



BLADDER TRAINING PROGRAM & SEXUAL REHABILITATION IN PATIENTS FOLLOWING SPINAL CORD INJURY: AN OCCUPATIONAL THERAPY PERSPECTIVE

Occupational Therapy

Dr. Vijaya B. Tupsaundarya

Clinical Therapist, Occupational Therapy Training School & Centre, LTMMC & GH, Sion, Mumbai

Dr. Anuradha Pai

Assistant Professor, Occupational Therapy Training School & Centre, LTMMC & GH, Sion, Mumbai

ABSTRACT

Background: Spinal cord injury leads the spinal cord into spinal shock thus, the urinary bladder seems flaccid with all bladder reflexes and muscle actions are abolished. As spinal shock weans off, bladder can either turn spastic or flaccid. Bladder management includes intermittent & indwelling catheterization, reflex voiding etc. People with spinal cord injury consider sexuality to be a high priority, hence it is important that health professionals actively address sexuality. The study aims at providing wide variety of bladder training program & sexual rehabilitation to improve the quality of life. **Methodology:** A sample of 15 patients fulfilling the inclusion criteria were enrolled in this study. The data was collected using two scales: King's healthcare questionnaire (KHQ) & Perceived sexual distress scale (PSDS). 6 weeks protocol of behavioral interventions, pelvic-floor exercises, self-monitoring techniques, & sexual rehabilitation using PLISSIT model was used in the intervention. **Result:** Pre & post score of KHQ part 1, showed that the mean at baseline evaluation was 55.449 & post intervention was 43.37 ($p < 0.01$) concluding that structured bladder training program has shown improvement in general health perception & reduction of impact of urinary incontinence on patients with spinal cord injury. The pre & post score of PSDS, showed mean at baseline evaluation was 69.73 & post intervention was 84.40 ($p < 0.01$), concluding that sexual rehabilitation using occupational therapy intervention has helped patients adapt to the sexual adjustments post spinal cord injury. **Conclusions:** The study showed that occupational therapy interventions are effective in bladder management & for improving the sexual well-being of spinal cord injury patients.

KEYWORDS

Bladder management, Sexual rehabilitation, Spinal cord injury, King's Healthcare questionnaire, Perceived sexual distress scale.

INTRODUCTION

The brain and spinal cord are our body's central nervous system. The brain is the command centre for our body, and the spinal cord is the pathway for messages sent by the brain to the body and from the body to the brain. Vehicle accidents, gunshot wounds, and damage while playing sports are all potential causes of spinal cord injury. Damage to any part of the spinal cord could cause permanent changes to a person's functioning. The effect of spinal cord injury (SCI) on bladder function depends on the level of injury: automatic bladder: when injury occurs at thoracic level 12 (T12) of spinal cord or above and flaccid bladder: when injury is below T12 spinal level. Urodynamics test is done to see how well bladder and sphincter are working post SCI.^[1]

Bladder Dysfunction Following SCI

Bladder dysfunction such as urinary incontinence, voiding difficulties, and urine retention can be a distressing and embarrassing condition leading to social withdrawal, lowered self-esteem, increased marital problems, and sexual dysfunction ultimately affecting the QOL of patients with traumatic paraplegia.

Bladder management is an ongoing set of treatments and practices that help keep bladder and kidneys healthy and free from infection and other problems. Bladder management cannot fix or solve the problems caused by SCI, but it can help to manage them to improve health and quality of life. Traditional bladder management techniques in SCI include intermittent catheterization, indwelling catheterization, indwelling suprapubic catheterization, Valsalva and Crede voiding, and reflex voiding.^[1]

Sexuality Following SCI

Although a spinal cord injury most certainly affects the person's sexual and reproductive behaviours, people with spinal cord injury remain sexual beings and can continue to participate in sexual activity. Neglecting this topic may lead to poor self-esteem, body image, intimacy and relationship difficulties.

In Spinal cord injury, Sexual adjustments can encompass two aspects: Physical & Interpersonal.

All aspects of sexual intimacy and activity should be discussed with people with SCI, including planning, foreplay, general pleasuring (including touching), achieving and maintaining an erection, ejaculation, lubrication, orgasm, positioning for loss of mobility or spasm, bladder, and bowel management, orogenital sex, self-exploration and stimulation and the 5 potential risk of autonomic dysreflexia in those with lesions above T6.^[2]

Medical Management for Sexuality Following Spinal cord injury

Medical management involves remedial or adaptive approach for managing erectile & ejaculatory dysfunction for fertility & sexual health, education and counselling, changes in sexual practices, considerations for sexual activity, & Long-term adjustment.^[2]

METHODOLOGY

Study Design : Experimental Prospective Design.

Sample Size: 15

Duration : 1 Year

Eligibility Criteria

Inclusion Criteria : Paraplegia, Bladder Incontinence following SCI, Age 18 to 60 years.

Exclusion Criteria : Severe Complications (like Autonomic Dysreflexia etc), Mental Illness, Visual, auditory & Speech Impairment.

Scale Used:

1. King's Healthcare Questionnaire (KHQ):

- KHQ is a patient self-administered self-report and has 3 parts consisting of 21 items.
- Part 1 contains general health perception and incontinence impact.
- Part 2 contains role limitations, physical limitations, social limitations, personal relationships, emotions and sleep/energy, severity measures.
- Part 3 is considered as a single item and contains ten responses in relation to frequency, nocturia, urgency, urge, stress, intercourse incontinence, nocturnal enuresis, infections, pain, and difficulty in voiding.
- The responses in KHQ have four-point rating system.
- The eight subscales scored between 0 (best) and 100 (worst).
- The Symptom Severity scale is scored from 0 (best) to 30 (worst).
- Decreases in KHQ domain scores indicate an improvement in quality of life.

2. Perceived Sexual Distress Scale (PSDS):

The PSDS is a valid, self/interviewer-rated tool that can help inform the rehabilitation team about the level of an individual's perceived sexual distress post SCI. It also provides an outcome measure to evaluate the efficacy of interventions related to sexuality post injury. It takes around 20–25 min to administer; and is applicable across a wide-age range and for both the genders. The measurable data gathered by the PSDS can help the rehabilitation team to gain some insight regarding the effectiveness of interventions related to sexuality after SCI.

Procedure and Design of Study:

The study consisted of only one interventional group of which evaluation was done at day 1 & after 6 weeks of intervention. Weekly twice session . Each Session was categorized 30 minutes for bladder training & 30 minutes for sexual rehabilitation.

Occupational Therapy Intervention for Urinary Incontinence:**1. Behavioural Interventions:**

- Bladder retraining includes maintaining bladder diary, scheduling voiding interval according to diary and relaxation. Bladder retraining consists of an educational program that addresses lower urinary tract function. It involves training to inhibit the sensation of urgency and postpone voiding .The next step is to urinate according to a time table in patients with an interval less than two hours between two consecutive micturition in order to reach an interval of at least three hours between two consecutive voiding and to reach larger voided volumes.
- Pelvic floor muscle exercises/Kegel exercise: It includes locating pelvic floor muscles correctly, giving equal duration for contraction as well as relaxation while practicing and increasing the duration with time.^[3]

2. Self-monitoring Techniques :

- Timing and amount of fluid intake,
- amount of caffeine consumption.

Spastic Bladder training program	Flaccid Bladder Training Program
The purpose of this program is to establish reflex bladder emptying at regular & predictable intervals in response to a certain level of filling.	In case of Flaccid bladder, patient places the clenched fist just above the symphysis pubis & pushes inward ,pressure is maintained till urine ceases.
Briefly the program involves establishing a fluid intake pattern restricted to approximately 2000ML/d. Fluid intake is monitored at 150 to 180 mL/h from morning until evening .	A timed voiding program is another method of bladder training .This program involves first establishing the patient's pattern of incontinence.
Intake is stopped late in the date to reduce the need for catheterization during the night. Initially the patient is catheterized every 4 hours.	The residual urine volume is then checked to ensure that it is within safe limits. Once the pattern of incontinence has been established, it is compared with the patterns of intake & voiding schedule. The bladder gradually becomes trained to empty at regular, predictable intervals.
Prior to catheterization ,the patient attempts to void in combination with one or more of the manual stimulation techniques such as tapping over the bladder area, Suprapubic tapping ,stroking, Kneading etc were used.[3]	As incontinence decreases, the schedule is readjusted to expand the intervals between voiding. Fluid intake is avoided late in the day to decrease the risk of nocturia. Pelvic floor exercises were incorporated in this program.[3]

Occupational Therapy Intervention for Sexual Rehabilitation:

Content	PLISSIT	Session
- Introduction of study objectives - Completing checklist of personal-social, disease-related details , quality of sexual life and sexual function questionnaires	Permission (discussion, lecture, and interview)	Week 1
- Presenting Information on: - Sexual problems - Psychological changes - Spouse reactions to these changes - Assessing the client using the given scales Perceived Sexual distress scale. - Educating the client on effect of spinal cord injury on sexuality, clarifying myths related to it using a power point presentation.	Limited Information	Week 2 & 3

- Sharing sexual experiences over the past weeks - Expressing sexual problems and ways of overcoming them - This includes remedial & compensatory approach. - This stage includes strategies for bed mobility, assistive & adaptive devices.	Specific suggestion	Week 4 & 5
- Referral and resources for sexual specialists - Completing the questionnaires[4]	Referral	Week 6

Data analysis and Statistical procedures:

- Data obtained was compiled on a MS Office Excel Sheet, further comparison was done using Wilcoxon Signed rank test (upto 2 observations)

Comparison of King's Healthcare Questionnaire (KHQ) PRE PART 1 vs KHQ POST PART 1 (Table No.1)

	Mean	Std. Deviation	Median	Z value	p value of Wilcoxon Signed Ranks Test
KHQ PRE PART 1 SCORING	55.449	20.2379	58.3	-3.447	0.001**
KHQ POST PART 1 SCORING	43.37	20.236	41.66		

Table No.1 shows the pre & post score of KHQ part 1, after 6 weeks of intervention. The results are statistically significant as p value is (p<0.01). These results show that bladder training program has helped in improving general health perception of patients & the program had a good impact on incontinence thus helped in improving quality of life of patients.

Comparison of Perceived Sexual Distress Scale PSDS PRE vs PSDS POST (Table No.2)

	Mean	Std. Deviation	Median	Z value	p value of Wilcoxon Signed Ranks Test
PRE PSDS	69.73	12.464	66	-3.420	0.001**
POST PSDS	84.40	16.668	76		

Table No.2 shows the pre & post score of PSDS, after 6 weeks of intervention. The results are statistically significant as p value is (p<0.01). These results show that PLISSIT model helped the patients in improving their sexual activity participation & led to higher rate of perceived sexual distress

DISCUSSION

The current interventional study was done as an attempt to determine the effect of bladder training program & sexual rehabilitation through occupational therapy interventions thereby have a better impact on quality of life of patients with spinal cord injury. 15 Male paraplegic patients of the age group ranging from 30 years to 60 years participated in the study & completed 6 weeks of bladder training program & sexual rehabilitation. Depending on the type of bladder, the intervention for urinary incontinence was individualized for each patient.

Our study shows that 86.7% of patients use clean intermittent catheterization and remaining 13.3% have used condom catheter. An individualized structured bladder program was given to the patient depending on the type of bladder. These participants were treated for 6 weeks, 2 days per week, 30 minutes for bladder training were given. Patients were given a timed voiding program, kegel's exercises, breathing Exercises, relaxation exercises, strength training for abdominals, back and thighs. These results are supported by Asavari J. Gaikwad, Suraj B. Kanase conducted a study on "Effect of Structured Bladder Training in Urinary Incontinence", the study concluded that structured bladder training was effective in controlling urinary incontinence secondary to spinal cord injury.^[6]

Our study showed that 66.7% patients were sexually inactive after their spinal cord injury. The age of patient, the time since he had SCI,

completeness of SCI, incontinence, whether the patient has a spouse & her interest in sexual activity post SCI, erectile function are the factors that lead to decline in active sex life. These results are supported by Cristiano M. Gome et.al in his study stating "Erectile Function Predicts Sexual Satisfaction in Men with Spinal Cord Injury" this study concluded that most men with SCI were sexually inactive and/or dissatisfied with their sex life.^[7] The study shows that sexual dysfunction is highly prevalent in men with SCI.

Our study showed that 60% of patients became sexually active post intervention. These findings have confirmed the effectiveness of PLISSIT model. Patients were treated using this model for 6 weeks, twice a week for 30 mins. This model gave patients the opportunity to express their sexual problems and helped them develop their problem-solving strategies, to improve their body image, has educated them with safe sexual practices. These findings are supported by a study conducted by Mona Rezaifard et.al, published in September 2019 stating, "Effectiveness of sexual counselling using PLISSIT model to promote sexual function of women with Spinal cord injury: A randomized controlled trial."^[5]

In the current study the perceived sexual distress was found to be increased. This concludes that PLISSIT model helped the patients in improving their sexual activity participation & led to higher rate of perceived sexual distress due to the following reasons like addressing the topic of sexuality after a very long period post SCI, unavailability of medical management & lack electrical stimulation, less sample size, patients not followed up for enough time, online sessions due to covid-19 pandemic. Change of spouse role to caretaker instead of being an intimate partner. This observation is supported by Boyd, B.L. et al's study on "Sexual Desire and Depression Following Spinal Cord Injury: Masculine Sexual Prowess as a Moderator", showed that male SCI patients with strong sexual desire showed higher rates of depression.^[17]

After analysing the results, it is observed that bladder training program through occupational therapy is effective in bladder incontinence in patients following Spinal cord injury. Sexual Rehabilitation through occupational therapy is effective in Sexual dysfunction in patients following Spinal cord injury.

CONCLUSION

The study concluded that due to bladder management techniques through occupational therapy intervention there was significant improvement in general health perception of spinal cord injury patients. Sexual rehabilitation helped patients adapt to the sexual adjustments post injury & the frequency of sexual activity increased & patients also adapted to alternatives of pleasurable sexual expressions.

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