

Original Article

Effect of Telenursing on Life Quality and Care Burden of Caregivers in Patients Undergoing Bladder Tumor Resection through Duct

Bahare Fallah¹, Parviz Barikzaei¹, Moslem Barikzehi¹, Najib Khalili¹, Khadijeh Nasiriani², Mehdi BagherAbadi^{3*}

¹Research Center for Nursing and Midwifery Care, Shahid Sadoughi University of Medical Sciences, Yazd, Iran

²Department of Nursing, Research Centre for Nursing and Midwifery Care, Shahid Sadoughi University of Medical Sciences, Yazd, Iran

³Department of Emergency Medicine, Shahid Sadoughi University of Medical Sciences, Yazd, Iran

HIGHLIGHTS

- Bladder cancer is a disease that significantly influences life quality.
- Telenursing has been a suitable method for training and continuous care in TURBT patients.

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*Corresponding Author:

Mehdi BagherAbadi

Email: bagherabadi@yahoo.com

Address: Department of Emergency Medicine, Shahid Rahmehoon Hospital, Yazd, Iran.

ABSTRACT

Introduction

Bladder cancer is a disease that significantly influences life quality. It is necessary to have continuous training and care of the patient and family after discharge to care for the patients undergoing bladder tumor resection through the duct. The present study aimed to determine the effect of telemedicine on the care burden of caregivers and the life quality of patients undergoing bladder tumor resection through the duct (TURBT).

Methods

The present quasi-experimental research was conducted in the format of before and after. Twenty-five patients undergoing bladder tumor resection through the duct (TURBT) received distance training from a nurse for three months. Data were collected using the 36-SF life quality questionnaire and Guest & Novak care burden and analyzed in SPSS version 25 by paired T-test, Wilcoxon and Spearman, and Pearson correlation coefficients.

Results

The mean rank of the quality score after the intervention was higher than before the intervention, and the difference between the mean score of the life quality was significant (P -value <0.05) before and after the distance nursing intervention. There was also a significant difference between care load before and after the intervention (P -value <0.05), so the mean of patients' life quality reached 11.08 to 13.61, and the mean of their care burden pressure reached 2.27 to 3.78 after the intervention.

Conclusions

The findings represented the alternations in improving the life quality and care burden caused by telenursing in TURBT patients. Therefore, telenursing has been a suitable method for training and continuous care in TURBT patients, which is especially recommended during the epidemic of infectious diseases.

Keywords: Telenursing, Life Quality, Care Burden, Bladder Tumor Resection Through Duct

Introduction

Bladder cancer is the fourteenth most common malignancy, and non-muscular invasive bladder cancer (NMIBC) concludes about 70% of all bladder cancers with a 5-year

survival of up to 90% and a high risk of recurrence and metastasis (1). Bladder tumor resection through the duct (TURBT) is still the standard gold method for grading bladder cancer and treating non-muscular invasive bladder

cancer (NMIBC) (2-4), which aims to correct diagnosis, proper grading, and removal of all lesions (5). The consequences of TURBT invasive intervention are highly variable, and the results depend on the surgeon's skill and experience (6), so the life quality is very significant in these patients (7) and has been investigated in several studies (8-10).

Care of an afflicted person puts much stress on the caregiver and the patient's family, and caregivers are particularly vulnerable to stress; because the patient's demands precede their own needs. The burden is a general term that describes care's physical, emotional, and economic costs (11).

The caregivers' situation is significant for patients with bladder cancer because care may take several years, and the information and support needed for care should be provided to them (12). Due to the long duration of the treatment process, it is significant to follow up with the patients to communicate and create a continuous and dynamic care relationship to improve the patient's life quality, reduce disease complications, and promote health levels (13). One of the follow-up methods is telenursing or, in other words, using the nursing process in providing care through telecommunication devices such as telephones or information technology through smartphones. One of the follow-up methods is telemedicine, or, in other words, the nursing process provides care through telecommunication devices such as telephones or information technology through smartphones (14). Therefore, telenursing refers to providing nursing services through applying communication technologies. These communication technologies can be applied through telephone, computer, remote monitoring devices, and the Internet can improve care outcomes, promote self-care quality and life quality in patients, affect the cost and facilitate access to care, and finally, it causes promoting the relationship between the patient and care providers, as well as removing restrictions related to time and place (15-17).

The present study aimed to investigate the effect of telenursing on family's care suffering and life quality of patients undergoing bladder tumor resection through ducts; that patients undergoing bladder tumor resection through ducts require long-term care after discharging and it has a significant effect on life quality, and the caregivers seem to have lack of efficiency in providing adequate care because caregivers lack enough information about the disease, knowledge of patients' needs and how to care them; and therefore one of the basic needs of the family is to receive training and guidance for appropriate and adequate care.

Methods

The present study was an interventional study and in the format of before-and-after. There were 25 participants, and sampling was performed from patients admitted to

the urology department of Shahid Rahnemoun Hospital in Yazd. Inclusion criteria include the definitive performance of bladder tumor resection through the duct in grade I patients, willingness to cooperate, patient and caregiver's access and ability to use WhatsApp social network, lack of anxiety disorders, literacy, full consciousness, lack of remarkable speech and hearing problems, lack of progressive diseases of vital organs, including heart and lung diseases. The presence of anxiety and depression disorders in the main characters involved in patient care was the exclusion criterion at the discretion of the specialist physician, and those who were not eager to continue the cooperation were excluded from the study. Informed consent was completed before the beginning of the study.

The research intervention was sent in the format of educational packages in the form of audio, text, video, and movie training to patients and also through WhatsApp software every other day for three months by a master of nursing to their spouses; and if they had any questions, they would be answered. The training was about the disease, urinary catheters, bladder washing, smoking, diet, medications and how to take them and their possible side effects, control of pain and discomfort, exercise and activity, and so on. Patients were told that if they had any questions, they could communicate by photo, video, and voice and ask their questions. The data collection questionnaire was completed before and after the intervention when the patient and his caregiver returned to the hospital to see a doctor. A three-part questionnaire including demographic information, the 36-SF life quality questionnaire, and 24 Guest & Novak care burden questionnaire was used to collect data. The 36-SF Life Quality Questionnaire is a standard questionnaire developed by Weir and Sherborn in 1992, and its reliability has been confirmed by Cronbach's alpha (18, 19). This instrument examines 8 dimensions of life quality, including general health, physical problems, role-playing, pain, mental health, social functioning, strength and energy, and general health. All these 8 fields score from zero to 100; a higher score represents more life quality. In the study by Montazeri et al., the reliability test of the questionnaire was evaluated using statistical analysis of "internal consistency," and the validity test was evaluated using the "comparison of known groups (others=0/65 α)" "method and "convergence validity." The "internal consistency" analysis showed that the Persian 36-SF scales have the minimum standard reliability coefficients of 77/0 to 9/0. The 24-item care burden questionnaire was developed in 1989 by Guest & Novak to measure objective and subjective care burdens. This questionnaire includes five subscales of time-dependent care burden, developmental care burden, physical care burden, social care burden, and emotional care burden. Caregivers' responses were evaluated on a 5-point

Likert scale (entirely false for completely accurate) so that samples answering each question chose one of these items: completely false (score 1), false (score 2), somewhat true (score 3), correct (score 4) and entirely correct (score 5). Accordingly, scores obtained from this questionnaire were 24 to 120 in a way that the scores from 24 to 39 were considered as mild care burden, from 40 to 71 as moderate care burden, and 72 to 120 as severe care burden. According to the report of Abbasi et al., (1932), the content validity index of the care burden questionnaire was examined in terms of relevance, clarity, simplicity, and fluency of its sentence. It was reported as follows: 31.9% for relevance, 2.36% for clarity, and 39.0% for simplicity and fluency, and totally the content validity index of this questionnaire was 31.90%, and the reliability of the questionnaire with Cronbach's alpha coefficient of the whole scale was also 6.36 (20).

This study is taken from a research project in Shahid Sadoughi University of Medical Sciences in Yazd with the ethics code of IR.SSU.RSI.REC.1399.019. After collecting the data, the data were entered into SPSS software version 25, and the data normality was checked using the K-S test. Data analysis was performed using Spearman and Pearson correlation coefficient, Paired T-test, and Wilcoxon tests.

Results

All participants in the study were Iranian married men. The mean and standard deviation related to the participant's age in the study was 53.24 ± 9.69 , and they had average income. People working in the freelance section with a frequency of 10 people (40%), people with a diploma and undergraduate education with a frequency of 17 people (68%), and people with social security health insurance with a frequency of 18 people (72%) respectively had the highest frequency of jobs, educations and insurance types. The test by Will Cookson showed that the mean life quality score difference before and after the intervention is statistically significant according to the value of Z (-2.583) at the error level of less than 0.01. The mean of the quality score after the intervention (13.61) was higher than the mean of that score before the intervention (11.08), and therefore the life quality increased with the intervention (Table 1).

Based on the findings, the score of care burden after the intervention was higher than the mean score of care burden before the intervention. The difference between pre-intervention and post-intervention care burden was not significant ($P\text{-value} \geq 0.05$). Considering the T-value equals 5.809 and the significance value equals 0.00, post-intervention and pre-intervention care burdens were significantly different from each other ($P\text{-value} < 0.05$) (Table 2).

Discussion

Findings showed that the ranking means of the quality

score after the intervention was higher than this amount before the intervention and the life quality situation increased (improved) through applying the intervention. So far, no research has been found on the effect of Telenursing on life quality and care burden in TURBT patients. Therefore, comparing similar studies with similar communities and samples and the present study is impossible. However, Telenursing (distance nursing) has been used as an intervention to study changes in life quality in many local and foreign studies. Rezaei et al., (2020) showed in a study about burn patients that there is a significant difference in life quality between a group who received telenursing intervention and face-to-face training compared to the control group who did not receive the intervention ($P\text{-value} < 0.001$) (21). In Covid-19 patients, Raisi et al., (2021), in a study related to 120 discharged patients, showed that a one-month intervention in telenursing training has increased the life quality in these patients (22). In the mentioned research, although the population, the research sample, and the intervention quality differed in the follow-up period and training method, the findings showed the improvement of life quality with telemedicine and telephone counseling intervention, which is in complete agreement with the present research findings. In the study of diseases related to the urinary tract, Mohammad and Fashfeshah (2019) showed in the quasi-experimental study on the effectiveness of telephone follow-up in 40 patients with urinary deviation in Egypt that following applying this intervention, life quality after the intervention was significantly different between the intervention group and the control group (23).

Sato (2020) showed in the study the effectiveness of Telenursing on the life quality of patients with prostate cancer and by examining 30 patients that the life quality affected by telenursing intervention has improved over three months (24). Therefore, it seems that this intervention can effectively improve life quality.

Other research findings showed that the care burden after the intervention was statistically significantly different from the care burden before the intervention, and this intervention was influential on the care burden. In other words, the care burden was different twice before and after the intervention ($P\text{-value} < 0.05$). Raisi et al., showed in a quasi-experimental study with training intervention through Telenursing based on care burden for one month among Covid-19 patients' caregivers that the mean score of care burden in the whole and also its components for the intervention group's caregivers was decreased significantly after the intervention compared to before doing it. However, this amount (except for objective burden) did not change significantly in the control group before and after the intervention (25). Chiang et al., (2012) showed in a Taiwan study related the effect of remote care on care burden, stress control, and family functioning in

Table 1. Comparison of the mean of life quality score in TURBT patients before and after the intervention

Variable	Level	Ranking Mean	Z-value	P-value
Life Quality	Before	11.08	-2.583	0.01
	After	13.61		

Table 2. Comparison of the mean of care burden in TURBT patients before and after the intervention

Variable	Course	Standard \pm Deviation	Mean	Correlation		Test T-value	P-value
				Test value	P-value		
Care Burden	Before	2.27 \pm 0.54		-0.315	0.126	5.809	0.000
	After	3.78 \pm 1.02					

family caregivers of patients with heart failure and also in a quasi-experimental study that remote care combined with discharge planning can reduce the family caregivers' care burden, improve the stress control, and raise family functioning during the first month after discharge (26). Intervention in tele technology-based applications seems to be easy, helpful, and practical. Bani Ardalan et al., also investigated the effect of telephone training and follow-up on the care burden of 79 caregivers of elderly patients with stroke. The intervention for this group was performed for 12 weeks under training and follow-up through telephone and social networks, and the results showed that after the intervention, the intervention group's care burden had a significant difference compared to the control group and 12 weeks of Telenursing caused a significant reduction in the intervention group's care burden (27).

In the study of Bahmanpour et al., (2022), The research population consisted of all the mothers with premature infants whose neonates had recently been discharged from NICU. Seventy subjects were selected through convenience sampling and randomly assigned to intervention and control groups. The intervention group subjects received telenursing training for four weeks, while in the control group, no intervention was offered.

The results showed that Telenursing improves hope (P-value<0.05) and perceived self-efficacy (P-value<0.05) in the mothers of premature infants after discharge from the NICU.

Sato et al., (2021) have developed a telenursing system that can store physical information such as blood pressure and pulse measured by cancer patients in the cloud using Bluetooth, which is wireless communication technology and collect information from remote locations. The study showed that the Utilization of ICT in Telenursing makes it possible to visualize a patient's physical information and contributes to reducing medical expenses.

This study has several limitations; the most important one was the impossibility of having a control group. On the other hand, the disease may have unique effects and

pressure on each patient's caregiver, and since the present study examined only one patient's caregiver, it will not be generalizable to the whole family. On the other hand, it was impossible to control all the environmental and individual conditions of the subjects, and some daily events could affect the results.

Conclusions

The study's most significant findings showed an improvement in life quality and a reduction in the care burden following applying the telenursing intervention in TURBT patients. Therefore, telenursing is a suitable method to replace face-to-face empowerment sessions and their continuation and alternative, especially during infectious diseases and other crises.

Authors' contributions

BF: Conception and design, MB: acquisition of data, MBA: Analysis and interpretation of data, PB: Drafting of the manuscript, KHN: Critical revision of the manuscript for important intellectual content, NKH, NK, and BF: Statistical analysis, NK: Obtaining funding, MBA: Administrative, technical, or material support.

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Conflict of interest

All authors declare that there is no potential competing or conflict of interest.

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Ethics statement

This study is taken from a research project in Shahid

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Data availability

Data will be provided on request.

Abbreviations

ISS	Index of sexual satisfaction
NMIBC	Non-muscular invasive bladder cancer
TURBT	Trans urethral removal of bladder tumor

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Author (s) biosketches

Fallah B, MSc, Research Center for Nursing and Midwifery Care, Shahid Sadoughi University of Medical Sciences, Yazd, Iran.

Email: baharefallah@gmail.com

Barikzaei P, MD, Department of Nursing, Shahid Sadoughi University of Medical Sciences, Yazd, Iran.

Email: parvizbareg13@gmail.com

Barikzahi M, MD, Department of Nursing, Shahid Sadoughi University of Medical Sciences, Yazd, Iran.

Email: moslembarikzahi@gmail.com

Khalili N, MD, Department of Nursing, Shahid Sadoughi University of Medical Sciences, Yazd, Iran.

Email: najibkhalili76@gmail.com

Nasiriani KH, Associate Professor, Department of Nursing, Research Centre for Nursing and Midwifery Care, Shahid Sadoughi University of Medical Sciences, Yazd, Iran.

Email: nasiriani@gmail.com

BagherAbadi M, Assistant Professor, Department of Emergency Medicine, Shahid Sadoughi University of Medical Sciences, Yazd, Iran.

Email: bagherabadi@yahoo.com

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