Effects of Extended Care Based on the WeChat Platform on Self-Efficacy and Quality of Life of Postoperative Breast Cancer Patients

YAN FEI XU, XIA FEI. XU[1], K. SONG[2], C. QIU[2], X. ZHANG[2], DI LI NU ER-RE HE. MAM[2] AND RONG FANG XU*

Department of Nursing, Nantong Tumor Hospital, Nantong 226200, [1]Department of Nursing, Nantong Third People's Hospital, Nantong 226006, [2]Nanjing Hope Medical Laboratory Co.,Ltd, Nanjing 210001, China

Xu *et al*.: Extended care based on the WeChat platform for postoperative breast cancer patients

To explore the effects of extended care based on the WeChat platform on self-efficacy and quality of life of postoperative breast cancer patients. 126 patients who underwent modified radical breast cancer surgery in our hospital from January 2018 to March 2019 were divided into a control group (n=63) and an observation group (n=63) according to a randomly generated numerical table. The control group was given regular nursing care, and the observation group was given extended nursing care using the WeChat public platform on the basis of the control group. The Hospital Anxiety and Depression Scale was used to assess the anxiety and depression of the two groups; the Breast Cancer Treatment Discomfort Rating Scale was developed with reference to the National Cancer Society's Common Symptom Assessment Criteria and the American Cancer Treatment Collaborative's classification criteria; and the Generic Quality of Life Inventory-74 was used to assess the quality of life of the postoperative patients and to conduct a patient satisfaction survey. The results showed that there were no significant differences in hospital anxiety and depression scores and anxiety status between the two groups before the intervention care, and the differences in hospital anxiety and depression scores, anxiety status and depression status were statistically significant after the treatment care. After the nursing intervention, the time effect, group effect, and interaction effect were statistically significant when comparing the discomfort scores of the two groups. After the nursing intervention, patients self-efficacy scores and quality of life scores were significantly higher in the observation group than in the control group. Before the intervention, there was no statistically significant difference in nursing satisfaction between the two groups; after the intervention, the satisfaction of the observation group was higher than that of the control group, and the difference was statistically significant. Professional case management based on the WeChat mobile platform helps to improve the effectiveness of out-of-hospital care for breast cancer and adapt to the rapidly developing medical model.

Key words: Breast cancer, extended care, WeChat, self-efficacy, quality of life

Breast cancer is the most common malignant tumor in women[1], which seriously endangers women's physical and mental health[2]. With the continuous optimization of medical treatment methods, the 5 y survival rate of breast cancer patients is also increasing year by year. However, breast cancer patients still bear multiple pressures, such as postoperative rehabilitation management, chemotherapy side effects management, participation and cooperation of complex treatment programs, and disease itself. If the compliance is low and the psychological burden is heavy, the quality of life and social function will be affected. Studies have

shown that 30 % of breast cancer patients show different degrees of anxiety and depression[3], and their quality of life is significantly lower than that of the normal[4]. A survey on the support needs of breast cancer patients received chemotherapy showed that young patients have more information needs for medical system and sex, and the unmet needs are positively correlated with the score of patients symptom pain[5]. The quality of life of breast cancer patients in China is in a relatively satisfactory state, but there are still physiological and psychological disorders, and anxiety and depression are related to the decline of quality of life. Since patients

*Address for correspondence
E-mail: xyfwzhwtq@sina.com

are eager to return to normal life after discharge, it is necessary to carry out relevant management such as prevention of tumor recurrence, symptom control, rehabilitation exercise, etc. to reduce physical and psychological discomfort. In fact, hospital management of discharged patients has great benefits for the treatment and rehabilitation of patients[6].

With the advent of the Internet plus era and the continuous development of information technology and medical care, mobile medical has been widely applied as a new medical method to adapt to the development of social technology. As an auxiliary online platform, WeChat can communicate with each other in words, pictures and videos. Because it is not limited by time, place and frequency of use, more and more medical colleagues are applying it to the continuous nursing management of chronic Extending the use of social platform to heal the pain of patients suffering form chronic diseases is something which makes the we chat remarkable. In this study, we use WeChat mobile platform to provide professional comprehensive extended services for breast cancer patients, and provide support for patients in physiological and psychological aspects, so that they can cope with disease in the best state and achieve good curative effect.

MATERIALS AND METHODS

Clinical information:

126 cases of breast cancer patients treated with modified radical mastectomy in our hospital from January 2018 to March 2019 were randomly divided into the control group and the observation group according to the random number table. The patients were discharged from hospital 1 w after operation and returned to our department for the same course of chemotherapy 2 w after operation. Chemotherapy was given once every 2 w for 1 d, and 8 times in total. The patient was discharged on the day of chemotherapy.

Inclusion criteria: Women aged less than 60 y old; Diagnosed by pathological examination and received chemotherapy for the first time; The course of chemotherapy was 8 cycles; Patients and their families informed consent to participate in the study; Able to surf the Internet and use smart phones; Conscious, normal intelligence, good understanding of Chinese.

Exclusion criteria: In the terminal stage of cancer (the estimated survival time is less than 6 mo); they were participating in or have participated in similar studies in the past 6 mo; Combined with other cancers or major

diseases; Diagnosed with mental disorders. There was no loss of follow-up in both groups. There was no significant difference in age, education and tumor stage between the two groups (p>0.05) (Table 1).

Nursing methods:

Control group

In the control group, the same breast specialist case nurse with rehabilitation guidance qualification implemented unified postoperative intervention measures to ensure the homogeneity. The case nurse guided the patients to complete the investigation form 1 d before the postoperative nursing intervention, 1 mo and 2 mo after the intervention. The details were as follows: the whole process of case management was implemented in the ward.

During the period of hospitalization, the patients were continuously observed by the trained and qualified case nurses, and the nursing plan was formulated according to the individual situation of the patients, and targeted guidance and intervention were given, including: guiding the observation of postoperative wound and drainage fluid, local skin and drainage tube care, providing postoperative rehabilitation exercise and life exercise knowledge, and giving psychological care and home care guide and distributing propaganda and education manual. When discharged, the case nurse left the mobile phone number to the patients. After discharge, the case nurse received telephone consultation during the whole rehabilitation period from 8:00 to 20:00 every day and completed telephone follow-up within 1 mo after discharge, including postoperative complications, quality of life, satisfaction, etc. According to the structure of nursing staff in the department, the case nurse required to be a nurse of grade N3 or a nurse with grade N2 for more than 4 y, that was, a nurse in charge or above, who had solid professional knowledge, rich clinical experience, strong communication and coordination ability, active research and certain scientific research ability.

Observation group

The nursing plan of the observation group mainly included the following three parts:

Establish WeChat medical service team: The service team was composed of all medical staff of breast specialist, including breast cancer clinical experts, medical staff and medical students. The service team consisted of 1 medical team and 1 nursing team leader, 2 officers for

TABLE 1: COMPARISON OF CLINICAL INFORMATION BETWEEN THE TWO GROUPS

Characteristic	Control group		Observation group		X²	p
Age	47.13±7.58		48.74±6.88		1.214	0.272
Marriage					1.037	0.309
No	2	3.17	1	1.59		
Yes	61	96.83	62	98.41		
Education					1.211	0.75
Primary	15	23.81	16	25.4		
Junior middle	28	44.44	29	46.03		
High or Secondary	11	17.46	10	15.87		
University and above	9	14.29	8	12.7		
Employee					2.072	0.3551
Yes	8	12.7	10	15.87		
No	55	87.3	53	84.13		
Habitation					0.096	0.953
City	19	30.16	17	26.98		
Town	10	15.87	11	17.46		
Country	34	53.97	35	55.56		
Family Monthly Earning					4.65	0.325
≤2000	28	44.44	26	41.27		
2001~5000	24	38.11	26	41.27		
5001~10000	10	15.87	9	14.3		
≥10000	1	1.58	2	3.16		
Payment Method					2.38	0.666
Public medical insurance	6	9.53	5	7.94		
Medical insurance for urban employees	24	38.1	26	41.27		
New rural cooperative medical system	31	60.31	29	46.03		
At one's own expense	2	3.16	3	4.76		
TMN stage					3.263	0.515
Stage II	32	50.8	36	57.14		
Stage III	21	33.33	19	30.16		
Stage IV	10	15.87	8	12.7		

each team, 2 liaison propagandists, 16 clinicians and nursing staff with more than 8 y of experience in breast specialist. Responsibilities of service team members; medical staff, as expert members, confirmed the case management nursing plan, answered all questions of patients, provided technical guidance, and reviewed popular science knowledge and publicity materials; Two secretaries (nurses) were responsible for the statistics and communication of patients questions; Other nursing staff were responsible for collecting questions and feedback from patients under their jurisdiction; The liaison officers were responsible for maintaining the WeChat platform, sorting out and publishing breast cancer related knowledge and the latest developments of the Department. All team members must wear work cards with Quick response (QR) code of WeChat group name of "breast is beautiful".

Case nursing pathway: Establish case management files of breast cancer patients, including basic information of patients, treatment information (surgery, chemotherapy, radiotherapy, targeted treatment) and follow-up information (follow-up log) to ensure the integrity of patient data.

Contents and measures of WeChat health education: Record and classify the patients questions, list 30 kinds of common questions, edit the answers that were easy to understand, and push them on WeChat in time. To compile department information (introduction of departments and experts, outpatient time), basic

knowledge of breast cancer, review and forward breast cancer popular science articles, and help patients reserve beds for catheter maintenance. Group member task: The patients were required to publish the personal plan of the day in WeChat group at 07:30 every day, including medication, exercise method, exercise volume, symptoms and weight; At 21:00, the patients were required to publish the summary of the day, including medication time, exercise time, symptoms, weight and adverse reactions. If the patients failed to submit on time, the liaison officer would remind them in time. The expert members provided professional support from treatment, nursing, life and other aspects every Friday, and encouraged patients to establish rehabilitation belief.

Observed indexes:

The hospital anxiety and Depression Scale (HADS) was used to evaluate patient's anxiety and depression, including the evaluation of anxiety and depression, which can directly reflect the subjective feelings of the research objects. HADS was divided into self-rating Anxiety Scale (a) with 7 questions and self-rating Depression Scale (d) with 7 questions. Each question was scored by Likert 4. The total score of single item was anxiety score, and the total score of even item was depression score. The total score of each subscale was 21, the higher the score, the higher the possibility of depression and anxiety. Symptom rating: 0-7 points, no symptoms; 8-10 points, suspicious symptoms; 11-21 points, there must be symptoms, and the total score is 42 points.

Discomfort symptom score: The breast cancer treatment discomfort symptom scale was developed according to the National Cancer Association's common symptom assessment standard and the American cancer treatment collaboration classification standard, which included fatigue, gastrointestinal discomfort, limb pain/swelling, dizziness/headache and muscle soreness. Likert grade 4 score was used, i.e., none, a little, equivalent and extraordinary, and the score of each item were 0~3 points. The total score is 0-15, and the higher the score, the more serious the discomfort symptoms. The patients were evaluated before discharge, 3 mo, 6 mo and 9 mo after discharge.

Self-efficacy scale (SES): It includes 4 dimensions, each dimension contains 10 items. The score of 4 levels is used, including 1 point for completely incorrect, 2 points for incorrect, 3 points for correct, and 4 points for completely correct. The score of dimensions is

added up to the total score. The higher the score is, the better the self-efficacy is.

Comprehensive quality of life questionnaire, Generic Quality of Life Inventory-74 (GQOLI-74) includes four dimensions: physical function, psychological function, social function and life state. The first three dimensions contain five factors, the material life dimension contains four factors, and the overall quality of life factor contains 20 factors. Statistical analysis indicators include total score, dimension score and factor score. All indicators were analyzed by positive scoring results, the higher the score, the better the quality of life.

The satisfaction of patients was investigated. Items include: guidance content and skills of case nurses, quality of follow-up service and quality of daily life. The score of dissatisfaction is 0, generally is 1, moderate is 2, satisfied is 3 and very satisfied is 4, respectively. Total satisfaction rate includes satisfied and very satisfied.

Statistical methods:

Statistical Package for the Social Sciences (SPSS) 21.0 software was used for statistical analysis. The measurement data was expressed with mean±Standard Deviation (SD) and analyzed by t-test if it was in accordance with normal distribution. The counting data was expressed by frequency, rate or constituent ratio and analyzed by Fisher exact probability method. The quality of life scores of observation group and control group before and after intervention were compared by repeated measurement analysis of variance, respectively. $p < 0.05$ meant the difference was statistically significant.

RESULTS AND DISCUSSION

Before the intervention, the HADS of the control group was (35.32±2.99) points, and that of the observation group was (34.76±2.54) points. There was no significant difference in the scores of anxiety and depression, anxiety and depression between the two groups ($p > 0.05$). After the intervention, there were significant differences in the scores of anxiety and depression, anxiety and depression between the two groups ($p < 0.05$), as shown in fig. 1.

After the nursing intervention, the time effect, group effect, and interaction effect were statistically significant when comparing the discomfort scores of the two groups ($p < 0.05$), as shown in fig. 2. The results showed that the scores of discomfort symptoms of the two groups had a trend of change with time, and the change trend of time

was different according to different groups.

After the nursing intervention, patients self-efficacy scores were significantly higher in the observation group than in the control group (p<0.05), as shown in Table 2.

After the nursing intervention, patients quality of life scores were significantly higher in the observation group than in the control group (p<0.05), as shown in Table 3.

Before the intervention, there was no statistically significant difference in nursing satisfaction between the two groups. However, after the intervention, the
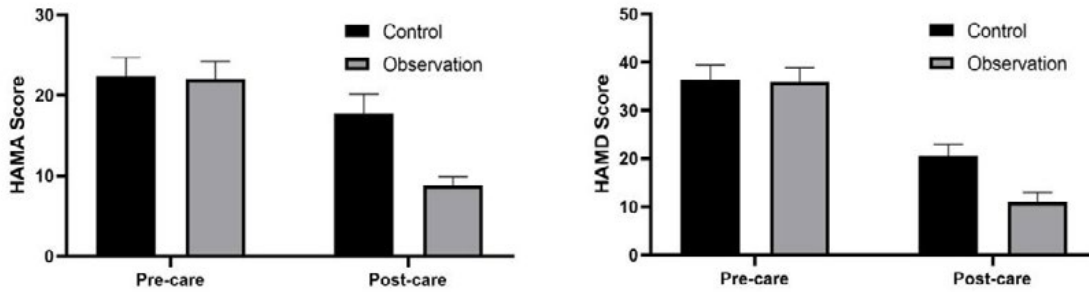

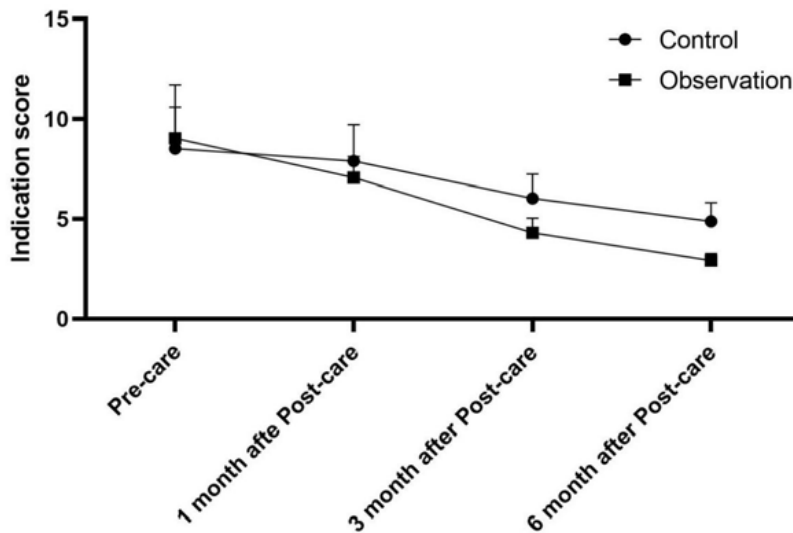Fig. 1: Comparison of hospital anxiety and depression levels between the two groups

Fig. 2: Comparison of discomfort symptom scores between the two groups

TABLE 2: COMPARISON OF SELF-EFFICACY SCORES BETWEEN THE TWO GROUPS

Index	Observation group		Control group		X^2	p
	Before nursing	After nursing	Before nursing	After nursing		
Self-efficacy	66.50±7.55	99.87±9.79	66.77±11.79	67.50±7.55	1.122	<0.001
Self-decompression	24.54±2.98	35.61±4.28	24.04±4.39	27.94±3.03	2.756	0.041
Self-decision making	7.16±1.92	12.50±1.58	6.83±1.89	8.22±1.50	4.195	0.027
Positive attitude	35.79±5.34	54.01±6.98	34.90±6.67	40.79±5.34	3.876	0.011

TABLE 3: COMPARISON OF QUALITY OF LIFE SCORES BETWEEN THE TWO GROUPS

Index	Observation group		Control group		X^2	p
	Before nursing	After nursing	Before nursing	After nursing		
FACT-B	69.11±9.48	84.39±8.54	67.00±8.62	72.11±8.85	7.654	<0.001
Physiological status	14.60±4.13	18.15±3.41	14.31±2.91	15.98±3.37	3.307	0.026
Social/family status	15.76±3.06	22.47±3.81	15.52±3.46	17.36±1.98	3.109	0.029
Emotional state	9.77±2.20	14.82±2.11	9.51±2.34	10.03±1.95	3.093	0.033
Functional status	10.97±3.46	18.30±4.31	9.91±3.26	11.07±3.36	3.733	0.021
Attachment concerns	18.02±3.33	19.46±2.84	17.72±2.76	19.32±3.36	1.453	0.323

TABLE 4: COMPARISON OF NURSING SATISFACTION BETWEEN THE TWO GROUPS

Groups	Guidance content	Guidance skills	Tracking service quality	Daily life quality	Overall satisfaction	X^2	p
1 d before nursing						0.673	0.453
Observation group	1.93±0.56	1.89±0.72	2.61±0.66	2.01±0.89	8.67±0.88		
Control group	1.92±0.68	1.92±0.83	2.63±0.78	1.99±0.73	8.44±0.92		
1 mo after nursing						2.037	0.023
Observation group	2.73±0.46	2.62±0.59	2.88±0.31	2.69±0.52	10.88±0.43		
Control group	2.41±0.51	2.31±0.60	2.73±0.20	2.37±0.45	10.04±0.31		
3 mo after nursing						2.675	0.014
Observation group	3.58±0.27	4.09±0.48	3.96±0.17	3.56±0.26	12.93±0.43		
Control group	2.92±0.42	3.28±0.33	3.09±0.11	3.21±0.43	11.56±0.31		

nursing satisfaction of the observation group was higher than that of the control group, and the difference was statistically significant (p<0.05), as shown in Table 4.

Breast cancer is one of the most dangerous cancers in the female population, and the main treatment method is surgical treatment[7]. Although surgical treatment can significantly improve the survival rate of patients, but postoperative will bring a series of problems, such as postoperative adverse complications and psychological emotions, affect the rehabilitation effect and quality of life of patients, so reasonable and effective postoperative nursing program is very important for patients.

The conventional nursing mode can only play its role in the postoperative hospitalization, but it cannot give the rehabilitation guidance to the patients at home after discharge, resulting in poor prognosis of patients[8]. Therefore, there is an urgent need for a new continuity of care model applied to breast cancer postoperative nursing guidance. As the platform with the largest number of instant messaging users, WeChat has the advantages of instantaneity, convenient information exchange and dissemination, multi-mode visualization, and can open a convenient channel for the contact between medical staff, patients and their families[9]. Using WeChat platform to implement extended care for breast cancer patients after operation helps doctors and nurses master the situation of patients after discharge. Sending videos and pictures of nursing knowledge and skills through WeChat push service can help patients better understand the relevant knowledge of the disease, enhance their recognition and attention to nursing, and enhance the confidence of patients to overcome the disease. In addition, WeChat platform also provides call video function, which can facilitate timely communication between doctors and patients, and promote the physical recovery of patients by advising

patients to adjust sleep, exercise, diet, medication and other aspects, so as to help patients establish a positive attitude to face the disease[10].

Studies have shown that postoperative chemotherapy can lead to anxiety and depression in patients, which makes them conflict with treatment, thus seriously reducing the quality of life of patients. In present study, before the intervention, the HADS of the control group was (35.32±2.99) points, and that of the observation group was (34.76±2.54) points, indicating that patients in the two groups all had anxiety and depression symptoms before nursing. However, after the intervention, the emotional state of the two groups was significantly improved, and there were significant differences in the scores of anxiety and depression, anxiety and depression between the two groups. Some studies have found that breast cancer patients have anxiety and depression in terms of physical burden and economic burden[11]. In terms of body, it is mainly because breast cancer surgery will change the appearance of women's second characteristics, and cause postoperative adverse reactions, such as nausea and vomiting[12], hair loss[13], fatigue[14]. On the economic side, they are worried about the cost of treatment and transportation, which will increase the burden on families[15]. In this study, the patients were mainly middle-aged people, whose average age was (47.13±7.58) y old, which is the golden age of life. The results of this study also showed that more than 80 % of patient's monthly income was less than 5000 yuan, so breast cancer wound have a great impact on the individual, family and society. In addition, some studies believe that, caregiver emotion is also an important factor affecting the anxiety and depression level of patients and improving the negative emotions of caregivers can help alleviate the anxiety and depression of patients, suggesting that anxiety and depression counseling for caregivers can help patients

reduce the level of anxiety and depression[16].

The self-efficacy scale was used to evaluate the patient's self-efficacy, self-decompression, self-decision-making and positive attitude. The results showed that the scores of four dimensions of self-efficacy scale were significantly improved after nursing intervention, and the results were consistent with previous studies[17]. Self-efficacy can reflect the ability of self-management of patients, and can represent the mastery and familiarity of disease knowledge and skills. Self-efficacy plays an important role in anxiety, depression and quality of life. There is a close positive correlation between self-efficacy and quality of life (r=0.724, p<0.001)[18]. From our results, we found that patients showed low self-efficacy before nursing, and the reasons for this phenomenon may be as follows: Patients were lack of understanding of cancer, and they were worried and confused about the prognosis and development of the disease. There were many cycles of cancer chemotherapy, at least four cycles. Each chemotherapy was expensive, resulting in greater psychological and economic burden. The course of cancer treatment was relatively long, and the chemotherapy cycle alone may take 4-5 mo. There was a lack of positive coping methods for the long-term physical changes caused by the disease, thus affecting the quality of life. After our nursing, the self-efficacy level of patients was significantly improved, which showed that the implementation of extended care based on WeChat can improve the self-efficacy and self-management ability of patients, and enhance the confidence and hope of patients for the treatment of diseases.

After suffering from breast cancer, Chinese women are in the state of no work or giving up work during the treatment. Due to the body reaction, pain and fatigue caused by chemotherapy, they cannot continue to work and participate in social activities such as entertainment as usual, which leads to the decline of their satisfaction with life, and then affects their quality of life. In this study, after nursing, the total score of quality of life, physiological status, social/family status, emotional status, additional attention, functional status of patients in the two groups were both significantly improved, and the scores of the observation group were all significantly higher than those of the control group and the difference was statistically significant. Some studies reported that the scores of quality of life of breast cancer patients were lower than those of other cancers in China[19]. The reason was that most patients with breast cancer may face the second characteristic change, and the function of affected limbs was limited, which limited daily physical activities and living ability. Patients must accept the role change from normal people to cancer patients, resulting in the generation of negative emotions of anxiety and depression, which further affect the living habits and social ability and decrease the quality of life. And our continuing care based on WeChat platform can solve these concerns of patients, establish good communication with patients in time, and encourage patients to face the disease with a positive attitude. Besides, this is also conducive to enhance the understanding between doctors, nurses and patients, and form a benign treatment, nursing and rehabilitation model.

To sum up, the clinical development of specialized case management is becoming more and more mature, while WeChat as a modern communication mode is less used in breast cancer continuing care. Further practice and summary are still needed to provide reliable clinical experience for breast cancer out of hospital nursing and adapt to the rapid development of medical treatment mode.

Acknowledgements:

Conflict of Interests:

The authors declared no conflict of interest.

REFERENCES

1. Hsu SC, Liu CF, Weng RH, Chen CJ. Factors influencing nurse's intentions toward the use of mobile electronic medical records. Comput Inform Nurs 2013;31:124-32.
2. Smith R, Menon J, Rajeev JG, Feinberg L, Kumar RK, Banerjee A. Potential for the use of mHealth in the management of cardiovascular disease in Kerala: a qualitative study. Br Med J 2015;5:e009367.
3. Willems RA, Mesters I, Lechner L, Kanera IM, Bolman CA. Long-term effectiveness and moderators of a web-based tailored intervention for cancer survivors on social and emotional functioning, depression, and fatigue: randomized controlled trial. J Cancer Surviv 2017;11:691-703.
4. Ternstrom E, Hildingsson I, Haines H, Karlstrom A, Sundin O, Ekdahl J, *et al*. A randomized controlled study comparing internet-based cognitive behavioral therapy and counselling by standard care for fear of birth-a study protocol. Sex Reprod Healthc 2017;13:75-82.
5. Graetz I, McKillop CN, Stepanski E, Vidal GA, Anderson JN, Schwartzberg LS. Use of a web-based app to improve breast cancer symptom management and adherence for aromatase inhibitors: a randomized controlled feasibility trial. J Cancer Surviv 2018;12:431-40.

6. Birken SA, Urquhart R, Munoz-Plaza C, Zizzi AR, Haines E, Stover A, *et al*. Survivorship care plans: are randomized controlled trials assessing outcomes that are relevant to stakeholders? J Cancer Surviv 2018;12:495-508.

7. Liu Y, Wu Y, Gong Y. Promoting mHealth in Nursing Practice in China. Stud Health Technol Inform 2016;225:48-52.

8. Salome GM, Ferreira LM. Developing a mobile app for prevention and treatment of pressure injuries. Adv Skin Wound Care 2018;31:1-6.

9. Jallo N, Thacker LR, Menzies V, Stojanovic P, Svikis DS. A stress coping app for hospitalized pregnant women at risk for preterm birth. MCN Am J Matern Child Nurs 2017;42:257-62.

10. Min YH, Lee JW, Shin YW, Jo MW, Sohn G, Lee JH, *et al*. Daily collection of self-reporting sleep disturbance data via a smartphone app in breast cancer patients receiving chemotherapy: a feasibility study. J Med Internet Res 2014;16:e135.

11. Badawy SM, Kuhns LM. Texting and mobile phone app interventions for improving adherence to preventive behavior in adolescents: a systematic review. JMIR Mhealth Uhealth 2017;5:e50.

12. Deng Z. Understanding public users' adoption of mobile health service. Int J Mob Commun 2013;11:351-73.

13. Lin HC. Nurses' satisfaction with using nursing information systems from technology acceptance model and information systems success model perspectives: a reductionist approach. Comput Inform Nurs 2017;35:91-9.

14. Hsiao JL, Wu WC, Chen RF. Factors of accepting pain management decision support systems by nurse anesthetists. BMC Med Inform Decis Mak 2013;13:16.

15. Chen RF, Hsiao JL. An investigation on physicians' acceptance of hospital information systems: a case study. Int J Med Inform 2012;81:810-20.

16. Lu CH, Hsiao JL, Chen RF. Factors determining nurse acceptance of hospital information systems. CIN: Comput Inform Nurs 2012;30:257-64.

17. Ronquillo C, Dahinten S, Bungay V, Currie L. The Mobile-Health and Implementation Leadership Evaluation (MOBILE) Nurse Study: Developing a Testable Conceptual Model. Stud Health Technol Inform 2018;250:143.

18. Bandura A, Barbaranelli C, Caprara GV, Pastorelli C. Self-efficacy beliefs as shapers of children's aspirations and career trajectories. Child Dev 2001;72:187-206.

19. Geng Z, Ogbolu Y, Wang J, Hinds PS, Qian H, Yuan C. Gauging the effects of self-efficacy, social support, and coping style on self-management behaviors in Chinese cancer survivors. Cancer Nurs 2018;41:E1-