

Using Cognitive Strategies to Enhance Bladder Control and Comfort

Compromised urinary bladder syndrome (CUBS), a combination of frequency and incontinence, causes multiple discomforts for community-dwelling adults. A holistic intervention—audiotaped cognitive strategies—was designed to augment the effects of an educational program designed to treat CUBS. CUBS was operationalized with a voiding diary, and comfort related to bladder health was operationalized in a questionnaire. In this quasi-experimental design the outcomes were measured at four time points. Repeated measures multivariate analyses of variance and nonparametric analyses were conducted to assess differences between the two groups. Results indicated that the treatment group had more comfort and improved CUBS compared with the control group.
Key words: *cognitive strategies, comfort, community dwelling, urinary frequency, urinary incontinence*

Thérèse Dowd, PhD, RN
Assistant Professor
College of Nursing

Katharine Kolcaba, PhD, RN, C
Assistant Professor
College of Nursing

Richard Steiner, PhD, MPH
Associate Professor
Department of Mathematical Sciences
The University of Akron
Akron, Ohio

THE OBJECTIVE of this experimental study was to test the abilities of cognitive strategies (CS) to augment the effects of an educational program designed to treat compromised urinary bladder syndrome (CUBS). CUBS is defined by these authors as urinary leakage and/or frequency sufficient to be a problem. The term is synonymous with bladder function related to leakage and/or frequency. In spite of multiple comfort needs and long-term consequences associated with incontinence and frequency,¹ there is a dearth of experimental studies for persons with CUBS.

Depression, physical unease, embarrassment, fear of discovery, and social isolation are some of the common discomforts associated with CUBS.² Infections and skin breakdowns often require treatment to prevent further complications. Supplies for protection and special clothing cause financial strain. Furthermore, CUBS is one of the major reasons for placement in long-term care

This pilot study was supported by The University of Akron Faculty Grant 1355.

Holist Nurs Pract 2000;14(2):91–103
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settings.³ Successful interventions would eliminate or lessen discomforts associated with CUBS, improve the condition of CUBS, and prevent sequelae of CUBS.

CS were designed specifically to enhance the effects of standard behavioral techniques presented in an informational format. CS were operationalized on an audiotape; participants listened to the audiotape at prescribed intervals on tape players provided by the study. The intervention is holistic because it targeted many discomforts that are associated with CUBS at one time. The expectation was for a positive whole person response as operationalized by the desired outcomes of (1) enhanced comfort related to bladder function; and (2) improvement in CUBS as measured by decreases in urinary incontinence (UI) and/or frequency.

Two groups were used to test the hypotheses. Group A received education about bladder health, recorded incontinence and frequency episodes in a voiding diary, and listened to the audiotape daily. Group B received the same education about bladder health and recorded incontinence and frequency episodes in the voiding diary. The experimental hypotheses were:

- H1: Group A will have significantly higher comfort over time compared with group B.
- H2: Group A will have significantly improved CUBS over time compared with group B.
- H3: When group B receives CS, they will demonstrate the same comfort compared with group A at the end of the study.
- H4: When group B receives CS they will demonstrate the same improvement in CUBS compared with group A at the end of the study.

- H5: Gender and age will have no effects on the outcomes.

BACKGROUND

Prevalence

The International Continence Society and the Agency for Health Care Policy and Research Clinical Practice Guidelines define UI as the involuntary loss of urine sufficient to be a problem.¹ Frequency is defined as urination more often than every 2 hours during the day and more often than every 4 hours at night. In past studies by Dowd and co-workers, UI and frequency are related and often experienced together by participants.^{2,4} For research with community-dwelling persons, it is appropriate to consider the combination of urinary leakage and frequency as a single target for noninvasive, first-level treatment.

CUBS is experienced by adults of all ages, educational levels, economic status, and health states. Prevalence estimates of UI for community-dwelling individuals range from 8% to 34% and increase with age from 15% in the 20- to 60-year-old group to 15% to 30% for the over-60 age group.^{5,6} Prevalence estimates for frequency have not been compiled. Many adults believe CUBS is unavoidable and a normal part of the aging process and that they must accommodate to this uncomfortable condition in their lives.⁷ Furthermore, many assume that CUBS is unique to them and they are too embarrassed to discuss it. In addition, health professionals do not routinely inquire about CUBS, thus missing an opportunity to help.¹ These three factors are among the reasons for underreported and insufficient treatment of persons in the community with CUBS.

Conceptual framework

The conceptual framework for this study is derived from Kolcaba's Mid-Range Theory of Comfort.⁸ This theory states that nurses use the content domain of comfort to identify health care needs and design interventions for person in their care. Nurses identify intervening variables that impact on the success of the interventions. The content domain of comfort consists of three types of comfort (relief, ease, and transcendence) and four contexts of experience (physical, psychospiritual, social, and environmental) juxtaposed to form a 12-cell grid.⁹ The effectiveness of the intervention(s) is determined by comparing patients' comfort before and after implementation. If comfort is enhanced, patients' health seeking behaviors (HSBs) are facilitated.⁹ Schlodfeldt¹⁰ believed that comfort was essential for engaging in HSBs and that motivating clients to engage in HSBs was a main goal for nursing. The literature review is organized according to the variables in the conceptual framework.

HEALTH CARE NEEDS OF POPULATION

Comfort theory suggests that comfort needs of patients in specific health care situations are complex, multiple, and connected and that interventions are targeted to the needs that can not be met by patients themselves or their existing support systems. In this population, multifaceted adjustments are needed to contend with CUBS. Because individuals are reluctant to talk about urine loss, self-management strategies are usually developed with little help from others. Major goals for self-management are to prevent embarrassment and discomfort² by

reducing the frequency of CUBS episodes and/or containing the urine. Ad hoc functional and dysfunctional strategies to cope with CUBS have been investigated. Dysfunctional strategies include restricting fluids, frequent toileting, and social isolation.² Although strategies such as frequent toileting, wearing protection, restricting fluids, and limiting physical activity help to contain the urine, they do not result in improvement of CUBS. Further, these self management strategies often lead to social isolation and lowered self-esteem and do not treat the underlying condition.

Interventions related to this study

Conservative treatment for bladder health is recommended as the first approach.¹ Earlier research has demonstrated that behavioral techniques for community-dwelling persons are effective. A combination of behavioral approaches such as pelvic muscle exercises, bladder training, self-monitoring, and fluid management resulted in fewer UI episodes and decrease in amount of urine loss at 6 months.^{11,12} Group information sessions about behavioral approaches resulted in decreased UI episodes.^{13,14} Specific behavioral interventions such as fluid management⁴ and bladder training protocols¹⁵ resulted in subjective assessment of improvement that was not found in quantitative data. In practice settings, pelvic muscle exercises and bladder training resulted in improvement rates similar to medications, but patients preferred behavioral techniques.¹⁶ Comparisons across these studies revealed that noninvasive behavioral treatments were beneficial and cost effective for community-dwelling women but that implementation of the behavioral techniques was variable and

fraught with high attrition rates. The education given to all the subjects in this study is based on the behavioral techniques described above. The difference in this study is that the subsequent outcome, improved CUBS, is operationalized as decreased frequency and/or leakage.

Ways to enhance behavioral treatments in terms of adherence, and strength and duration of effects should be examined. One such way, CS, have been successful in treatment of children with enuresis;¹⁷ in children with persistent urge incontinence,¹⁸ and in treating individual young adults with excessive urinary urgency.¹⁹ CS are defined as the identification and modification of automatic negative thoughts and self-statements, and permanent replacement of them with more adaptive ones.^{20,21} Through this adaptive replacement, individuals are internally motivated to restructure the thoughts that direct and encourage behaviors that are more beneficial for their health, in this instance improved CUBS. Therefore, CS offer one way to enhance the motivation and effectiveness of behavioral techniques.

In this study, the intervention was an audiotape with relaxation, music, and CS. Soft jazz was recorded on both sides of the tape; each side was 20 minutes in length. CS were written by these researchers and audiotaped by a professional therapist. The verbal side of the tape contained instructions for relaxation followed by CS, because maximum learning occurs when persons are relaxed.²² Statements directed to common thought patterns about CUBS were developed for each of the four contexts in which comfort is experienced.⁹ The statements focused on concepts of self and on specific aspects of bladder management. For example, the statement "I am not alone; many

other men and women have loss of urine and they are okay" was designed to enhance social comfort, while the statements "...being physically fit is important" and "I often tighten and relax the muscles that control my urine flow..." were designed to enhance physical comfort. Some statements focused on perception of self as a worthwhile person. Other statements reinforced information about bladder health given to all participants at the beginning of the study. Examples of these statements include paying attention to how fluids affect the bladder, how to manage urges to void, and how to direct the conscious thoughts involved with voiding, such as when to initiate the flow of urine. The verbal instructions ended with feelings of well being and gradual reawareness of the environment. Music was on the second side of the tape. In these ways, CS were both specific to frequency and incontinence and they also targeted associated multiple comfort needs.

Intervening variables

Few intervention studies included men with CUBS. Those studies that included men were unclear about the effects of gender on treatment outcomes.¹⁹ However, there is some evidence that men seek treatment sooner than women, and that this might make men more amenable to treatment. Evidence is also scant about the effects of aging on treatment outcomes. Although older women take longer to learn pelvic muscle exercises than younger women, older women responded the same as younger women to an audiotaped intervention designed to enhance comfort.²² Because of these ambiguities, this work explores age and gender as factors in achieving the desired outcomes.

The holistic concept comfort is an appropriate outcome because it entails a relief of multiple and interrelated discomforts associated with CUBS.

Comfort (immediate outcome)

Comfort is defined as the state of being strengthened by having the needs for three types of comfort (relief, ease, and transcendence) met in four contexts of experience (physical, psychospiritual, social, and environmental).^{8,9} The holistic concept comfort is an appropriate outcome because it entails a relief of multiple and interrelated discomforts associated with CUBS. Comfort also implies a sense of ease that bladder function can be improved and a belief in participants' ability to transcend problems. Moreover, comfort is related theoretically to increased motivation for applying newly learned behaviors.⁴ Because of the reciprocal relationship between comfort and HSBs, interventions that increase comfort regarding CUBS also support persons' efforts to be actively engaged in HSBs.

Frequency and incontinence episodes (subsequent HSBs)

CUBS was measured by the number of incontinent episodes and frequency of toileting as recorded in a voiding diary designed for this study. Previously used measures of treatment outcomes were number of UI episodes and amount of leakage.^{4,24} These studies did not account for the effects of frequency as an indicator of compromised bladder function. Dowd² described participants toileting every hour (even though they had no

urge to void) in an effort to prevent leakage. Other participants stated that urge was a factor in their frequency of toileting. Others described the "key-in-the-lock" syndrome, whereby an environmental cue such as arriving home caused an irrepressible need to void. Yet for others the thought of having to void precipitated incontinence and there was no ability to delay urination appropriately. It is these complex interactions between mind and body that are addressed by CS. Such approaches have been coined "mind over bladder"²³ and apply to the design of this study.

Another problem described in Dowd's study is bladder irritability.² Bladder irritability can take the form of the sensation of burning (in the absence of infection), intense urgency, or hyperactivity. Some of these symptoms can be caused by caffeine, acidic foods and fluids, smoking, allergies, and other factors.²⁴ CS also address these issues with the expectations that information about irritants can be augmented by positive belief systems that effect behavioral changes related to CUBS.

METHODS

Sampling plan

The study was approved by The University of Akron Institutional Review Board. Participants were recruited through local newspapers. Inclusion criteria were: over 40 years of age, independent in self-care, history of incontinence and/or frequency for at least 6 months, able to read and write English, and having hearing adequate for listening to an audiotape. Exclusion criteria were presence of urinary tract infections (UTIs) or severe neurological disorders. The sample

Table 1. Self descriptors of CUBS

| Causes | Number of subjects |
|------------------------|--------------------|
| urgency | 11 |
| surgery | 08 |
| childbirth | 09 |
| other/mix | 12 |
| Extent of interference | |
| with life | |
| very much | 07 |
| quite a bit | 09 |
| hardly/not at all | 24 |
| Treatments tried | |
| Kegel exercise | 04 |
| medication | 04 |
| restricting fluids | 02 |
| surgery | 01 |

consisted of 31 women and 9 men, ages 42–91 (median age of 74 years). One potential participant was referred to a physician and excluded from the study because of acute urinary tract symptoms. Treatment and control groups were not significantly different on demographic variables; 36 participants were European Americans, 1 was African American, and 3 described themselves as “mixed.” Causes of CUBS were evenly distributed between the two groups (Table 1). At baseline, there was a significant difference in number of CUBS episodes, with the treatment group having more CUBS episodes than the control group. There were no differences in groups on comfort or gender, but there was a difference on age. The average age in the control group was 76 years and in the treatment group was 68 years.

Instruments

Comfort was measured at four time points with the Urinary Incontinence and Fre-

quency Comfort Questionnaire (UIFCQ). The UFCQ was adapted from the General Comfort Questionnaire⁹ and contained 23 positive and negative items specific to the experience of living with UI (see Appendix). A Likert-type format, ranging from strongly agree to strongly disagree, was used for each item. Responses were scored from 1 to 6; higher scores indicated higher comfort. For this sample, Cronbach’s alpha averaged 0.82 across the four measurement points indicating acceptable reliability.

The number of incontinent episodes and frequency of toileting was recorded by each participant in a voiding diary that contained grids for each day in the study. These marks were hand tallied at the end of the study and entered as raw scores. The range of scores was from 8 to 96 incontinent episodes and 50 to 125 frequency episodes per week.

Procedure

After a random start, participants were assigned alternately to treatment ($n = 21$) or control ($n = 19$). At the preintervention visit, all participants were given details about the study and asked to sign informed consent. They completed a brief demographic questionnaire and history of CUBS. To obtain baseline data about bladder function under usual conditions, they were asked to record incontinent and frequency episodes in the voiding diary for 1 week. At this intake visit, urine was tested with Ames Multistix 10SG Reagent Strips to screen for leukocytes and blood (indicators of UTIs); one positive result was found for the sample.

One week later (Time 1), all participants received basic information about bladder function and behavioral techniques to

improve bladder health. Those assigned to the treatment group received instructions for using the tape player provided by the study and the audiotape of CS. They were asked to listen to the audiotape once a day at their convenience for 6 weeks. All participants answered the UIFCQ and were asked to continue recording incontinence and frequency episodes in voiding diaries.

Data collection for all participants at Time 2 (UIFCQ and diary) occurred 3 weeks after Time 1. Time 3 (UIFCQ and diary) occurred 3 weeks after Time 2. At Time 3, persons in the control group were given the same audiotape and tape player to use for 3 weeks. Persons in the treatment group were encouraged to continue listening if they desired. Data at Time 4 (UIFCQ and diary), collected 3 weeks later, reflected the effects of using the intervention the control group.

RESULTS

Hypotheses testing

The significance level of the statistical tests was set at 0.10 to reduce the chance of missing important differences between

groups. This is reasonable because the intervention has no known negative effects.²⁵ The UIFCQ scores appeared normally distributed in each group, and parametric methods were used to test hypotheses involving the UIFCQ. However, number of CUBS episodes were not normally distributed, and nonparametric methods were used to test hypotheses involving this variable.

H1: Group A will have significantly higher comfort over time than group B

Repeated measures multivariate analysis of variance (RM MANOVA) was used to test for differences in comfort scores on the UIFCQ between the groups and differences over time. This analysis revealed that changes over time in mean comfort scores on the UIFCQ differed between the groups [group \times time interaction $F(2, 37) = 4.55, P = 0.02$]. Specifically, the treatment group had higher mean comfort at Time 2 and at Time 3 than the control group. There was no significant difference between groups at Time 1 (see post hoc Student's t tests in Table 2). Thus, hypothesis 1 was supported.

Table 2. Mean pooled standard deviation (SD) t tests between treatment and control groups on UIFCQ

| | Range 1–6 | Treatment | Control | SD | t value | P | Effect size |
|--|-----------|-----------|---------|-----|-----------|-----|-------------|
| Time 1 | | 4.13 | 4.13 | .23 | −0.12 | .91 | |
| Time 2 | | 4.38 | 4.11 | | −1.22 | .23 | |
| Time 3 | | 4.55 | 4.19 | | −1.79 | .08 | 1.6 |
| (before control group received intervention) | | | | | | | |
| Time 4 | | 4.52 | 4.47 | | −0.36 | .71 | |
| (after control group received intervention) | | | | | | | |

Table 3. Number of participants and percent improved between treatment (T) and control (C) groups predicted by the Urinary Incontinence Comfort Questionnaire (UIFCQ) and voiding log

| | T | | T | | C | | C | | P χ^2 |
|-------------|----------|----|--------------|----|----------|----|--------------|----|---------------|
| | Improved | | Not Improved | | Improved | | Not Improved | | |
| | # | % | # | % | # | % | # | % | |
| UIFCQ | 17 | 90 | 2 | 10 | 14 | 67 | 7 | 33 | .09 |
| UI episodes | 17 | 90 | 2 | 10 | 11 | 52 | 10 | 48 | .01 |

H2: Group A will have significantly improved CUBS over time compared with group B

In this analysis, difference scores were computed for each subject (ie, number of frequency and/or leakage episodes) at Time 1 minus number of episodes at Time 3). Then, these differences were compared between the groups using the median test. Hypothesis 2 was supported, because there was a greater median reduction in number of episodes from Time 1 to Time 3 in the treatment group than in the control group ($P = 0.05$, one-tailed) (see Table 3). Also, a contingency table analysis comparing the proportions of persons who had fewer episodes revealed that 89.5% of the subjects in the treatment group experienced improvement compared with 52.4% improving in the control group ($P = 0.01$). This further supports hypothesis 2.

H3: When group B receives CS, they will demonstrate the same comfort compared with group A at the end of the study

Three weeks after the intervention was introduced to the control group, there was no significant difference between the groups

at Time 4 ($T = -0.36$, $P = 0.71$). This demonstrated that the level of comfort in the control group, which was lower than the treatment group at Time 3, became similar to the level of comfort in the treatment group by Time 4 (see Table 3). Thus, hypothesis 3 was supported.

H4: When group B receives CS, they will demonstrate the same improvement in CUBS compared with group A at the end of the study

Hypothesis Four was tested by comparing the number of CUBS episodes for the control group at Time 4 (after they received the intervention) to the number of episodes for the original treatment group at Time 3. (The original treatment group did not continue to keep diaries reliably in these last 3 weeks.) The Wilcoxon rank sum test was performed on data from diaries of the control group. These data revealed that, 3 weeks after the control group began using CS, episodes decreased in number to match approximately the number of episodes in the original treatment group at Time 3. (The treatment group had 19 episodes at Time 3; the control group had 20 episodes at Time 4; $P = 0.69$.) Thus, hypothesis 4 was supported.

H5: Gender and age will have no effects on the outcomes

In the control group, age and UIFCQ score appear uncorrelated at Time 1 ($P = 0.90$), Time 2 ($P = 0.43$), and Time 3 ($P = 0.31$); however, in the treatment group, age and UIFCQ score appear uncorrelated at Time 2 ($P = 0.21$), but are negatively correlated at Time 1 ($r = -0.41$, $P = 0.08$) and Time 3 ($r = -0.46$, $P = 0.05$). This indicates that, in the treatment group at least, UIFCQ scores were lower for older subjects, at Times 1 and 3. To examine the influence of age on the effect the treatment had on UIFCQ scores, an analysis of covariance (ANCOVA) was performed in which the response was the change in UIFCQ from Time 1 to Time 3, the factor was group, and age was a covariate. In this analysis there was a significantly greater increase in UIFCQ score from Time 1 to Time 3 in the treatment group than in the control group [$F(1, 37) = 3.796$, $P = 0.06$]. In a similar analysis comparing Time 1 with Time 2, no significant difference in the UIFCQ change was found [$F(1, 37) = 2.240$, $P = 0.14$]. Thus, the results of these analyses, which are adjusted for age, are consistent with the unadjusted analysis reported earlier.

The effect of CS on UIFCQ over time appears to be the same for both males and females. However, at all times males have higher mean UIFCQ than females [$F(1, 36) = 3.585$, $P = 0.07$]. There was no significant effect of gender on the change in log score from Time 1 to Time 2 or from Time 1 to Time 3 (median test $P = 0.43$ and $P = 0.16$, respectively). Also, there was no significant difference between the groups in the median log scores at Times 1, 2, or 3 (all $P > 0.26$).

In both the control group and the treatment group, age and diary score appear uncorrelated at Times 1, 2, and 3 (all $P = >0.24$). Thus, hypothesis 5 was supported.

Association between UIFCQ and CUBS

We also wanted to examine the conceptual framework by testing the strength of the relationship between comfort and CUBS, such that comfort would be a meaningful outcome for predicting improvement in CUBS. Non-parametric measures of association between the UIFCQ and the diary revealed a significant relationship (Kendall Tau $b = -0.21$, $P = 0.06$), that is comfort increased in participants whose frequency and/or leakage episodes decreased. Further, the UIFCQ predicted the participants ($n = 17$, or 90% of the treatment group) who demonstrated improvement in episodes. Thus comfort was a strong predictor of who benefits from treatment for CUBS, supporting the Mid-Range Theory of Comfort.⁸

DISCUSSION

Conceptualizing UI and frequency as CUBS is useful for first level treatment for community-dwelling persons. This is because bladder education and behavioral treatments are directed toward and affect both components (leakage and frequency) of the syndrome simultaneously. Participants in previous studies have demonstrated that blurring of the two components is consistent with their experiences. They have also demonstrated that their responses to treatment occur in both realms of the syndrome. Therefore this conceptualization of bladder dysfunction is more inclusive and realistic

Nor do all persons want to add a bladder medication to their health routine, even if they could afford it.

for designing treatments and measuring their effects. This conceptualization also facilitates self-recognition of bladder dysfunction in the absence of leakage. The interventions, instruments, and study design in this research are congruent with this conceptualization because they account for changes in leakage as well as frequency and the combination of both components.

In addition, this conceptualization is appropriate for treatments that are easy-to-use, applicable to unique situations, and inexpensive. These types of interventions appeal to persons who cannot afford or do not desire expensive, uncomfortable bladder function studies and treatments for urinary bladder problems that they consider manageable. Nor do all persons want to add a bladder medication to their health routine, even if they could afford it. CS offer a natural and long-lasting way to improve CUBS.

For participants in this study, CS were helpful in increasing comfort and improving CUBS. Although the control group had significantly fewer CUBS episodes at Time 1, comfort level was low for both groups. The treatment group improved in the expected direction on both comfort and CUBS and by Time 3, 6 weeks after the intervention was introduced, differences in comfort were significant. At Time 4, comfort levels did not change in the treatment group. Comfort levels in the control group improved at Time 4, after they received the intervention.

Most persons indicated that they mentally recalled the words and music from their audiotapes, augmenting actual listening sessions. For some, it was natural to convert appropriate statements to prayer. If they became tired of the words, they listened to the music-only side of the tape. The music-only side was especially useful if stress-related insomnia was a problem. The intervention, therefore, was flexible and could be applied to the unique situations of participants.

Comfort is congruent with participants' perceptions of improvement in CUBS. Anecdotal evidence revealed that, for many of the participants, discovery of their ability to implement effective behavioral techniques to improve bladder function was a positive learning experience that changed their outlook from that of passivity to "being in charge." Reports from many participants were that they improved by taking an active stance in managing their urinary elimination system holistically, through self-care in fluid management, hygiene, environmental adaptation, and use of resources. This change in mind set was related to significant alleviation of distress, evidenced by increased comfort and motivation.

The intervention was simple to use. All participants learned how to use the tape player quickly and generally found 20 minutes to listen to the tape every day. The success of CS perhaps was related to convenience, consistent repetition (either with the audiotape or mentally), and relevance to the problems of people with CUBS. The audiotape provided a standardized treatment and repeated exposure to CS.

The UIFCQ quantitatively captured changes that were evident in qualitative analysis of diary reports and in the anecdotal

data given by the participants. Measurements of comfort accounted for psychospiritual, social, and environmental aspects, as well as physical symptoms associated with CUBS. Therefore, this instrument, which is holistic in scope, was relevant to the experience of persons with CUBS and was able to capture change over time associated with information augmented by CS. Statistical analyses indicated that the UIFCQ was a valid and reliable instrument for measuring comfort associated with CUBS and for predicting those who would improve in CUBS.

A factor limiting generalizability is the self-selected sample. Present findings about the effectiveness of CS for effecting positive outcomes associated with CUBS apply only to persons who read the publications containing the advertisement for the study and who were sufficiently motivated to volunteer for the study.

SUGGESTIONS FOR FUTURE RESEARCH

Suggestions for future research focus on increasing the sample size, broadening recruitment strategies, and stratifying participants. Because alpha was set at 0.10, a small

sample size showed significant differences between groups at the end of 6 weeks. The next study should use a larger sample size and the more traditional alpha of 0.05 to confirm these preliminary results. Retesting at longer intervals would be useful to ascertain the theoretical durability of the effects. Recruitment should take place across multiple geographical sites, each with its own project director. Recruitment strategies may vary according to community resources and composition. New methods for identification of possible participants in early stages of CUBS need to be explored to include low-income groups and a representative number of men.



This pilot study presented promising findings about a noninvasive intervention to improve effectiveness of behavioral techniques regarding bladder function. Both men and women had more comfort and improved bladder function after the audiotaped CS. It was apparent that the benefit of intervention increased with repetition. Thinking patterns changed gradually and consistently and were related to outcomes relevant to persons with CUBS.

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Appendix

Date.....
Code#.....

IMMEDIATE OUTCOME (UFCQ)

Thank you VERY MUCH for helping us in our study about feelings associated with urinary incontinence and frequency. Below are statements that pertain to your feelings. Six numbers are provided for each question; please circle the number you think most closely matches your feelings **at the moment you are answering the questions**.

| | Strongly Agree | | | Strongly Disagree | | |
|---|----------------|---|---|-------------------|---|---|
| | 6 | 5 | 4 | 3 | 2 | 1 |
| 1. I feel good about myself..... | 6 | 5 | 4 | 3 | 2 | 1 |
| 2. It helps to talk to people about my urinary incontinence..... | 6 | 5 | 4 | 3 | 2 | 1 |
| 3. I worry about being able to find a bathroom when I go out..... | 6 | 5 | 4 | 3 | 2 | 1 |
| 4. I am just as attractive physically as I always was..... | 6 | 5 | 4 | 3 | 2 | 1 |
| 5. I feel tense..... | 6 | 5 | 4 | 3 | 2 | 1 |
| 6. I'm afraid to go visit my friends or family..... | 6 | 5 | 4 | 3 | 2 | 1 |
| 7. I don't have enough information about my urinary incontinence..... | 6 | 5 | 4 | 3 | 2 | 1 |
| 8. I think about my bladder all the time..... | 6 | 5 | 4 | 3 | 2 | 1 |
| 9. I don't know anyone else with this problem..... | 6 | 5 | 4 | 3 | 2 | 1 |
| 10. I am tired..... | 6 | 5 | 4 | 3 | 2 | 1 |
| 11. I am able to cope with my urinary patterns..... | 6 | 5 | 4 | 3 | 2 | 1 |
| 12. My home smells clean..... | 6 | 5 | 4 | 3 | 2 | 1 |
| 13. I am able to sleep well..... | 6 | 5 | 4 | 3 | 2 | 1 |
| 14. Life is a struggle right now..... | 6 | 5 | 4 | 3 | 2 | 1 |
| 15. I enjoy going shopping..... | 6 | 5 | 4 | 3 | 2 | 1 |
| 16. I find a lot of meaning in my life..... | 6 | 5 | 4 | 3 | 2 | 1 |
| 17. Urinary incontinence is a challenge I can meet..... | 6 | 5 | 4 | 3 | 2 | 1 |
| 18. I get anxious and fearful about going out..... | 6 | 5 | 4 | 3 | 2 | 1 |
| 19. I am afraid of what is next..... | 6 | 5 | 4 | 3 | 2 | 1 |
| 20. No one understands me..... | 6 | 5 | 4 | 3 | 2 | 1 |
| 21. I drink very little fluids..... | 6 | 5 | 4 | 3 | 2 | 1 |
| 22. I feel out of control..... | 6 | 5 | 4 | 3 | 2 | 1 |
| 23. I have a favorite person(s) who makes me feel cared for..... | 6 | 5 | 4 | 3 | 2 | 1 |
| 24. I enjoy having people over to my house..... | 6 | 5 | 4 | 3 | 2 | 1 |
| 25. I feel physically fit..... | 6 | 5 | 4 | 3 | 2 | 1 |
| 26. I am aware of the effects of different fluids on my bladder..... | 6 | 5 | 4 | 3 | 2 | 1 |
| 27. I feel clean and fresh..... | 6 | 5 | 4 | 3 | 2 | 1 |