



Effect of the whole seamless connection of nursing from WeChat interactive platform on stigma and quality of life in patients with urinary system cancer

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Abstract

Objective: To evaluate the effects of intervention by “whole seamless connection of nursing from WeChat interactive platform” on stigma and quality of life of the patients with urinary system cancer.

Methods: Overall, 80 patients with urinary cancer were randomly divided (40 cases per group) into control and observation groups. Routine nursing was provided to the control group, whereas positive psychological intervention was provided to the intervention group through a “whole seamless connection of nursing from the WeChat interactive platform” in addition to routine nursing. The Chinese version of social impact and cancer patients’ quality of life scales were used to evaluate the effects before and after the intervention.

Results: After the intervention, the total score for stigma was significantly lower ($p < 0.01$), while that of quality of life was higher ($p < 0.05$) in the observation group relative to the control group.

Conclusions: The whole seamless connection of nursing from the WeChat interactive platform could reduce stigma and improve the quality of life of patients with urinary cancer.

Keywords

urinary system cancer, WeChat interactive platform, whole seamless connection, stigma, quality of life

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Introduction

Cancers of the urinary system include prostate, testicular, penile, kidney, ureter, and bladder tumors.^{1,2} Among them, bladder cancer is the most common type. The incidence of bladder cancer is higher among tumors of the urinary system; 150,000 people die from bladder cancer annually.³ Renal carcinoma represents 3%–5% of the total incidence of adult malign tumors with a five-year disease-specific survival of 70%–80%.⁴ In the United States, the lifetime risk of being diagnosed with prostate cancer is approximately 11%, while that of dying due to prostate cancer is 2.5%.⁵ Despite the low incidence rates of testicular, penile, and ureter cancers, the quality of life of these patients is dismal. The incidence of urinary system cancer is high and the mortality rate is increasing annually, thus posing a serious threat to human lives.^{6,7}

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Among them, patients with prostate, testicular, and penile cancers lose male characteristics after surgical resection of the tumors of the reproductive system. Patients with advanced bladder and ureter cancers suffer from self-image disorders after transabdominal urostomy.^{8,9} These result in a great psychological burden along with a strong stigma, the sense of being marked, discriminated against and isolated due to the disease.¹⁰ Moreover, such patients have negative views regarding themselves and they internalize stigma into a sense of shame. This type of intense negative emotion often results in poor rehabilitation of social functions, which can even lead to suicide.

This study aimed to assess the effects of the whole seamless connection of nursing from the WeChat interactive platform on reducing the stigma and psychological pressure faced by these patients, particularly during the period of awaiting hospitalization after suspected or diagnosed cancer without professional guidance and after discharge from the hospital.¹¹ This was aimed at integrating these patients into society as soon as possible. The emergence of the Internet and the WeChat platform has provided new possibilities to transform from traditional nursing models to modern ones. During prehospitalization, hospitalization, and post-discharge, researchers can tap and use the patients' positive potential to the maximum extent by providing professional support and positive psychological intervention through the WeChat communication platform, thus improving their positive emotions, cognition, and/or behaviors. In this study, "whole seamless connection of nursing from WeChat interactive platform" was employed to conduct an early intervention for patients with urinary system cancer facing strong stigma, and the effects of the intervention on stigma and the quality of life were evaluated.

Subjects and methods

Subjects: Patients with urological cancer in the prehospitalization stage between January and June 2019 at the urological department of a level A tertiary hospital in Jiangsu Province were included in the study through objective sampling. The patients were divided into control and observation groups according to parity of the tail number of hospitalization registration. The inclusion criteria were as follows: (1) First-time inpatients with urinary system cancer (prostate, bladder, penis, or testicular tumors) confirmed by pathology. (2) Patients aged 18 years or older. (3) Patients with primary school education or above. (4) Patients or their accompanying family members who could operate smartphones to communicate through WeChat. (5) Patients who voluntarily participated in this study and signed the informed consent. The patients had the right to opt-out. The study design was approved by the Hospital Ethics Committee (Approval Number: 2018-K023). The exclusion criteria were as follows: (1)

Patients with other systemic malignancies. (2) Patients with serious complications of organs, including the heart, lung, brain, or kidneys. (3) Patients with mental disorders, impaired understanding, or cognitive disorders and those who did not cooperate with the investigators. (4) Patients with incomplete follow-up or WeChat data and those who could not be contacted. According to the inclusion and exclusion criteria, a total of 40 cases were assigned each to the control and observation groups. No significant differences were observed in terms of general data between the two groups ($p > 0.05$; Table 1).

Methods

Intervention methods at the pre-hospitalization stage: The control group awaited telephonic notification for hospitalization. After hospitalization, respective nurses provided routine nursing and health education before and after surgery for the urinary system cancer and after discharge from the hospital; they issued a health education manual for patients to learn from. The patients were followed up telephonically three months after discharge. For the observation group, a whole seamless connection of nursing from the WeChat interactive platform was provided in addition to routine nursing as described for the control group. The WeChat supervisor nurse was responsible for urging the participants to clock in on time, regularly write their diaries, and check the situation at clock-out every week. Those who did not clock in on time on WeChat were contacted telephonically to understand the patients' state. The WeChat platform data and follow-up questionnaires were collected three months after discharge. First-time inpatients with urinary system cancer have a poor understanding of the disease and are prone to worry, anxiety, fear, depression, and other negative emotions. After understanding the mental state of patients with urinary system cancers, we used the WeChat platform to provide psychological counseling to help those who lacked knowledge of the disease in an effect to relieve their negative emotions and encourage them and their families to provide "peer effect" and care. This could help achieve emotional resonance, stimulate patients' self-potential, and improve their sense of identity and cooperation. The whole seamless connection nursing from WeChat interactive platform followed the process as described. (1) The WeChat interactive mode team comprised three attending physicians, five nurses, and two recovered patients. The physicians were responsible for surgical planning and follow-up of the pre-inpatients, while the nurses on the public platform were responsible for platform content transmission, feedback messages, and data collection. The responsible nurses performed data analysis, supervised, and evaluated patient compliance guidance. Recovered patients had good communication and language expression skills, a strong sense of responsibility, and sufficient time. They could skillfully

Table 1. Comparison of the general data between control and observation groups.

	Group	Control group (n = 40)	Observation group (n = 40)	Statistics	p value
Age (years, $x \pm s$)		63.25 \pm 17.16	64.8 \pm 12.58	$t = -0.461$	0.646
Disease course (months, $x \pm s$)		1.09 \pm 0.559	1.14 \pm 0.563	$t = -0.384$	0.701
Educational degree (number of patients)	Primary school	20	22	$Z = -0.107$	0.914
	Middle school	14	12		
	Junior college or above	6	6		
Marital status (number of patients)	Married	34	32	$\chi^2 = 0.346$	0.556
	Unmarried, divorced, or widowed	6	8		
Place of residence (number of patients)	Countryside	13	15	$\chi^2 = 0.516$	0.773
	Town	12	13		
	City	15	12		
Per capita monthly household income (number of patients)	<2000 Yuan	9	10	$Z = 1.395$	0.163
	2000–5000 Yuan	19	20		
	>5000 Yuan	12	10		
Employment status	Employed	5	4	-	0.885
	Unemployed	2	1		
	Retired	20	23		
	Farmer	13	12		
Cancer type (number of patients)	Prostatic cancer	23	22	-	1.000
	Bladder cancer	9	10		
	Penis cancer	4	3		
	Testicular cancer	4	5		
Clinical stage (number of patients)	Stage I	7	5	$Z = -0.500$	0.617
	Stage II	12	13		
	Stage III	16	15		
	Stage IV	5	7		

use WeChat to communicate, and actively share the disease process and their experiences, thus reducing the feelings of bad emotions. (2) The participants followed the WeChat official account and joined the disease group. Herein, we asked the patients to scan the QR code, follow the WeChat official account, and join the WeChat group of urology-related diseases upon preadmission to the hospital. To protect the patients' privacy, the name in the group was their inpatient registration number and first name. (3) Patients completed the scale and online patient assessment and evaluation, whereby the social impact scale (SIS) and the quality of life scale for cancer patients (QLQ-C30) in the WeChat platform were employed to assess the stigma and quality of life of patients with urinary system cancers.^{12,13} (4) Answering questions and professional counseling, whereby manifestations and treatment measures of the disease and its related complications were regularly through explanation of videos and graphic display using push notifications. Using the message function on the WeChat public account, the responsible nurses promptly completed the postoperative pipeline maintenance and stoma nursing care to provide professional help and promote patients with active treatment. (5) Patients helped each other and tided over difficulties. Patients with the same disease or similar symptoms at the same time could communicate with each other in the WeChat group. Patients described their experiences of treatment and mental journey and boosted their confidence for treatment through the "example effect" to reduce psychological burden, anxiety, and depression among new patients. (6) Empathy counseling and psychological adjustment: the patients were given appropriate exercises and meditation to help with sleep and were taught to write a gratitude diary. They could share their daily exercise updates through the "Douyin platform." The observation group was provided psychological support to meet their psychological needs within a certain range (Table 2). (7) Family support: cancer patients, particularly those with reproductive cancer undergoing ostomy, are depressed because of changes in their appearances, urinary diversion, and decline in male functions. They are full of worries about their future marital and sex lives. We provided health education to the family members and encouraged them to accompany the patients closely and communicate with them frequently, which could enhance their confidence in overcoming the disease.

Evaluation method

(1) Stigma was measured using a Chinese version of the social impact scale (SIS).¹⁴ The SIS includes 24 items in four dimensions. There are nine items on social exclusion, three on financial insecurity, five on internal shame, and seven on social isolation. Each item was scored on a Likert four-level scoring scale, with 4 points for "strongly

agree" to 1 point for "strongly disagree." The total score was the sum of the scores of the four dimensions. The higher the total score, the higher the level of stigma perceived by that patient. The coefficients of Cronbach's α in four dimensions were between 0.85 and 0.90. (2) Evaluation of quality of life of patients with cancer was performed using the QLQ-C30 scale, comprising 15 dimensions and 30 items. Five functional scales (physical, role, emotional, cognitive, and social functions), three symptom scales (fatigue, vomiting, and pain), six single symptom items (dyspnea, financial difficulty, insomnia, lack of appetite, constipation, and diarrhea), and one general health condition were evaluated. Among them, the grade 4 scoring method was adopted for the first 28 items, whereas grade 7 scoring was adopted for items 29 and 30. The higher the score of function and general health, the better the quality of life. The higher the score of symptoms, the worse was the quality of life.

Statistical methods

The statistical software, SPSS 20.0, was used to analyze all data. The measurement data were expressed as $\pm s$. χ^2 tests, Fisher's exact test, t-test, and Wilcoxon test were used. $\alpha = 0.05$ or $p < 0.05$ was considered statistically significant.

Results

A comparison of stigma scores between the two groups before and after the intervention is shown in Table 3. Comparison of scores for quality of life between the two groups before and after the intervention is shown in Table 4.

Discussion

With the annually rising incidence of urinary system cancers, the number of patients undergoing urogenital surgery and urostomy is also increasing.¹⁵ Surgical loss of prostate, testis, or penis can lead to loss of virility or fertility in patients with urinary system cancers.^{16,17} It is commonly believed that reproductive system cancers are associated with unclear sexual intercourse and excessive indulgence, which often affects the relationship of couples. After urostomy, patients may develop a self-image disorder and fear social activities due to the risk of urine spillage and smelly odor.¹⁸ During the pre-hospitalization period and after diagnosis, the patients lack professional medical care. During the hospitalization period, the average length of stay reduces; thus, the patients cannot master nursing knowledge and skills in a short time.¹⁹ The whole seamless connection of nursing based on the WeChat interactive platform can alleviate the negative emotions and reduce the stigma faced by these patients.²⁰ After discharge from the hospital, often patients in remote areas cannot access face-to-face counseling to seek help. In

Table 2. Specific plans for empathy counseling.

Plan content	Aims	Methods	Requirements	Period
Moderate exercise	To improve local muscle function, willingness to exercise, and make the patients happy.	Walking, jogging, or swimming indoors or outdoors; therapeutic exercises: Kegel and ankle pump exercises.	According to physical strength, time, and intensity. No specific restrictions.	Pre-hospitalization period. Clocking out on time every week after discharge from the hospital. According to the doctors' advice, determining the implementation time and cycle of therapeutic exercises.
Gratitude Journal	To cultivate happiness and promote positive energy.	Editing WeChat or telling things and people one was grateful for (already happened on the same or previous day or did not happen).	Sparing time every day for the thing one likes. Writing feelings and emotions instead of simply describing them. Encouraging relatives to write gratitude journals with patients together.	Writing twice a week continuously for 8 weeks after discharge from hospital. Writing complete clocking.
Sleeping meditation	To relax from the inside out and calm down; free oneself from obsessive thinking.	Lying on the back, putting hands on the chest, feeling the heartbeat, practicing breathing, inhaling through the nose and mouth, deep, slow, and focused breathing.	Practicing music for 12 min every night before going to bed. Allowing to fall asleep naturally or allowing not being able to fall asleep or relaxing and accepting oneself.	Pre-hospitalization, hospitalization, and after discharge. Clock out on time every week.

Table 3. Comparison of stigma scores between control and observation groups before and after intervention.

	Time	Control group (n=40)	Observation group (n=40)	T value	p value
Social exclusion	Before intervention	20.43 ± 2.42	20.73 ± 2.37	-0.56	0.58
	After intervention	19.40 ± 2.41	15.33 ± 2.14	8.00	0.00
Financial insecurity	Before intervention	7.95 ± 1.23	8.43 ± 1.06	-1.84	0.07
	After intervention	7.53 ± 1.34	6.53 ± 0.96	3.83	0.00
Internal shame	Before intervention	10.93 ± 2.43	10.65 ± 2.11	0.54	0.59
	After intervention	10.23 ± 2.17	8.63 ± 1.33	3.98	0.00
Social isolation	Before intervention	18.38 ± 3.29	18.93 ± 2.67	-0.82	0.41
	After intervention	17.45 ± 2.52	15.85 ± 2.49	2.86	0.01
Total score	Before intervention	57.70 ± 4.92	58.88 ± 4.47	-1.12	0.27
	After intervention	54.38 ± 4.02	46.33 ± 3.38	9.68	0.00

Table 4. Comparison of scores for quality of life between control and observation groups before and after intervention.

	Time	Control group	Observation group	T value	p value
Overall quality of life	Before intervention	64.88 ± 2.83	64.15 ± 3.28	1.06	0.29
	After intervention	67.20 ± 3.26	74.63 ± 4.25	-8.76	0.00
Physical skills	Before intervention	62.58 ± 2.97	61.73 ± 3.17	1.24	0.22
	After intervention	64.58 ± 2.14	69.65 ± 3.75	-7.45	0.00
Role function	Before intervention	64.73 ± 4.22	64.13 ± 3.60	0.68	0.50
	After intervention	66.10 ± 4.51	70.35 ± 3.58	-4.67	0.00
Cognitive function	Before intervention	53.15 ± 3.23	52.68 ± 2.84	0.70	0.49
	After intervention	56.23 ± 3.29	59.60 ± 3.75	-4.27	0.00
Emotional function	Before intervention	66.05 ± 3.82	66.23 ± 3.86	-0.20	0.84
	After intervention	69.23 ± 3.76	74.85 ± 4.19	-6.32	0.00
Social function	Before intervention	60.00 ± 4.40	59.70 ± 3.85	0.32	0.75
	After intervention	64.27 ± 4.79	67.55 ± 3.19	-3.60	0.00

particular, in early 2020, during the outbreak of COVID-19, people were forbidden to enter and leave the hospitalization area freely, resulting in a lack of demonstrative guidance from medical staff during the pre-hospitalization stage and after discharge. The loss of masculinity and self-image

disorders hit their self-esteem seriously, thus making feel a strong sense of inferiority, resulting in social rejection, avoidance, and self-protection behaviors.²¹ Li Wanmei reports that patients with bladder cancer generally face a high degree of stigma after a urostomy. In the current

study, the stigma scores in both control and observation groups were high before intervention ($p < 0.05$ and 0.01 , respectively). During the prehospitalization, hospitalization, and post-discharge periods, patients were provided a whole seamless connection of nursing based on the WeChat interaction platform for positive psychological intervention (Table 3). The stigma faced by patients also reduced significantly. Within a short period, patients were more active on the WeChat platform, wherein they actively shared their personal experiences after participating in the project. The findings suggested that moderate activities such as gratitude journals, sleep meditation, and jogging could help patients become more aware of the meaning of their lives and its value. Patients with similar backgrounds and experiences joined to share, support, and encourage each other through mutual assistance education. The compliance of patients increased and their confidence in recovery improved through emotional resonance. Partners or relatives joined to follow the public account and took part in activities together. The new emotional communication mode between couples or relatives could help patients find their new values, improve interpersonal relationships, thus promoting their overall physical and psychological conditions.

Information technology (IT), such as computers, the internet, multimedia, and other forms of electronic communication, holds great promise for influencing disease care positively, including diabetes, alcoholism, and HIV.^{22–24} In recent times, WeChat users are highly engaged with the app; nearly 80% of WeChat users use the app for >30 min daily.²⁵ Obtaining health information via social media (e.g. WeChat) has become common in China.²⁶ The whole seamless connection of nursing based on the WeChat interactive platform could improve the quality of life of patients with urinary system cancers. We found that stigma was an important factor in the recovery from illness and was an important predictor of the quality of life of patients with urinary cancer. There was a negative correlation between stigma and quality of life. Stigma was higher and consequently, the quality of life was worse in the two groups before intervention (Table 4) ($p < 0.05$ and 0.01 , respectively). Studies abroad have shown that positive adaptation can improve the quality of life of patients with cancer and prolong their survival. The observation group was provided with psychological support on the WeChat platform. Through sharing of gratitude journals, patients empathized and communicated with each other. They discussed their lives and emotional experiences, thus strengthening empathy and creating a new “war friendship” for treating diseases. Therefore, new patients were strongly attracted and quickly integrated into their groups. Kegel exercises can improve pelvic floor muscle function and urinary incontinence symptoms, which helps in feeling energetic, improving self-confidence, and elevating patients’ mental state and cultural interactions. The results of this study showed that the quality of life of the observation group improved significantly ($p <$

0.01) after the whole seamless connection of nursing based on the WeChat interactive platform. Therefore, the care provided by medical staff was reflected in controlling the symptoms, and additionally, highlighted the need to include psychological and spiritual care. The interactive mode of the WeChat platform can make up for the lack of humanistic care in the space-time distance during the COVID-19 pandemic and is conducive to improving the communication between doctors and patients, their spouses, and relatives, thus improving the quality of life of these patients with urinary system cancers.

Conclusion

In conclusion, the whole seamless connection of nursing based on the WeChat interactive platform could effectively reduce the stigma faced by patients with urinary system cancers, improve their quality of life, and promote self-health recovery. However, because of the limitation of the sample size in this study, further investigations with higher sample sizes and longer intervention times are required. The study program and accuracy of the research results should be improved further to lay a foundation for clinical applications.

Conflict of interest: The authors have no conflicts of interest to declare.

Contributorship: ZHW conceived the study design. HYH, XYY, and HXZ developed the topic guide and sampling strategy. ZHW, HYZ and CXH conducted the interviews. HYH, XYY, HXZ, HYZ, and WHZ performed analyses. HYH and XYY drafted the manuscript. All authors contributed to the preparation of the final version of the manuscript. Haiyan Hao and Xinyu Yang contributed equally to this work.

Ethical approval: The experimental protocol was designed according to the ethical guidelines of the Helsinki Declaration. Ethical permissions were granted by the Human Ethics Committee of the Affiliated Hospital of Nantong University (No. 2018-K020). Written informed consents were obtained from patients or their guardians.

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