

## The Efficiency of a Behavioral Intervention Program for Urinary Incontinence in Elderly Females

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### Abstract

**Background:** Urinary incontinence (UI) is a women's health problem that imposes major problems for personal quality of life.

**Objective:** The aim is to determine the effect of a Behavioral Intervention Program on the quality of life of the elderly females with urinary incontinence, who referred to Jahandidegan center in Shiraz-Iran, 2011.

**Material and methods:** The participants consisted of 60 women aged 60-74 years with QUID questionnaire's scores for different types of incontinence (stress score  $\geq 4$ , urge score  $\geq 6$  and mix score  $\geq 10$ ). QUID questionnaire was used for patients with urinary incontinence. It also gave us the possibility to determine the types of urinary incontinence. For matching, we placed an equal numbers of each type of urinary incontinence in each group. Ten subjects from each type were placed in two groups of 30 each (intervention and control groups). Then, incontinence quality of life questionnaire (I-QOL) was used to estimate the impact of incontinence on the participants' quality of life.

After the completion of a Behavioral Intervention Program and 2 months later, I-QOL questionnaire was completed by the intervention and control groups. Descriptive statistics, paired *t*-test and repeated measurement were used to analyze the data.

**Results:** Overall, the program was effective in relieving symptoms by improving quality of life related to urinary incontinence, and this effect continued after a 2 months period.

**Conclusion:** Behavioral therapy was an empowerment mechanism for incontinent women in improving their quality of life. Thus, it is suggested that the health care providers pay more attention to this issue and train women regarding the prevention of urinary incontinence.

**Keywords:** Older adults; Urinary incontinence; Behavioral intervention; Quality of life

### Introduction

As population ages, the number of patients referring to their primary care physicians with urologic problems is significantly increasing. Urologic issues are the third most common type of complaint in patients 65 years of age or older which account for at least a part of 47% of office visits. One of the most predominant urologic problems among the elderly is urinary incontinence [1]. Urinary incontinence is defined as the involuntary leakage of an objectively demonstrable amount of urine from the bladder and can be classified as stress, urge and mixed incontinence [2]. At least 1 in 10 people aged 65 years or older suffers from incontinence [3].

Urinary incontinence is a frequent and bothersome symptom that [4] can occur at any age, but is especially common in elderly women [5]. Studies that have included both genders consistently demonstrate that prevalence is higher in women than in men by an approximately 2:1 ratio [6]. For females, pelvic floor muscle weakness associated with age and/or childbirth and inadequate treatment of urinary tract infections can cause long term damage [3].

Although urinary incontinence is not life-threatening, loss of urinary control can affect the social, psychological, domestic, occupational, physical and sexual aspects of a female's life [7]. In addition, embarrassment and diminished self-esteem are common reactions to incontinence episodes [8]. Many women do not report their symptoms for a considerable time [9] and there is a misconception that the conditions cannot be treated [10].

Although several treatment options are available, incontinence is an often neglected problem [9]. The common treatments for urinary incontinence include surgery, drug therapy, and behavioral

interventions. Although surgery and drug therapy used to be the preferred treatments, [2] behavioral interventions are currently recommended as a first line therapy in the treatment of UI [11].

Behavioral interventions are usually relatively inexpensive and easy to implement [5] and their effectiveness depends chiefly on the patient's motivation and compliance. Thus, this type of treatment requires a high level of motivation and encouragement. The advantages of behavioral methods are improved central control of the bladder function, avoidance of the mortality and morbidity of surgery, and no adverse drug reactions [11].

The aim of the present study was to determine the effect of a Behavioral Intervention Program on quality of life of the elderly females with urinary incontinence.

### Materials and Methods

#### Setting

Jahandidegan center, a day-time center for older adults, located

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in Kholdebarin Park in Shiraz, Iran, was the venue. In the present study, a preliminary pilot study was carried out to determine the validity and reliability of Quid questionnaire for Iranian elderly. The original questionnaire was translated into Persian by three professors of Nursing and Midwifery College in Shiraz University of Medical Sciences, and then it was back translated from Persian into English. In the next step, as approved by Shiraz Welfare Organization, 25 females aged 60-74 years willing to participate in the study were chosen from Shiraz Jahandidegan Center to fill out the questionnaire twice with three week interval.

In this interventional study, 60 old females aged 60-74 years were selected among the members of Jahandidegan center, and they were asked to sign the informed consent form and fill in the demographic questionnaire. Then, Quid questionnaire was used for choosing the type of incontinence in the elderly females. Indeed, QUID questionnaire gave us the possibility to determine the types of urinary incontinence. For matching, we placed an equal numbers of each type of urinary incontinence in each group. Next, the participants completed the I-QOL questionnaire. I-QOL questionnaire consisted of 22 item in three dimensions: Avoidance and Limiting Behavior (8 questions), the Psychosocial Impacts (9 questions), and Social Embarrassment (5 questions). All questions have been five options Likert scale from 1 to 5 points.

The inclusion criteria were age 60-74 years, having Quid score for incontinence type (stress score  $\geq 4$ , urge score  $\geq 6$  and mix score  $\geq 10$ ), clinical symptoms of urinary incontinence in the last 6 months, and willingness to participate in the study. The exclusion criteria were absence in more than two training sessions, suffering from central nervous system disease (e.g. multiple sclerosis, cerebrovascular accident or acute mental illness and dementia, recent urology surgery

(for less than three months), history of genitourinary malignancy, current urinary infection, hysterectomy and diabetes mellitus).

A behavioral intervention program was composed of urinary incontinence education, pelvic floor muscle exercise, and bladder training. The contents of the education program included the causes, symptoms, diagnoses, and treatments of urinary incontinence, the locations and functions of pelvic floor muscle exercises, methods of pelvic floor muscle exercise and bladder training. The program used in the present study was developed by the authors on the basis of methods employed in previous studies by Dougherty et al. [12] and Lee [13].

The women randomized to the intervention group were trained on a one-to-one basis by the investigator (a trained nurse) over 8 weekly visits.

According to literature review, pelvic floor muscle exercises were applied for mostly 6 -12 weeks, 1 week at the shortest and 12 week at the longest [14].

The aim of the training sessions was explained to the participants and an instruction booklet was distributed. Finally, the first evaluation was carried out just after the 8 week intervention by filling the I-QOL questionnaire. Also for assessing the effect of self-practice program, the I-QOL questionnaire was completed by groups after a gap of 2 months.

## Results

Statistical analysis showed that the Cronbach  $\alpha$  coefficient of the Quid questionnaire was 0.86 and the performed test-retest had an appropriate reliability. Baseline characteristics of women with incontinence between the intervention and control groups are shown in table 1. It is shown that before the intervention there was no significant difference between the two groups in incontinence subtypes (stress,

Group Variable	intervention		Control		Total	
	N	proportion	N	proportion	N	proportion
Incontinence type						
Stress	9	7.16	10	18.5	19	35.2
Urgency	9	.716	9	16.7	18	33.3
Mix	8	8.14	9	16.7	17	31.5
Total	26	48.1	28	51.9	54	100
Marital status						
Single	0	0.0	2	7.3	2	7.3
Married	15	8.27	14	9.25	29	7.53
Divorce	3	6.5	3	6.5	6	1.11
Widow	8	8.14	9	7.16	17	5.31
Total	26	1.48	28	9.51	54	100
Literacy						
Under Diploma	19	2.35	19	35.2	38	70.4
Diploma	4	7.4	7	13.0	11	20.4
Associated Degree	2	3.7	2	3.7	4	7.4
Higher education	1	1.9	0	0	1	1.9
Total	26	48.1	28	51.9	54	100
Type of delivery						
No Pregnancy	0	0	2	3.7	2	3.7
Vaginal	26	48.1	24	44.4	50	92.6
Section	0	0	2	3.7	2	3.7
Total	26	48.1	28	51.9	54	100
Number of children						
Less than 4	5	9.3	10	18.5	15	27.8
4 and more	21	38.9	18	33.3	39	72.2
Total	26	48.1	28	51.9	54	100

Table 1: Descriptive statistics for subjects by group.

urgency and mix), (P value= 0.9). Overall, 53.7 % of the participants were married, 70.4% were educated under diploma, 92.6% had normal vaginal delivery and 72.2% had given birth to four children or more.

As shown in table 2, the mean score for I-QOL subtypes before the intervention did not have a significant difference between the two groups. The results after the intervention are shown in table 3. It is shown that immediately, and 2 months after the intervention, I-QOL subtype scores had a significant difference between the two groups. In other words, the training sessions improved the score of I-QOL in the intervention group (P<0.0001) versus control group (P=0.6).

## Discussion

Female Urinary Incontinence (UI) is a widespread health problem, affecting 10-50% of women during their lifetimes [15,16]. UI imposes a social and emotional burden on the sufferer, adversely affecting women's physical [17], psychological [18], sexual [17], and domestic [19] well-being. UI is not necessarily a normal part of aging [20]. Patients may isolate themselves from society leading to social anxiety and emotional problems such as depression [21]. Studies have shown that patients suffering with UI are more depressed [5]. Urinary incontinence can also lead to medical problems such as local skin irritation, rashes, and urinary infections [21].

It is well documented that people with urinary incontinence have a lower Quality of Life (QoL) [10]. Ragins et al. [22], in their research reported that urinary incontinence is significantly associated with a decreased quality of life and those with more frequent incontinence have significantly lower quality of life scores. Their findings are

consistent with several other studies such as Kikuchi et al. [4], ko et al. [5], Currie et al. [10], Lasserre et al. [23], Frick et al. [24], Monz et al. [15] and Aslan et al. [25]. They found that urinary incontinence has more widespread negative effects on quality of life. The goal of healthy aging should not be only extending the life expectancy, but improving QOL [26].

In the past, pharmacologic and surgical interventions were considered to be the first-line therapy for women with UI. During the past decade, a substantial body of evidence has been amassed to demonstrate that behavioral therapies, specifically pelvic muscle training and bladder training, should be prescribed before advancing to more invasive treatment [27].

Behavioral intervention is now more frequently adopted due to its potential benefits with few risks and no side effects [28]. The most recognized behavioral interventions for urinary incontinence are Pelvic Floor Muscle (PFM) exercise and bladder training. Both exercises are known to be effective in treating stress and urge incontinence [29]. Investigators indicated that urinary incontinence is significantly improved by behavioral interventions [2]. Sampsel [27] conducted an interventional study on community-dwelling women. Pelvic muscle training was supplemented with bladder training for women with urge or mixed incontinence. After a 6 month observation period the treatment group experienced significant declines in the severity of UI and QOL were significantly improved in treatment versus control group.

In our study, the effect of a Behavioral Intervention Program on quality of life of the elderly females with urinary incontinence

Time	Before the intervention				P-value
	intervention		control		
Group					
Variable	M	SD	M	SD	
<b>I-QOL subtype</b>					
Avoidance & Limiting Behavior	98/37	89/20	36/32	88/17	P=0/2
Psychosocial Impacts	25/49	54/20	61/47	77/22	P=7/0
Social Embarrassment	26/38	10/23	53/35	30/23	P=7/0
I-QOL total	65/42	65/42	32/39	32/39	P=0/5

**Table 2:** Comparison of the mean of I-QOL score subtypes before the intervention in the two groups.

I-QOL subtype	Avoidance & Limiting Behavior				P-value
	Immediately		2 month later		
Group	M	SD	M	SD	
<b>intervention</b>	62/40	36/20	04/52	82/20	P=0/0005
<b>Control</b>	69/30	16/16	93/34	25/26	
I-QOL subtype	Psychosocial Impacts				P-value
	Immediately		2 month later		
Group	M	SD	M	SD	
<b>intervention</b>	02/52	83/20	44/58	79/21	P=0/05
<b>Control</b>	52/46	93/19	75/43	10/18	
I-QOL subtype	Social Embarrassment				P-value
	Immediately		2 month later		
Group	M	SD	M	SD	
<b>intervention</b>	11/42	91/21	34/51	34/22	P=0/04
<b>Control</b>	82/34	17/22	46/34	74/22	
Group	I-QOL total				P-value
	Immediately		2 month later		
	M	SD	M	SD	
<b>intervention</b>	62/45	43/19	50/54	35/20	P<0001/0
<b>Control</b>	10/38	56/17	43/38	40/18	P=6/0

**Table 3:** Comparison of mean of I-QOL score subtypes after the intervention in the two groups.

was examined in 60 people aged 60-74 years old referring to Shiraz Jahandidegan Center. The results showed a considerable increase in I-QOL subtype scores, immediately and 2 months after the intervention for the subject's in the intervention group. According to table 3, immediately and after 2 months intervention, there was significant difference in I-QOL subtype scores, (the avoidance and limiting behavior ( $P=0/0005$ ), the psychological impact ( $P=0/05$ ) and Social Embarrassment ( $P=0/04$ )).

Forouhari et al. [30] did a study entitled "the Effects of training on quality of life in 62 menopause females". The results showed a significant increase in the mean scores in all quality of life dimensions (Vasomotor, psychological - social, physical, and sexual) in intervention group.

Our results support the Oh et al. [2], and Cardozo [31] studies that showed a significant improvement in the quality of life outcomes in elderly people with urinary incontinence.

## Conclusion

The Behavioral Intervention Program significantly improved the quality of life outcomes of the elderly females with urinary incontinence. Thus, it is concluded that the individuals with incontinence can be significantly improved following instruction by health care providers.

## Suggestions for future research

- The effect of long-term training program on quality of life of elderly patients with urinary incontinence after 6 months to a year monitoring
- The effect of training on quality of life of elderly middle-aged (84-75) with urinary incontinence
- The effect of training on quality of life of elderly diabetic patients with urinary incontinence
- Comparison of the prevalence of urinary problems in elderly outpatients with those hospitalized
- Comparison of two methods of medication and behavioral techniques to reduce the signs and symptoms of urinary incontinence in elderly

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