test, there was not a meaningful difference between experiment and control groups in terms of age and history of catching urinary incontinence as well as other demographic and medical variables and the two groups were equal with regard to these variables (Table 1).

Table 1. Frequency distribution of samples in the two experiment and control groups based on medical and demographic characteristics

P-value	statistic	control (n= 32)		Test (n= 32)		Quantitative variables	
		Standard deviation	Mean	Standard deviation	Mean		
0.447 ^t	t= -0.765	6.55	70.03	5.85	68.84	Age (year)	
0.364 ^t	t= 0.915	11.21	66.16	9.48	68.53	weight(kilogram)	
†0.906	t= -0.118	6.74	158.91	5.89	158.72	height(centimeter)	
†0.706	t= -0.379	1.85	3.97	2.09	3.78	Children	
		percentage	number	percentage	number	Qualitative variables	
*0.174	Fisher's Exact Test= 3.432	3.1	1	9.4	3	Single	Marital status
		40.6	13	56.3	18	Married	
		56.2	18	34.4	11	divorced/widowed	

*0.310	X ² =4.785	62.5	20	40.6	13	Under diploma	Education
		21.9	7	40.6	13	Diploma	
		15.6	5	18.8	6	University student	
†1	Fisher's Exact Test =0.000	90.6	29	90.6	29	Natural	Delivery type
		3.1	1	3.1	1	Surgery	
		6.3	2	6.3	2	Other	
*0.157	X ² =2.003	34.3	11	18.8	6	Less than one year	History of urinary incontinence incidence
		65.6	21	81.3	26	More than one year	
Independent statistical t-test † Fisher statistical test * Chi-square test is considered as a meaningful difference.P-value <0.05							

Mann-Whitney statistical test did not reveal any difference between the experiment and control groups before the intervention in terms of pelvic floor muscles self-efficacy and chronic diseases self-efficacy (P>0.05), but immediately and two months after the intervention, the mean scores in the experiment group was more than the control group (P<0.001). Friedman test, also, showed that scores of pelvic floor muscles self-efficacy and chronic diseases self-efficacy in the experiment group had a meaningful increase over time (P<0.001), while the increase of scores in the control group has not been meaningful over time. Analysis of variance test with repeated measures demonstrated that the mean score for happiness in the experiment group had a meaningful increase during the time, whereas in the control group, the score fluctuations were almost fixed during the time (P<0.001). according to this test, the process of happiness changes is meaningful concerning both factors of time and group (P<0.001), however, the difference between the scores of the two groups was not meaningful considering the effect of the group (P=0.530) (Table 2).

Table 2. Comparison of self-efficacy and happiness scores of elderly women with urinary incontinence in the two experiment and control groups before, immediately, and two months after the intervention

	control (n= 32)	Test (n= 32)	Group	
	Standard deviation±mean	Standard deviation±mean	Variables	
X ² =414.00 P= 0.176 [†]	301.91±187.50	398.29±246.71	Before intervention	Self-efficacy
X ² =67.500 P< 0.001 [†]	306.03±190.93	± 331.52931.87	Immediately after intervention	Pelvic floor muscles
X ² =94.500 P< 0.001 [†]	310.12±183.12	469.31±810.00	2 months after intervention	
	X ² =1.661 P= 0.463 [‡]	X ² =37.526 P< 0.001 [†]		
X ² =438.00 P=0.320 [†]	10.88±29.25	12.11±32.03	Before intervention	Self-efficacy in chronic diseases
X ² =186.00 P< 0.001 [†]	10.79±29.56	9.96±44.18	Immediately after intervention	
X ² =162.00 P< 0.001 [†]	10.88±29.43	10.16±44.18	2months after intervention	
	X ² =1.00 P=0.601 [‡]	X ² =17.320 P< 0.001 [†]		

	14.46±42.31	11.80±41.25	Before intervention	Happiness
	13.90±43.46	12.05±46.06	Immediately after intervention	
	±13.3142.68	11.14±46.96	2 months after intervention	
	F=14.469 P< 0.001 [†]	Time		
	F=0.339 P= 0.530 [‡]	Group		
	F=11.126 P< 0.001 [†]	Group in the time		
[†] Mann Whitney test [‡] Friedman test [¶] Analysis of variance test with repeated measures is considered as a meaningful difference.P-value <0.05				

IV. DISCUSSION

This study was conducted to investigate the effect of self-care education on self-efficacy and happiness in elderly women with urinary incontinence. The results revealed that scores of pelvic floor muscles self-efficacy and chronic diseases in the experiment group has increased meaningfully. Besides, the scores of pelvic floor muscles self-efficacy and chronic diseases in the experiment group had a meaningful increase after applying the education, but in the control group this difference has not been significant.

According to the obtained results, pelvic floor muscles self-efficacy and chronic diseases in the elderly women with urinary incontinence who were taught self-care, had a meaningful increase. In the investigations done by the researcher, it was revealed that very few studies were conducted to evaluate the effect of teaching self-care behaviors on self-efficacy of patients with urinary incontinence. In line with the results of the present study, a semi-experimental study was done by Arkan et al in 2019 on patients with urinary incontinence caused due to brain stroke in Turkey, the results showed that teaching strengthening exercises for pelvic floor muscles based on health care belief model has meaningfully increased the score of self-efficacy for Broome pelvic floor muscles exercises (41). In another study that was done in the form of single-group with before and after outline in South Korea, the results showed that providing group self-care program including Kegel exercise, group education, and psychotherapy has meaningfully increased Scherer's general self-efficacy scale scores in the elderly women with urinary incontinence (25). Moreover, in a qualitative study conducted by Asklund et al to specify the experiences of women with stress urinary incontinence in Sweden, the self-care software was used, the outcomes indicated that the designed educational intervention made the participants experience a feeling of independence and improved self-efficacy (42). The results of the reviewed studies are following those of the present investigation stating the effectiveness of self-care education on self-efficacy pf patients with urinary incontinence.

Despite the results of the present investigation, the results of other investigations signify the ineffectiveness of education on controlling urinary incontinence. In a randomized clinical trial study done by Weber-Rajek et al, there was no significant statistical difference between the two groups receiving routine self-care and teaching strengthening pelvic floor muscles exercises in terms of urinary incontinence scale score (27).

In another study by Diokno et al that was conducted to investigate the effectiveness of group behavioral intervention on urinary incontinence in the elderly women in America, no significant difference was noticed between the digital evaluation score of pelvic floor muscles in the elderly receiving education for bladder wellbeing as well as via distributing written files and compact discs compared to the elderly receiving routine cares (26). The reason for contradictions in the reported results can be the difference in the type of education and time of the intervention, research community, and the utilized questionnaires.

Regarding the happiness variable, the results revealed that the self-care educational program has made the elderly women with urinary incontinence receiving education happy, but the difference between the two groups after the intervention without considering the time factor has not been meaningful. In the investigations conducted by the researcher, it was illustrated that there was no study done to evaluate the effect of education of happiness in patients with urinary incontinence. However, the results of a recent intervention study have emphasized the importance of the role of self-care education in the emotional health of patients with urinary incontinence. In this regard, Radziminska et al reported that teaching pelvic floor muscles exercises, compared to the common cares, can be more effective on the emotional health of women with urinary incontinence (43). The results of another study by Ptak et al held out that the 12-weeks teaching pelvic floor muscles exercises combined with teaching abdominal transverse muscle exercises compared to pelvic floor muscles education could solely improve the emotional health of women with urinary incontinence (44). Also, Pan et al demonstrated that teaching pelvic floor muscles exercises can meaningfully decrease and improve anxiety and depression in 2 or 3 months after applying the emotional health intervention (45).

Rafieie et al, also, in a quasi-experimental study showed that pelvic floor muscles exercise education has meaningfully reduced the emotional aspect of the quality of life in multiple sclerosis patients with urinary incontinence (46). Based on the results of the stated studies, and the results of the present study, it seems that education can be effective on different aspects of emotional health in patients with urinary incontinence, however, it is suggested that more studies be done in this realm.

According to the findings of the present study, it seems that self-care education can be effective for improving self-efficacy and increasing happiness levels in women with urinary incontinence. Since nurses can play an important role in the elderly's controlling urinary incontinence in their old age, they should have a good command of improving self-efficacy and happiness level in the elderly through self-care behaviors education especially in healthcare centers. Thus, it is suggested that the necessity of self-care behaviors education in nurses' treatment intervention, as well as nursing teaching for better control of urinary incontinence in elderly women, be taken into consideration more than before. The findings of this investigation can be a good guide for curriculum designers and educational and healthcare planners so that by applying self-care behaviors education as an inexpensive and easy way take an effective step in improving self-efficacy and happiness level in women with urinary incontinence and subsequently, improve the quality of nursing cares and the society's health condition.

One of the most important limitations of the present study is the available sampling of the elderly that can blemish the external validity of the results. Besides, holding educational sessions and considering the experiment group more compared to the control group can approximately influence the results. The participants in the control

group were given notes, pamphlets, brochures as well. Another limitation of this study that can be noted was the short time of the intervention which due to the age of the participants, allocating more time was not possible because there was a chance of fall. Although, in the present investigation, the investigated variables were evaluated two months after the intervention too, for researching the lasting effect of the investigated intervention, more studies with longer follow-up periods need to be done.

V. CONCLUSION

The results obtained from this study revealed that self-care education leads to the improvement of self-efficacy and happiness in women with urinary incontinence. Hence, it is suggested to use this intervention as a simple, non-invasive, and inexpensive method.

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