

Impact of Behavioral Counseling on the Quality of Life of Women with Urinary Incontinence: An interventional study from Muscat, Oman

Alya Ali Abdullah Al Hasni^{1*} and Fakhriyah AL Hoqani²

¹Senior Specialist Family Medicine, Mabila Health Centre, Oman

²Specialist Family Medicine, ALKhoudh Health Centre, Oman

*Corresponding Author: Alya Ali Abdullah Al Hasni, Senior Specialist Family Medicine, Mabila Health Centre, Oman.

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Abstract

Objective: Urinary incontinence (UI) is a common public health concern among women worldwide which can have an adverse effect on the quality of life (QoL). This study sought to explore the effectiveness of behavioral counseling in improving the QoL of Omani women with UI. **Methods:** This cross-sectional interventional study was performed between July 1st, 2019, and July 30th, 2020 at the Al Mabila Health Center, a primary health care (PHC) center in Muscat, Oman. A total of 20 adult Omani women who screened positive for UI using a modified 4-item version of the Short-Form Urinary Distress Inventory were recruited. Four separate 40-60-minute counseling sessions were conducted over the 12-month study period, focusing on lifestyle modifications, bladder training, and Kegel exercises. A validated Arabic version of the 7-item Incontinence Impact Questionnaire was used to determine the pre-post intervention impact of UI on general QoL as well as four specific domains of living (ability to perform daily prayers, physical activities, social life, and mental health). **Results:** The behavioral counseling sessions had a significant positive impact on overall QoL ($t_{19} = 12.03$; $p < 0.001$) as well as all four domains of living, including ability to perform daily prayers ($t_{19} = 6.30$; $p < 0.001$), daily physical activities ($t_{19} = 7.51$; $p < 0.001$), social life ($t_{19} = 9.38$; $p < 0.001$), and mental health ($t_{19} = 18.38$; $p < 0.001$). **Conclusions:** This study provides evidence to support the impact of behavioral counseling in tackling UI as a public health concern in Oman. These findings may help to form the basis for implementing cost-effective health education and counseling programs at PHC centers in Oman in order to improve women's QoL and other metrics of community health.

Keywords: Urinary Incontinence; Women; Quality of Life; Lifestyle; Counseling and Behavioral Change; Oman

Introduction

Urinary incontinence (UI) is a common health condition which may present with varying severity and a wide range of symptoms, with women more frequently affected than men [1]. In 2001, the International Continence Society released a broad definition of UI as any involuntary loss of urine, without stipulating a specific amount of urine or time of leakage [2]. This definition therefore encompasses disorders related to both the storage and voiding functions of the urinary tract system; however, UI is typically considered a multifactorial storage disorder [2, 3]. The three subtypes of UI known to occur most commonly in women include stress, urge, and mixed incontinence [4, 5].

Stress incontinence occurs due to the weakening of the muscles and tissues around the urethra, resulting in incomplete urethral closure with increased abdominal pressure [4, 5]. Accordingly, affected women will leak urine when straining, jumping, coughing, sneezing, or even laughing. Stress incontinence occurs mostly in obese women and women who have had normal or assisted vaginal deliveries [4, 5]. On the other hand, urge incontinence occurs due to problems in the neurological pathway between the cerebral cortex and the bladder leading to detrusor over activity, resulting in a sudden and immediate urge to urinate, with the possibility of leakage before reaching a toilet [4, 5]. In turn, mixed incontinence occurs when women experience symptoms of both stress and urge incontinence at the same time.

All forms of UI with any degree of severity constitute a social and hygiene problem which can adversely impact the quality of life (QoL) of affected women [1, 6]. Although UI does not have serious physical consequences apart from recurrent urinary tract infections, it may nevertheless have a severe negative impact on other facets of health, including social, mental, and psychological health [6-8]. Additionally, UI in adulthood is often considered a taboo topic in many cultures and is therefore associated with considerable social stigma and personal shame [9]. In addition, UI is a costly condition due to additional related expenses, such as absorbent pads and laundry services [10, 11].

Various studies have highlighted the need for educational programs and interventions to address the negative impact of UI on public health [12, 13]. As such, the primary objective of this study was to explore the impact of behavioral therapy emphasizing lifestyle modifications, bladder training, and Kegel exercises on the QoL of Omani women with UI. In addition, the impact of the intervention on four specific domains of living was assessed, including the ability to perform prayers, physical health, social life, and mental health. Behavioral counseling, if effective, can be easily implemented alongside other educational programs at the primary health care (PHC) level, thereby representing a cost-effective method of improving the QoL and general health of women with UI. Improving women's health is an essential component of developing and ameliorating family, community, and public health services in Oman.

Methods

This cross-sectional interventional study was conducted between July 1st 2019 and July 30th 2020 at Al Mabila Health Center, Muscat, Oman. The target population consisted of Omani women aged ≥18 years with UI of varying severity who had attended at least one appointment at the PHC center during the month of July 2019. A diagnosis of UI was made as a result of screening at triage using a modified 4-item Arabic version of the Short-Form Urogenital Distress Inventory (UDI-4) [14, 15]. Based on UDI-4 scores, UI severity was categorized as either mild (scores of 1-4), moderate (scores of 5-8), or severe (scores of 9-12).

A total of 4,731 adult Omani female patients had attended at least one appointment at the PHC center in July 2019. However, only 726 women (15.3%) were screened using the UDI-4 questionnaire at triage, of which 478 (65.8%) were positive for UI. The necessary sample size for the study was therefore calculated to be ~12 (11.8) based on the following equation: [16, 17]

$$N = (Z_{\alpha/2})^2 s^2 / d^2$$

Where the values for $Z^{\alpha/2}$ (1.96), s (12.44), and d (7.08) were obtained from a previous pilot study conducted in Oman [15]. In order to increase the power of the study, the sample was doubled to 24, with eight participants chosen randomly from each UI severity group based on their UDI-4 scores. However, only 23 women (95.8%) provided informed consent to participate in the study and were enrolled.

The objective of the study was to investigate the impact of behavioral counseling on the QoL of Omani women with UI. The dependent variables included overall QoL and four specific domains of living (ability to perform prayers, physical health, social life/relationships, and mental health). The independent variable was the presence of UI and degree of severity (mild, moderate, or severe). Data concerning these variables were collected using Arabic versions of two validated self-reported instruments, the UDI-4 and 7-item Incontinence Impact Questionnaire (IIQ-7) [14, 15]. Shumaker et al. developed the original versions of the IIQ and the UDI as a UI symptom inventory and life impact assessment instrument to be used in combination to quantify the impact of UI on QoL [18]. Later,

these scales were condensed to validated 7- and 6-item short-forms, respectively [14]. Both the UDI-6 and IIQ-7 forms have been translated into Arabic and validated for use in female populations in Egypt and Oman [15, 19]. However, the UDI-6 was further modified and shortened to four items to better suit specific UI symptoms seen in the Omani population [15].

The intervention consisted of four separate 40-60-minute behavioral counseling sessions conducted over a 12-month period. The focus of the counseling targeted lifestyle modifications (i.e., weight loss, avoidance of bladder irritants, and distribution of fluid intake throughout the day) along with bladder training and Kegel exercises. During the initial session, a therapist used a one-to-one motivational interview technique involving open-ended questions and reflective listening skills to uncover UI-related health behaviors and beliefs in line with the theoretical constructs of the Health Belief Model [20].

Readiness for change was assessed for each participant individually while affirming positive thoughts. Additionally, any barriers toward behavior changes were explored and the participants were encouraged to come up with suggestions to overcome obstacles to behavioral modification. In addition, each participant underwent training with a counselor and physiotherapist to learn how to perform Kegel exercises and were instructed to continue to perform a minimum of 10 sets of these exercises three times per day. Finally, the demographic characteristics of the participants were recorded, including age, parity, history and mode of delivery, and the presence of any chronic illnesses.

At the end of the first session, each participant worked together with the therapist to create detailed daily plans involving specific behavior modifications. In addition, written health education materials regarding lifestyle changes, bladder training, and Kegel exercises were provided to each participant in Arabic. Subsequently, the researcher contacted each of the participants via telephone on a monthly basis to follow up with the participants and encourage them to continue the behavioral changes, as well as provide specific advice based on the results of their bladder training. Positive reinforcement was the main strategy used during these telephone calls. In addition, three subsequent face-to-face sessions were conducted at three month intervals; these follow-up sessions reviewed the information provided during the initial session and encouraged reflection on the participants' personal experiences with the behavioral changes.

The IIQ-7 scores of the participants were assessed during the last counseling session in order to assess the pre-post intervention impact of UI on general QoL and the four specific domains of living. Item #1 in the IIQ-7 covered the impact of UI on daily prayers. Physical daily activities scores were calculated by adding items #2 and #3, while social life and mental health scores were calculated by adding items #4 and #5 and items #5 and #6, respectively. Reductions in post-intervention compared to pre-intervention scores were considered indicative of improvement in all four domains. Similarly, a post-intervention reduction in general QOL, calculated as the sum of all seven items in the IIQ-7 questionnaire, was deemed indicative of improvement as a result of the behavioral counselling intervention.

Collected data were entered into the Statistical Package for the Social Sciences (SPSS), version 23.0 (IBM Corp., Armonk, NY). Data entry was performed on a daily basis to avoid errors. Sociodemographic variables were presented using descriptive statistics, including means, frequencies, and percentages. A paired-sample t-test was used to assess pre-post changes in IIQ-7 scores as a result of the behavioral counseling intervention. Ethical approval for this study was provided by the Center of Studies & Research Directorate General of Planning & Studies in the Ministry of Health (MOHCSR). Informed consent was obtained from all participants prior to enrollment.

Results

A total of 20 Omani women with UI took part in the intervention and attended all of the scheduled counseling sessions (attrition rate: 13%). The mean age was 39.4 ± 13.6 years (range: 22-79 years old). Eight women (40%) had at least one chronic illness, including hypertension, diabetes, hypothyroidism, or asthma. All of the women had delivered at least once before, with a mean parity of 4.10 ± 1.92 (range: 1-9 births). With regards to mode of delivery, most of the participants had delivered vaginally ($n = 17$; 85%). Only three women (15%) had a history of Cesarian section deliveries.

All of the women had varying degrees of incontinence with at least one UI-specific symptom. The mean UDI-4 score of the sample was 8 ± 3.49 , indicating borderline moderate-to-severe incontinence. A paired-sample t-test was used to assess pre-post differences in IQ-7 scores in order to measure changes in the impact of UI before and after the behavioral counseling sessions on four specific domains of living, including the ability to perform daily prayers, physical activities, social life, and mental health, as well as general QoL. The analysis confirmed that the behavioral counseling intervention had a significant positive impact on all four domains of living, including ability to perform daily prayers ($t_{19}=6.30; p<0.001$), physical activities ($t_{19}=7.51; p<0.001$), social life ($t_{19}=9.38; p<0.001$), and mental health ($t_{19}=18.38; p<0.001$). Moreover, the counseling sessions also had a statistically significant positive impact on the women's general QoL ($t_{19}=12.03; p<0.001$).

Domain	Mean pre-post difference in IIQ-7 score† \pm SD	SEM	95% CI	t value	Df	p value‡
Ability to perform daily prayers	1.300 ± 0.923	0.206	0.868-1.732	6.296	19	<0.001
Physical activities	2.400 ± 1.429	0.320	1.731-3.069	7.511	19	<0.001
Social life	2.500 ± 1.192	0.267	1.942-3.058	9.379	19	<0.001
Mental health	4.000 ± 0.973	0.218	3.544-4.456	18.379	19	<0.001
Overall QoL	10.200 ± 3.792	0.848	8.425-11.975	12.030	19	<0.001

IIQ-7 = 7-item Incontinence Impact Questionnaire; SD = standard deviation; SEM = standard error of the mean; CI = confidence interval; df = degrees of freedom; QoL = quality of life.

*Diagnosed during triage screening using an Arabic-language validated and modified 4-item version of the Short-Form Urinary Distress Inventory [14, 15]. †Self-assessed by the participants using a validated Arabic version of the IIQ-7 [14, 15]. ‡Calculated using a two-tailed paired-sample t-test.

Table 1: Changes in measures of overall quality of life and domains of living before and after a behavioral counseling intervention for Omani women with urinary incontinence*(N = 20).

Discussion

Adulthood incontinence is a common and often embarrassing condition that can affect QoL in a myriad of ways. Many women experiencing involuntary leakage of urine consider UI to be both debilitating and costly [21, 22]. A previous study by Broome indicated that UI affects approximately 35% of the adult ambulatory population, with significant adverse effects on rates of depression, self-efficacy, and QoL [23]. In addition, previous research has indicated that affected women may have to limit their physical and social activities due to the fear of urinary leakage, thereby resulting in physical, social, and emotional consequences [24, 25].

Unfortunately, despite its high prevalence worldwide, UI remains under diagnosed and undertreated among women in developed and developing countries alike, even though initial management can be effectively applied at the PHC level [5, 26, 27]. One of the main factors contributing to the high rate of under treatment of this condition is the fact that the majority of affected women worldwide do not seek appropriate medical attention, even in more economically developed nations [21]. In addition, many postpartum women in the Middle East do not seek medical help for UI because they believe the condition results from normal physiologic changes following vaginal delivery [28-31].

The behavioral counseling intervention applied in the current study adopted motivational interviewing, positive reinforcement, and reflection techniques in order to enhance the participants' QoL. The focus of the intervention was on lifestyle modifications, bladder training, and Kegel exercises. According to the results, the counseling sessions were effective in reducing the impact of UI on all aspects of QoL, including the women's ability to perform daily prayers, physical activities, social life, and mental health, as well as their general QoL. In particular, the participants viewed reflection as an important and effective tool for improving and enhancing positive

behavioral changes. Moreover, the shared management approach between the provider and participant provided the opportunity to develop tailored intervention plans specific to each participant, thereby helping them to adopt healthier behaviors and effectively modify their lifestyles.

Prayer and other spiritual acts are very important practices for Muslims. Incontinence can negatively affect praying in multiple ways; not only can the involuntary leakage of urine potentially disrupt and nullify rituals of pre-worship purification and ablution, those who have UI symptoms may feel discomfort while performing prayers, thereby negatively affecting their spiritual and emotional QoL [32]. The act of praying in Islam requires believers to stand, bend, and sit several times and maintaining cleanliness while performing these prayers can be difficult or impossible for Muslim women with UI as such movements may prompt leakage [25]. This problem could therefore be particularly distressing to Omani women, requiring them to repeat their prayers due to frequent cleansing.

Overall, the results of the present study indicated that lifestyle modification and bladder training is an effective approach to mitigating the impact of UI on QoL. Despite the relatively small sample, the study exceeded the necessary sample size required for behavioral counseling research, which may resemble qualitative research in terms of depth [16, 17]. As such, this approach can be feasibly implemented at the PHC level in Oman before referring patients for other interventions, such as medical or surgical management. Previous studies have reported positive psychological outcomes as a result of comparable interventions among women with incontinence [33, 34]. Similarly, the behavioral counseling intervention in the present study was found to have a greater, more obvious effect in improving mental health compared to other aspects of QoL ($t = 18.38$). This may be because UI tends to have more severe effects on mental health compared to other aspects of QoL [23, 35, 36]. Additionally, the impact of UI on other domains of living will indirectly affect mental health [37].

Conclusion

UI is a common public health concern impacting QoL. The findings of this study revealed the efficacy of a non-pharmacological behavioral counselling intervention on improving the general QoL of Omani women with UI. Providers at PHC centers in Oman should therefore be trained to perform behavioral counseling for women with UI. Such measures, in combination with public health education programs, will hopefully reduce the mental and psychosocial burden of incontinence among Omani women, thereby improving their overall wellbeing.

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