

## ORIGINAL RESEARCH

# The impact of family-synchronized empowerment education on the feelings of shame and quality of life of patients discharged with catheters following major surgery for cervical cancer

Qiuyuan Wan<sup>1</sup>, Xiaoling Wu<sup>2</sup>, Na Zhang<sup>1</sup>, Yuxin He<sup>1</sup>, Xiaoshan Feng<sup>2</sup>,  
Chenyang Zhang<sup>2</sup>, Sha Bai<sup>2</sup>, Wenhui Jiang<sup>1,\*</sup>

<sup>1</sup>School of Nursing, Health Science Center, Xi'an Jiaotong University, 710061 Xi'an, Shaanxi, China

<sup>2</sup>Department of Obstetrics and Gynecology, The Second Affiliated Hospital of Xi'an Jiaotong University, 710004 Xi'an, Shaanxi, China

**\*Correspondence**

whjiang6058@163.com  
(Wenhui Jiang)

**Abstract**

The study aims to evaluate the impact of family synchronized empowerment education on the sense of shame and quality of life in patients discharged with catheters following radical surgery for cervical cancer. The data of 92 patients who underwent radical cervical cancer surgery and were discharged with urinary catheters from October 2022 to October 2023 were retrospectively retrieved and assessed. Patients who had surgery from October 2022 to April 2023 comprised the control group, while those who had surgery from May 2023 to October 2023 formed the observation group, with 46 patients in each group. The control group received conventional health education, while the observation group received family synchronized empowerment education. The Social Influence Scale (SIS), Family Assessment Device (FAD), and Quality of Life Questionnaire-C30 (QLQ-C30) were used to assess patients' sense of shame, family function and quality of life. Data on self-urination cases, urinary retention, catheter reset and urinary tract infection were collected during follow-up visits. The results showed that those from the observation group had statistically significant improvements in SIS score, FAD score, functional domain of QLQ-C30, symptom domain, six symptom scores, and overall health status score compared to the control group ( $p < 0.05$ ). In addition, the observation group also had better outcomes in self-urination ( $p < 0.05$ ), urine retention incidence, catheter reset rate, and urinary infection incidence ( $p < 0.05$ ). Thus, family synchronized empowerment education may effectively reduce the sense of shame, enhance the quality of life for patients discharged with catheters and facilitate early catheter removal and resumption of self-urination.

**Keywords**

Family synchronized empowerment education; Radical cervical cancer surgery; Indwelling urinary catheter; Stigma; Quality of life

## 1. Introduction

Cervical cancer is a prevalent malignant tumor of the reproductive system in gynecology, ranking first among the three major gynecological malignancies. Its incidence is increasing annually in young women, posing a significant threat to their health [1]. The most effective surgical method for treating cervical cancer is extensive hysterectomy combined with pelvic lymphatic dissection. Radical resection is the primary treatment for early-stage cervical cancer (IA–IIA), improving prognosis and prolonging survival rates [2, 3]. However, it should be noted that radical hysterectomy may sever the parasympathetic nerves from the pelvic wall in the bladder trigone, leading to bladder paralysis. In addition, the removal of the uterus also may cause the bladder to lose support, resulting in urinary retention and necessitating prolonged

postoperative catheterization to restore bladder function [4]. Thus, hysterectomy may increase feelings of humiliation and cause psychological and physical scars. Moreover, since an indwelling catheter is often left in the postoperative ureter for a minimum of 7–10 days as a result of bladder nerve injuries, most discharged patients need to rely on the catheter for a long time, which may further aggravate the patient's sense of stigma [5, 6]. In this regard, family synchronized empowerment education is a novel educational model designed to stimulate individuals' autonomy in health management, enabling them to take responsibility for self-management and actively manage their diseases [6]. This approach provides patients with knowledge, skills and resources to actively participate in clinical decision-making, enhancing personal capabilities, improving treatment compliance and recovery outcomes, and thereby improving their psychological state and quality of life

[7]. Moreover, family-synchronized empowerment education methods have been widely applied in various fields, such as chronic disease control and psychotherapy [6]. Herein, we designed this present study to assess the impact of family-centered empowerment education on the sense of shame and quality of life of cervical cancer patients discharged with a catheter after radical hysterectomy.

## 2. Information and methods

### 2.1 Study subjects

Ninety-two patients who underwent radical cervical cancer surgery and were discharged with a catheter from our hospital between October 2022 and October 2023 were retrospectively selected. Patients who had surgery between October 2022 and April 2023 were assigned to the control group, while those who had surgery between May 2023 and October 2023 were assigned to the observation group. Each group comprised 46 patients. The control group received conventional health education interventions, whereas the observation group received family synchronized empowerment education.

The study inclusion criteria were as follows: 1 patients diagnosed with cervical cancer by pathological and imaging examinations, with clinical stage IA–IIA, 1 had not received radiotherapy, chemotherapy, or surgery as a new treatment, 1 were hospitalized for at least 48 hours and with a postoperative indwelling catheter for at least 3 days, 1 could read, write, and complete the postoperative questionnaire independently, and 1 understood the purpose and significance of the study and have signed informed consent forms.

Cases were excluded if they had preoperative urinary system infections, bladder tumors, urinary tract stones or other urinary system diseases. Patients were also excluded if they exhibited dysfunction of vital organs such as the heart, kidneys or liver. Additionally, patients who were receiving radiotherapy or chemotherapy after surgery were excluded.

## 2.2 Research methods

### 2.2.1 Research methods of the control group

Routine health education was adopted after the operation.

① Education and support: Patients and their families were given detailed information regarding cervical cancer, surgical treatments, and the use of urinary catheters. They were also supported in understanding the postoperative phase.

② Health education classes: Our department organized classes to provide knowledge on postoperative care for catheters and rehabilitation training. Simultaneously, patients and families were encouraged through positive thinking training to enhance self-confidence and regain a sense of control.

③ Psychological support: One-on-one psychological support and guidance were provided by counselors to help patients manage emotional distress and feelings of shame postoperatively. In addition, the patients were encouraged to openly discuss their challenges and negative emotions.

④ Therapeutic environment: A warm and comforting therapeutic environment was created for the patients, including personalized dietary plans and medical care.

⑤ Follow-up visits: Lastly, weekly follow-up telephone calls were conducted after their discharge to monitor the patients' recovery progress and address any questions or concerns they might have.

### 2.2.2 Observation group research methods

#### 2.2.2.1 Establishment of a family synchronous empowerment health education group

A Family Synchronous Empowerment Health Education Team was assembled and comprised of the following five members: a head nurse, a gynecologist, two nurses-in-charge from gynecology, and a psychological counselor. The team's responsibilities were allocated as follows: The head nurse assumed leadership, overseeing project planning, organization, coordination, goal setting, and monitoring project implementation progress. The gynecologist conducted physical assessments, administered treatment and provided guidance for patient rehabilitation. The nurses in charge focused on catheter care, offered health guidance and conducted follow-up visits after discharge. The psychological counselor performed assessments and provided counseling to assist patients and their families in comprehending and managing psychological stress and emotional distress following radical cervical cancer surgery.

#### 2.2.2.2 Development of the family synchronous empowerment education program

A family synchronized empowerment education program was developed to address the stigma associated with the patient's disease.

① Individualized question identification: Team members established a trusting relationship with patients and families, using open-ended questions to understand their knowledge about cervical cancer and treatment options, as well as the main problems and stigma they face. The main questions included: What do you know about cervical cancer and its treatment options? Do you have any questions or concerns about surgical treatment? How do you believe radical cervical cancer surgery will affect your life? Do you have concerns or unease about the effects? Have you ever felt shame or low self-esteem due to your illness? If so, can you share your feelings with us? What support and help do you think you will need in coping with your cervical cancer treatment and recovery? Have your family or friends recognized your needs and provided support?

② Emotional expression: Patients were encouraged to express their current feelings, concerns and needs. They shared the challenges and difficulties encountered during postoperative rehabilitation, as well as their expectations and hopes for the future. Patients were guided to confront their psychological issues and analyze the problems.

③ Setting goals: Based on the identified issues, a short-term goal to reduce the patient's sense of shame and a long-term goal were set. A personalized action plan was developed to address the sense of shame and improve the quality of life.

④ Plan development: Healthcare professionals and patients collaboratively developed long-term and short-term plans. The short-term plan included catheter care, with gynecological nurses instructing patients and their families on proper catheter care, such as regularly changing the urine bag, keeping the catheter open, and maintaining personal hygiene to prevent

catheter-related complications and enhance quality of life and comfort. The long-term plan included stigma-relieving care and encouraging patients to participate in support groups to share experiences and feelings with other patients, thus reducing feelings of isolation and stigma. Links to books, manuals or websites on cervical cancer recovery and prevention were shared to help patients and their families learn more about the disease and reduce misconceptions and stigma. Positive thinking training and meditation with soothing audio were also performed twice daily, once in the morning and once in the evening, for 30 minutes each session.

⑤ Regular assessment and adjustment: The learning and implementation by patients and their families were regularly assessed. The education program was continuously enhanced to ensure patients and their families could effectively cope with the disease, reduce feelings of guilt, and improve their quality of life.

### 2.2.2.3 Implementation of family synchronization empowerment health education

Four face-to-face health education interventions were conducted on the day after surgery, 7 days after surgery, 1 day before discharge, and 1 month after discharge. Weekly telephone follow-ups were conducted to understand the next stage of the management plan and to increase patient supervision and guidance. This approach aimed to ensure that patients and their family members could gradually adapt to postoperative life, reduce the sense of stigma, and improve the quality of life.

## 2.3 Observation indicators

The patient's sense of shame, family function, and quality of life were evaluated one month after the intervention.

### 2.3.1 Stigma and family function

The Social Influence Scale (SIS) [8] was utilized to measure the sense of shame, demonstrating good internal consistency with Cronbach's alpha coefficients ranging from 0.85 to 0.90. The scale comprises 24 items grouped into 4 dimensions, rated on a 4-point Likert scale (1 to 4), where higher scores indicate higher levels of shame. The Family Functioning Assessment Scale (FAD) [9] was used to assess family functioning, exhibiting acceptable internal reliability with Cronbach's alpha coefficients ranging from 0.70 to 0.92. This scale consists of 60 items distributed across 7 dimensions, also rated on a 4-point Likert scale (1 to 4), with higher scores indicating poorer family functioning.

### 2.3.2 Quality of life core questionnaire (QLQ-C30)

The Quality of Life Core Questionnaire (QLO-C30) [10] was used to assess the patients' quality of life. The corresponding Cronbach's alpha coefficient ranged from 0.72 to 0.87. This scale comprises 30 items, where items 1 to 28 are scored on a 4-point Likert scale, with scores ranging from 1–4 points. Item 29 assesses overall health conditions on a scale from 1 to 7, and item 30 evaluates the overall quality of life on a scale from 1 to 7. Higher scores in the overall health domain indicate better quality of life, while higher scores in the functional and

symptom domains indicate poorer quality of life.

### 2.3.3 Occurrence of adverse events

The study observed rates of spontaneous urination, urinary retention, catheter replacement, and urinary system infections.

## 2.4 Statistical methods

Statistical analysis was performed using SPSS 25.0 (IBM Corporation, Armonk, NY, USA). Normally distributed measurement data were expressed as mean  $\pm$  standard deviation and analyzed using the *t*-test. Count data are presented as frequencies, composition ratios and rates, and analyzed using the Chi-square test. A significance level of  $p < 0.05$  was considered statistically significant.

## 3. Results

### 3.1 Comparison of general information

The general information of the two patient groups, including age, duration of disease, educational level and tumor stage, were compared, and the results showed no statistically significant differences between these groups ( $p > 0.05$ ) (Table 1).

### 3.2 Comparison of SIS score and FAD between the two groups of patients

The SIS score and FAD in the observation group were significantly lower compared to those in the control group ( $p < 0.05$ ), indicating reduced levels of shame and improved family functioning among patients who received the intervention (Table 2).

### 3.3 Comparison of the quality of life of patients in the two groups

In the observation group, scores for the functional and symptom domains of QLQ-C30 were significantly lower compared to the control group ( $p < 0.05$ ), indicating fewer symptoms and better functional outcomes. Additionally, the overall health status score was higher in the observation group, suggesting an improved general health perception among these patients (Table 3).

### 3.4 Comparison of indicators after discharge from the hospital

Table 4 demonstrates that the observation group exhibited significantly lower rates of spontaneous urination, urinary retention, catheter replacement, and urinary tract infections compared to the control group (all  $p < 0.05$ ), indicating a more favorable postoperative urinary management outcome among patients who received the intervention.

## 4. Discussion

**TABLE 1. Comparison of general information of the two groups ((score/points,  $\bar{x} \pm s$ ), n %).**

Characteristics	Number of cases	Control group	Observation group	<i>t</i>	<i>p</i>
Age		47.89 ± 5.92	47.85 ± 5.58	0.036	0.971
Course of disease		10.89 ± 1.12	11.17 ± 1.66	-0.956	0.342
Educational level					
	Junior high school above	27 (58.7%)	24 (52.2%)	0.396	0.529
	High school above	19 (48.3%)	22 (47.8%)		
Tumor staging					
	Stage IA	10 (21.74%)	12 (26.10%)	0.715	0.699
	Stage IB	14 (30.43%)	16 (34.78%)		
	Stage IIA	22 (47.83%)	18 (39.10%)		

**TABLE 2. Comparison of SIS and FAD scores between the two groups before and after intervention (points,  $\bar{x} \pm s$ ).**

Variables	Number of cases	SIS	FAD
Control group	46	51.98 ± 1.97	115.91 ± 4.89
Observation group	46	46.96 ± 1.76	100.26 ± 6.72
<i>t</i>		12.875	12.781
<i>p</i>		<0.001	<0.001

SIS: Social Influence Scale; FAD: Family Assessment Device.

**TABLE 3. Comparison of the QLQ-C30 scores between the two groups after intervention (points,  $\bar{x} \pm s$ ).**

Variables	Number of cases	Functional domains	Symptom domains	Overall health status	Symptom scores
Control group	46	33.50 ± 0.94	19.87 ± 1.09	8.52 ± 1.62	13.67 ± 1.97
Observation group	46	25.59 ± 0.86	17.72 ± 2.14	12.78 ± 1.32	10.89 ± 1.39
<i>t</i>		42.238	6.090	-13.872	7.966
<i>p</i>		<0.001	<0.001	<0.001	<0.001

**TABLE 4. Comparison of indicators after discharge in the two groups (n, %).**

Variables	Number of cases	Spontaneous urination (cases)				Incidence of urinary retention (%)	Catheter replacement rate	Urinary tract infection
		First	Second	Third	Fourth			
Control group	46	26 (56.5%)	13 (28.3%)	5 (10.9%)	2 (4.3%)	19 (41.3%)	25 (54.3%)	17 (37.0%)
Observation group	46	36 (78.3%)	8 (17.4%)	2 (4.3%)	0 (0%)	6 (13.0%)	11 (23.9%)	6 (13.0%)
$\chi^2$			6.089			9.282	8.944	7.014
<i>p</i>			0.107			0.002	0.003	0.008

#### 4.1 Family synchronous empowerment education can reduce stigma and enhance family functioning in patients undergoing radical hysterectomy for cervical cancer

After radical cervical cancer surgery, patients often face societal pressures, and these may affect their self-identity and provide a sense of shame. Thus, alleviating such postoper-

ative shame and enhancing family functioning can promote psychological health [11]. This study demonstrated that the stigma and family function scores of the observation group were significantly lower than those of the control group after the intervention, with a statistically significant difference ( $p < 0.05$ ). These findings indicate that family synchronous empowerment education effectively reduces the stigma experi-

enced by patients undergoing radical surgery for cervical cancer and improves family functioning. The primary reason for these positive outcomes could be that family synchronous empowerment education formulates personalized plans to relieve patients' sense of stigma [12, 13]. This approach establishes a trusting relationship with the family, gaining an understanding of their knowledge about cervical cancer and treatment options, as well as the current issues and stigma associated with the disease [14]. The education provided includes disease knowledge, emotional support, self-management skills, and other relevant aspects, thereby fully addressing the needs of patients and reducing their sense of shame [15]. Moreover, family synchronous empowerment education employs a positive emotional experience model, encouraging patients and their families to express their emotions and concerns, listen and provide emotional support. This model reduces patients' feelings of loneliness and anxiety [16]. Cibula *et al.* [17] reported that self-expression between spouses and with family members, as part of a positive emotional experience model, effectively alleviated patients' sense of shame, enhanced the coping ability of patients and their families and improved family functioning, consistent with the results of our present study.

#### **4.2 Family synchronous empowerment education can improve the quality of life of patients undergoing radical hysterectomy for cervical cancer**

Patients who had undergone radical cervical cancer and were discharged with a urinary catheter may have varied quality of life that contributes to providing them with a sense of low self-esteem [18, 19]. In this study, the observation group's scores in the functional domain and symptom domain were found to be lower than those of the control group after the intervention, while their overall health status scores were higher (all  $p < 0.05$ ). These results indicate that family synchronous empowerment education can significantly improve patients' quality of life. Several factors may contribute to such improvement. The study encouraged patients to participate in support groups, share experiences and feelings, access related books, manuals or websites, and engage in positive thinking training and meditation. These activities helped reduce feelings of shame and loneliness, enhancing patients' mental health and social support, which facilitated better adaptation to society and improved their quality of life [20, 21]. Additionally, the study provided regular assessments of patients' and families' learning and implementation, offering positive reinforcement and encouragement. Goals that were not achieved were analyzed and adjusted, and educational programs were continuously optimized to ensure effective management of post-radical hysterectomy issues and urinary catheter care. This process enhanced disease self-management and quality of life [22, 23]. A research by Johns SA *et al.* [24] supported these findings, demonstrating that family synchronous empowerment education can reduce shame and enhance self-esteem in middle-aged cervical cancer patients, consistent with the results of this study.

#### **4.3 Family synchronous empowerment education can reduce the incidence of adverse events in patients undergoing radical hysterectomy for cervical cancer**

Radical cervical cancer surgery is associated with a high risk of complications due to the extensive nature of the surgical procedure, with urinary retention being a common complication [25]. Patients carrying a ureter after radical treatment of cervical cancer may experience ureter dependence, infection, urine leakage and pain [26]. The results of this study revealed that the incidence of adverse reactions in the observation group was significantly lower than that in the control group ( $p < 0.05$ ), indicating that family synchronous empowerment education effectively reduces the incidence of adverse events in patients. The primary reason for this reduction could be related to the provision of correct catheter care guidance, which includes regular replacement of urine bags, maintaining catheter patency, and ensuring personal hygiene. These measures improve patients' quality of life and comfort, thereby reducing the occurrence of complications [27]. Additionally, the study emphasized psychological support and emotional communication to help patients and their families alleviate anxiety and tension, enhancing patients' confidence in their treatment. Such support reduces patients' fear and tension regarding the catheter removal process, effectively stimulates micturition reflexes, facilitates smooth micturition, improves the success rate of initial micturition, and shortens the time to self-micturition [28]. These findings are consistent with those reported by Firmeza *et al.* [29], who demonstrated that family synchronized empowerment education can effectively shorten the time to self-urination, reduce the incidence of adverse events, and improve the quality of life for patients undergoing radical cervical cancer surgery, achieved through rehabilitation guidance, appropriate catheter fixation methods, psychological support, emotional communication, and new methods of catheter removal.

### **5. Conclusions**

In conclusion, family synchronized empowerment education can significantly reduce the sense of shame among cervical cancer patients discharged with urinary catheters after radical hysterectomy and enhance patients' family functioning and quality of life. The incidence of adverse events in the observation group was significantly lower than that in the control group, with notable improvements observed in patient psychological support, emotional communication and urinary success rate. However, this study had some limitations, such as a small sample size and a single-center design, which may affect the generalizability and reliability of the results. Additionally, the study did not conduct long-term follow-up to observe the lasting effects of family synchronized empowerment education. Future research could expand the sample size, adopt a multicenter study design, and extend the follow-up period to further validate the effectiveness and sustainability of family synchronized empowerment education in managing patients after radical hysterectomy for cervical cancer.

## AVAILABILITY OF DATA AND MATERIALS

The authors declare that all data supporting the findings of this study are available within the paper and any raw data can be obtained from the corresponding author upon request.

## AUTHOR CONTRIBUTIONS

QYW—designed the study and carried them out. QYW, XLW, NZ, YXH, XSF, CYZ and SB—supervised the data collection. QYW, XLW, NZ, YXH, XSF and CYZ—analyzed the data. QYW, XLW, NZ and YXH—interpreted the data. QYW and WHJ—prepared the manuscript for publication and reviewed the draft of the manuscript. All authors have read and approved the manuscript.

## ETHICS APPROVAL AND CONSENT TO PARTICIPATE

Ethical approval was obtained from the Ethics Committee of the Second Affiliated Hospital of Xi'an Jiaotong University (2019097). Written informed consent was obtained from a legally authorized representative(s) for anonymized patient information to be published in this article.

## ACKNOWLEDGMENT

Not applicable.

## FUNDING

This work was supported by the Key Research and Development Program of Shaanxi (Grant No. 2019SF-048).

## CONFLICT OF INTEREST

The authors declare no conflict of interest.

## REFERENCES

- [1] Wu J, Logue T, Kaplan SJ, Melamed A, Tergas AI, Khoury-Collado F, *et al.* Less radical surgery for early-stage cervical cancer: a systematic review. *American Journal of Obstetrics and Gynecology*. 2021; 224: 348–358.
- [2] Poddar P, Maheshwari A. Surgery for cervical cancer: consensus & controversies. *Indian Journal of Medical Research*. 2021; 154: 284–292.
- [3] Howe T, Lankester K, Kelly T, Watkins R, Kaushik S. Cervical cancer in pregnancy: diagnosis, staging and treatment. *Obstetrician & Gynaecologist*. 2022; 24: 31–39.
- [4] Brandt B, Levin G, Leitao MM Jr. Radical hysterectomy for cervical cancer: the right surgical approach. *Current Treatment Options in Oncology*. 2022; 23: 1–14.
- [5] Guimarães YM, Godoy LR, Longatto-Filho A, Reis RD. Management of early-stage cervical cancer: a literature review. *Cancers*. 2022; 14: 575.
- [6] Ferrandina G, Gallotta V, Federico A, Fanfani F, Ercoli A, Chiantera V, *et al.* Minimally invasive approaches in locally advanced cervical cancer patients undergoing radical surgery after chemoradiotherapy: a propensity score analysis. *Annals of Surgical Oncology*. 2021; 28: 3616–3626.
- [7] Fapohunda A, Fakolade A, Ilegbune O. Leveraging eLearning tools to improve cervical and breast cancer screening and diagnosis in Lagos, Nigeria. *Cities & Health*. 2022; 6: 282–287.
- [8] Pancani L, Preti E, Riva P. The psychology of smartphone: the development of the smartphone impact scale (SIS). *Assessment*. 2020; 27: 1176–1197.
- [9] Ghriwati NA, Everhart RS, Winter MA. Interactive effects of family functioning and sleep experiences on daily lung functioning in pediatric asthma: an ecological momentary assessment approach. *Journal of Asthma*. 2020; 57: 262–270.
- [10] Marwa J, Ali, Hala M, Hanafy, Hossam Aldeen H, Kamel, Elham Sh, Hassan. Assessment of quality of life in breast cancer patients. *The Medical Journal of Cairo University*. 2022; 90: 1295–1300.
- [11] Nitecki R, Ramirez PT, Frumovitz M, Krause KJ, Tergas AI, Wright JD, *et al.* Survival after minimally invasive vs open radical hysterectomy for early-stage cervical cancer: a systematic review and meta-analysis. *JAMA Oncology*. 2020; 6: 1019–1027.
- [12] Rajkumar D, Veeraiah S, Sudhakar R, Ganeshrajah S. Perceived psychosexual dimensions of cervical cancer survivors in India—an exploratory study. *Psycho-Oncology*. 2022; 31: 1745–1752.
- [13] Pang SS, Murphy M, Markham MJ. Current management of locally advanced and metastatic cervical cancer in the United States. *JCO Oncology Practice*. 2022; 18: 417–422.
- [14] Manterys KB, Blazek M. Assessment of the quality of life of patients with breast and cervical cancer. *Oncology in Clinical Practice*. 2021; 17: 277–284.
- [15] Bogdanova A, Andrawos C, Constantinou C. Cervical cancer, geographical inequalities, prevention and barriers in resource depleted countries. *Oncology Letters*. 2022; 23: 113.
- [16] Jou J, Coulter E, Roberts T, Binder P, Saenz C, McHale M, *et al.* Assessment of malnutrition by unintentional weight loss and its implications on oncologic outcomes in patient with locally advanced cervical cancer receiving primary chemoradiation. *Gynecologic Oncology*. 2021; 160: 721–728.
- [17] Cibula D, Raspollini MR, Planchamp F, Centeno C, Chargari C, Felix A, *et al.* ESGO/ESTRO/ESP Guidelines for the management of patients with cervical cancer—update 2023. *International Journal of Gynecological Cancer*. 2023; 33: 649–666.
- [18] Frumovitz M, Obermair A, Coleman RL, Pareja R, Lopez A, Ribero R, *et al.* Quality of life in patients with cervical cancer after open versus minimally invasive radical hysterectomy (LACC): a secondary outcome of a multicentre, randomised, open-label, phase 3, non-inferiority trial. *Lancet Oncology*. 2020; 21: 851–860.
- [19] Kaneyasu Y, Fujiwara H, Nishimura T, Sakurai H, Kazumoto T, Ikushima H, *et al.* A multi-institutional survey of the quality of life after treatment for uterine cervical cancer: a comparison between radical radiotherapy and surgery in Japan. *Journal of Radiation Research*. 2021; 62: 269–284.
- [20] Cascales-Pérez ML, Ferrer-Cascales R, Fernández-Alcántara M, Cabañero-Martínez MJ. Effects of a mindfulness-based programme on the health- and work-related quality of life of healthcare professionals. *Scandinavian Journal of Caring Sciences*. 2021; 35: 881–891.
- [21] Alhawatmeh H, Alshammari S, Rababah JA. Effects of mindfulness meditation on trait mindfulness, perceived stress, emotion regulation, and quality of life in hemodialysis patients: a randomized controlled trial. *International Journal of Nursing Sciences*. 2022; 9: 139–146.
- [22] Suvannasarn R, Muangmool T, Wongpakaran N, Charoenkwan K. Health-related quality of life for early-stage cervical cancer survivors after primary radical surgery followed by radiotherapy versus radical surgery alone. *Journal of Obstetrics and Gynaecology*. 2022; 42: 1217–1224.
- [23] Helps S, Grinney ML. Synchronous digital couple and family psychotherapy: a meta-narrative review. *Journal of Family Therapy*. 2021; 43: 185–214.
- [24] Johns SA, Beck-Coon K, Stutz PV, Talib TL, Chinh K, Cottingham AH, *et al.* Mindfulness training supports quality of life and advance care planning in adults with metastatic cancer and their caregivers: results of a pilot study. *American Journal of Hospice & Palliative Medicine*. 2020; 37: 88–99.
- [25] Mengatto MF, Castro BGR, Nobrega L, Vieira MA, Andrade CEMC, Tsunoda AT, *et al.* Early removal of indwelling urinary catheter after radical surgery for early-stage cervical cancer—a cohort study. *Journal of Surgical Oncology*. 2020; 122: 1498–1505.

- [26] Novackova M, Pastor Z, Chmel R Jr, Brtnicky T, Chmel R. Urinary tract morbidity after nerve-sparing radical hysterectomy in women with cervical cancer. *International Urogynecology Journal*. 2020; 31: 981–987.
- [27] Huang L, He Y, Gong Y. The long-term urinary dysfunction after type C2 radical hysterectomy in patients with cervical cancer. *Journal of Obstetrics and Gynaecology*. 2022; 42: 514–517.
- [28] Baessler K, Windemut S, Chiantera V, Köhler C, Sehouli J. Sexual, bladder and bowel function following different minimally invasive techniques of radical hysterectomy in patients with early-stage cervical cancer. *Clinical & Translational Oncology*. 2021; 23: 2335–2343.
- [29] Firmeza MA, Vasconcelos CTM, Vasconcelos Neto JA, Brito LGO, Alves FM, Oliveira NMV. The effects of hysterectomy on urinary and sexual

functions of women with cervical cancer: a systematic review. *Revista Brasileira de Ginecologia e Obstetricia*. 2022; 44: 790–796.

**How to cite this article:** Qiuyuan Wan, Xiaoling Wu, Na Zhang, Yuxin He, Xiaoshan Feng, Chenyang Zhang, *et al.* The impact of family-synchronized empowerment education on the feelings of shame and quality of life of patients discharged with catheters following major surgery for cervical cancer. *European Journal of Gynaecological Oncology*. 2024; 45(4): 163-169. doi: 10.22514/ejgo.2024.082.