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Original Article

Feasibility and pilot study of Indonesia's first telehealth support program for gynecological cancer survivors undergoing chemotherapy

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Abstract

Most Indonesian gynecological cancer survivors experience chemotherapy side effects on their physical and mental health as they face unmet needs of supportive care, which increases the likelihood of discontinuing treatment. Interventions in telehealth assist survivors in resolving these issues. The aim of this pilot study was to determine the feasibility of fighting distress, self-efficacy, health effects, and sexual (FoRSHE-X) interventions and evaluate their potential impact on distress level, side effects knowledge and management, self-efficacy, and sexual quality of life. The study involved gynecological cancer survivors who underwent chemotherapy and participated in ten weeks of individual social media-based education, tele-coaching, and teleconsultations, from September 2023 to June 2024. The study feasibility and pilot outcomes were evaluated using descriptive statistics and qualitative thematic analysis. Of the twelve women recruited, six (50%) completed the study, filled out pre- and post-intervention questionnaires, and participated in interviews. Fifty-four virtual education, coaching, and consultation sessions were performed individually. The statistical results indicated that participants were highly satisfied with the telehealth program, which significantly increased their knowledge (p=0.02), health practices (p=0.04), and self-efficacy (p=0.01). The qualitative analysis highlighted participants' and coaches' perspectives on the study's acceptance, barriers, and recommendations. In conclusion, this pilot study suggests that a definitive trial to assess the FoRSHE-X interventions is feasible, acceptable, and can be applied not only to gynecological cancer survivors but also to other types of cancer, thereby broadening the potential impact of the study.

Keywords: Feasibility, gynecological cancer, pilot, self-efficacy, telehealth

Introduction

Cancer ranks as the second leading cause of death globally, with 10 million deaths predicted in 2020 [1]. The world health organization (WHO) acclaimed that low and middle-income countries (LMICs) bear the highest cancer burden, accounting for more than 70 percent of cancer-related fatalities. The disparity is even more prominent in cervical cancer, which accounts for 90 percent of new cases and fatalities, while other gynecological cancers also substantially increase the cancer burden in these nations [2]. Following the increasing concern about cancer, the sustainable development goals (SDGs) aim to reduce premature death by improving

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survivors' well-being [3]. Therefore, effective treatment and continuity of health care and treatment are crucial. Cancer has been listed as one of the most catastrophic diseases that must be urgently addressed in Indonesia [1] since survivorship care remains inadequate [4].

Cancer treatment is expected to enhance gynecological cancer survivors' life spans. However, the therapy may bring up new needs regarding its effects on the physical, psychological, and social functions of the survivors [5-7]. Previous research has indicated that many Indonesian gynecological cancer survivors face unresolved needs, particularly in accessing information and comprehensive support [8,9]. Survivors expressed challenges in finding sufficient time and opportunities to address physical, psychosocial, sexual, and other concerns with healthcare providers, especially nurses, during their treatment [8,10]. Furthermore, there is a shortage of educational resources for cancer survivors in Bahasa Indonesia, and many survivors struggle with low health literacy [11,12]. Without intervention, these circumstances could disrupt the continuity of therapy and increase the risk of unexpected relapse or health deterioration [13]. These unmet needs have been associated with a decreased quality of life among gynecological cancer survivors in Indonesia [14,15].

In today's digital transformation, various digital platforms, such as mobile applications and websites, and wearable devices, such as smartwatches, have been increasingly used in healthcare settings [16]. Utilizing digital media can bridge communication between cancer patients and healthcare providers and improve health service delivery [17]. Previous systematic reviews have demonstrated promising results regarding the effects of digital interventions in meeting informational needs and facilitating bio-psycho-social issues among cancer survivors [18,19]. These interventions can be a valuable way to help cancer survivors manage their illnesses and side effects of the therapy, ultimately enhancing their quality of life and treatment continuity [18,20]. Research has shown that digital health interventions are as effective as traditional care in improving the quality of life among cancer survivors [20]. Recognizing the wide-ranging benefits, WHO suggested the importance of digital technologies in strengthening national health systems and advancing the health goal for all [16].

Indonesian survivors of gynecological cancer have not received advanced nursing care, which may sufficiently provide comprehensive and culturally relevant interventions and digital health literacy [8]. Gynecological cancer survivors who complete their therapy and understand how to manage chemotherapy side effects are more likely to have a good prognosis. During the treatment process, gynecological cancer patients have diverse needs, which, if not adequately addressed, may lead to treatment discontinuation, recurrence, or worse outcomes [21]. These needs include managing physical side effects from the disease and its therapy, adopting a healthy lifestyle, preventing cancer recurrence, overcoming psychosocial and sexual issues, and acquiring self-care information [22,23].

The fighting of distress, self-efficacy, health effects, and sexual issues (FoRSHE-X) study was developed by a collaborative research team between Universitas Indonesia and Dharmais National Cancer Center in Jakarta, Indonesia, based on the first author's research project [24] as an enduring initiative that optimizes digital media to tackle communication obstacles between gynecological cancer survivors undergoing treatment and healthcare professionals. This study's goal was to enhance these survivors' self-efficacy in adjusting to multiple bio-psycho-social and sexual issues because of chemotherapy. The aim of this study was to assess the feasibility of the telehealth program and prospectively analyze the effects of the study implementation on distress, knowledge of chemotherapy side effects and their management, self-efficacy, and quality of women's sexual life.

Methods

This study presents the findings from the second of the five stages of FoRSHE-X digital program development, and it will be continued to the next stage of experimental study in several cancer centers across Indonesia (**Figure 1**). A prospective one-armed feasibility and pilot study was conducted using mixed methods and a concurrent research design. Both quantitative and qualitative inquiries were employed to attain the study objectives. In this study, non-randomized participants received the FoRSHE-X interventions to encompass telehealth education and coaching objectives.

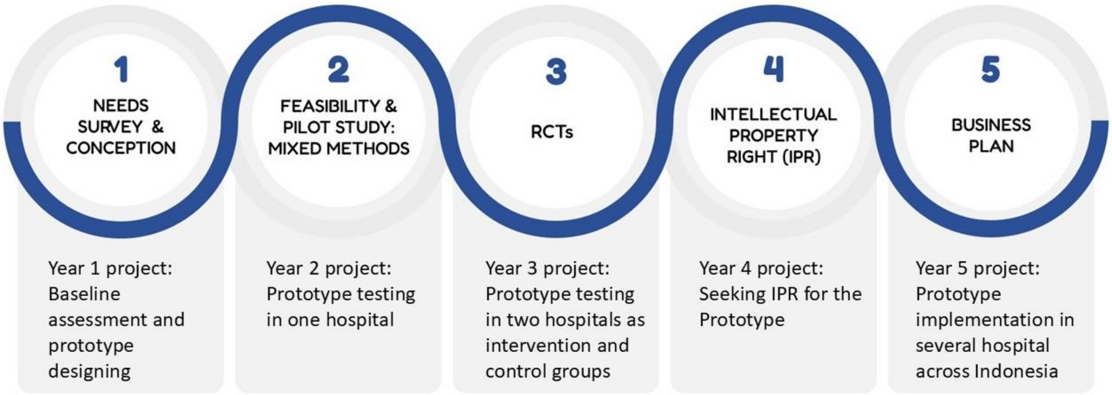

Figure 1. The FoRSHE-X project development.

Launched in September 2023, this pilot study of FoRSHE-X consisted of telehealth assessments, education, and coaching to provide gynecological cancer survivors with continuous support during cancer treatment. The telehealth sessions were conducted by three certified coaches with master's or doctoral degrees in nursing and began with a virtual assessment of the participant's physical, psychological, and social concerns.

Educational sessions were guided using mobile phones or personal computers through the Zoom platform. This session included teaching and discussions covering various chemo-radiotherapy side-effects experienced by the participants, including distress, discomfort, exhaustion, anemia, edema, weight loss, nausea and vomiting, skin concerns, sleep disorders, bleeding, constipation, diarrhea, loss of taste and smell, risk of falling, hair loss, and infertility issues. These informational sessions were equipped with digital materials, including four videos (uploaded on YouTube) and infographics (uploaded on Instagram) based on the British Columbia Cancer Agency's clinical guidelines [25]. Throughout this period, participants were expected to manage their physical, psychological, and sexual concerns using these instructional tools to identify helpful strategies independently.

The educational materials guided the participant to find valuable interventions in handling bio-psycho-social and sexual issues while completing the therapy sessions. Our educational media have been carefully designed with visually engaging graphics and concise descriptions in Bahasa Indonesia to ensure comprehension. YouTube and Instagram platforms were chosen to deliver the educational information, recognizing their prevalence and accessibility.

Following social media-based education, periodic tele-coaching was included as part of this FoRSHE-X study. Three certified nurse coaches conducted this purposeful and patient-centered approach through Zoom or WhatsApp video calls. The tele-coaching services are based on a ten-step process that is intended to enable and assist individuals in implementing the knowledge they have learned from our social media-based education to handle challenges related to cancer and chemotherapy autonomously. Establishing trust, establishing the agenda, discovering inner motivation, resolving unspoken concerns, elucidating direction, establishing objectives, recognizing choices, overcoming obstacles, enlisting assistance, acting, and getting feedback are all part of these ten processes [26].

Following The Standard Protocols Items: Recommendations for interventional trials (SPIRIT) 2013 template [27], this study was scheduled into enrollment, assessment, and intervention phases, as summarized in **Figure 2**. The intervention phase comprised a compilation of tele-education, tele-coaching sessions, and consultation sessions for 10 weeks through Zoom meetings and WhatsApp video calls. The enrolment process occurred from September 2023 to March 2024, and the post-allocation interventions from October 2023 to June 2024.

Study setting and participants

This study was conducted at the Dharmais National Cancer Center (DNCC) in Jakarta, Indonesia. DNCC is an inclusive cancer hospital that offers cancer treatment and care, educational services, research incorporation, and a data center in Indonesia. As a national referral hospital in

Indonesia, it plays a substantial role in cancer diagnosis, treatment, and patient management nationwide. DNCC provides chemotherapy services through various units, including the one-day care unit, systemic therapy unit, and inpatient unit. The research team attended certified coaching training by the national professional certification agency, and once certified, they conducted 15–40 minutes tele-coaching sessions with participants.

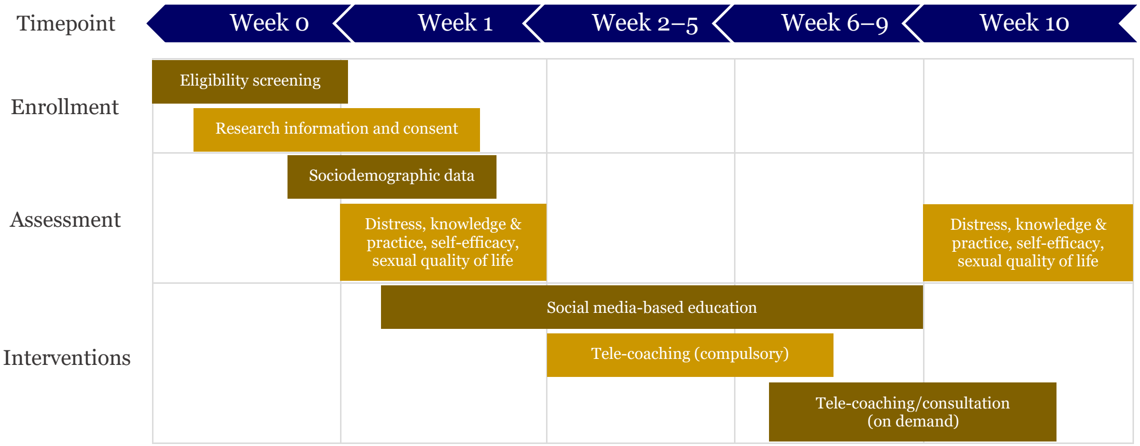

Figure 2. The FoRSHE-X pilot scheme for each participant.

Participants were selected from DNCC's One Day Care Unit and inpatient units according to specific eligibility criteria as listed in **Table 1**. Twelve cancer survivor participants were involved in the pilot quantitative study, while seven cancer survivor participants and three nurse coaches participated in the qualitative evaluation study.

Table 1. Inclusion and exclusion criteria of participants

Inclusion criteria	Exclusion criteria
Female ≥18 years old Gynecological cancer diagnosis On chemotherapy Owning a smartphone Physically or cognitively capable of participating in the study	Severe neurological conditions (i.e., unmanaged mental health diagnosis, brain metastases, delirium, and dementia) History of chemotherapy or cancer recurrence Hearing or visual impairments

The research is led by a team of nurses specializing in cancer care and with experience in mixed-methods research. The principal investigator is a nursing professor who supervised and monitored the study's feasibility. Other team members are certified nurse coaches from academic and oncology nurses from DNCC settings who assisted in identifying potential patients. Furthermore, a medical oncologist was involved in a tele-education event at the beginning of the study.

Outcome measures

The authors evaluated the study's feasibility using both quantitative and qualitative methods. The data encompassed participant recruitment and retention, as well as implementation acceptability and satisfaction. The research team documented various aspects in a logbook, such as recruitment, response, participation, participants' satisfaction, and attrition rates. In measuring the participant's satisfaction following the study, a nine-item scale of Telehealth Satisfaction Questionnaire from the National First Nations Telehealth Research Project was adapted [28], which was measured on week 10 of the intervention.

An electronic questionnaire was utilized to collect the pilot quantitative data. The researchers sought sociodemographic data (i.e., age, education, marital status, employment, ethnicity, and religious affiliation) and clinical data (i.e., gynecological cancer type and stage) from the participant's medical record at week 1. Distress level, knowledge of side effects and their management, self-efficacy, and sexual quality of life were measured at two points of time, week 1 and week 10. The distress level was screened using a distress thermometer in Roth's study [29].

This thermometer is equipped with a single-item rating ranging from 0 (no distress) to 10 (extreme distress). Furthermore, the participants' knowledge about chemotherapy side effects, how they manage them, and whether they experienced those symptoms in the past week were measured by the chemotherapy side effect questionnaire developed by Almohammadi *et al*. [30], which was translated into Bahasa and tested for validity and reliability. The instrument consists of two subsets: 16 items regarding knowledge of common side effects of chemotherapy and seven items that assess the practice of side effect management. The lower score indicates better side effect management. The self-efficacy for managing chronic disease 6-item Scale (SEMCD6) [31], which the Stanford Patient Education Research Center originally developed, was used to assess participants' self-efficacy. This questionnaire is concise and straightforward to administer, comprising six items rated on a 10-point Likert-style scale from 'not at all confident' to 'totally confident' to gauge a patient's confidence in managing disease symptoms. The total score ranges from six as the lowest and 60 as the highest score of self-efficacy [31]. Lastly, the Indonesian version of the sexual quality of life-female (SQOL-F) questionnaire by Juliastuti [32], which comprises 18 items, assesses sexual self-esteem, emotional well-being, and relationship issues in women. This questionnaire uses a six-point Likert scale (1–6), with total scores ranging between 18 and 108, where a higher score indicates a higher level of sexual quality of life.

Validity and reliability tests were conducted on 30 gynecological cancer patients for five questionnaires: (A) the coping behavior questionnaire, which had a good internal consistency with a Cronbach's alpha of 0.72; (B) the self-efficacy questionnaire, with a Cronbach's alpha of 0.81; (C) the SQOL-F questionnaire with a Cronbach's alpha of 0.71; and (D) the participants' knowledge about chemotherapy side effects questionnaire with a Cronbach's alpha of 0.75.

A qualitative evaluation was conducted to gauge participants' acceptability of recruitment processes and intervention adherence, as well as to explore barriers to following the study. Qualitative data was gathered through semi-structured interviews with participants during the intervention and post-study completion, which were recorded for transcription. Data collection ceased upon reaching saturation.

Data analyses

The recruitment and retention rates were calculated to assess the feasibility of a definitive clinical trial. This future trial will be considered feasible if the recruitment rate is at least 50% and the retention rate is at least 50%. Additionally, data were computed to provide further evidence supporting the pilot study. Longitudinal quantitative outcomes at two time points (before and after the interventions) were explored to determine whether they were normally distributed. Since the sample size of this study is small, a Shapiro-Wilk test was taken. To evaluate the differences between the paired data, a parametric paired t-test was performed on normally distributed data, while non-normally distributed data were analyzed using the Wilcoxon signed-rank test. IBM SPSS Statistics v.25.0 was used to analyze the normality and the differences in the measured outcomes.

The authors applied Braun and Clark's six steps to thematically analyze the interview data [33]. A codebook based on the study objectives and framework was developed with predetermined codes, including acceptability and intervention barriers. Any emerging codes during the analysis were added to the codebook. Following the analysis, a detailed description and emergent themes were defined. All research data are stored in a non-publicly open repository accessible only to the principal researcher to ensure participant confidentiality.

Results

A total of 40 potentially eligible participants were recruited using convenience sampling and invited to participate in the study. The oncology nurses of the DNCC recommended these potential participants. Out of 40 participants invited to the study's informational session, 19 (47.5%) joined the session, but only 12 consented to participate and filled out the pre-intervention questionnaire. Seven participants refused to participate because of technical difficulties, including the inability to use Zoom or Instagram, having an unsupported phone for installing Zoom, WhatsApp, or Instagram, and unreliable internet connections. Of the 12 consented participants, six (50%) remained and completed the telehealth program for ten weeks; two participants died during the intervention, one had to stop chemotherapy because of cancer metastasis, and two participants lost contact or did not answer the researcher's messages or phones (**Figure 3**).

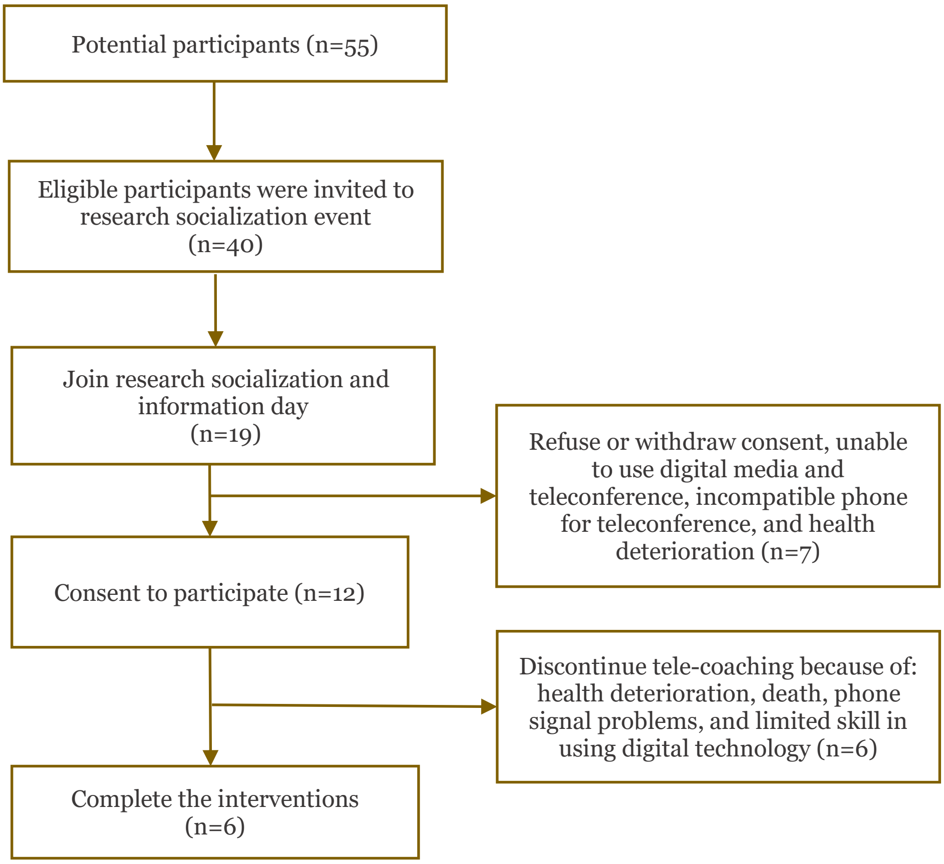

Figure 3. Distribution of patients recruiting, withdrawing, and completing the study.

The demographic and clinical characteristics of the consented participants are summarized in **Table 2**. The average age of the participants is 50, with a minimum age of 36 and a maximum age of 68. The majority of them have completed at least high school (66.6%) and are married (83.3%). Many have been diagnosed with cervical cancer (50.0%) and stage III cancer (66.7%).

Table 2. Characteristics of the recruited participants (n=12)

Characteristics	f (%)
Age (years)	Mean: 50.00; range: 28; SD: 9.54; min-max: 36–64
Last education	
Less than high school graduation	4 (33.3%)
High school graduation	4 (33.3%)
College graduation	4 (33.3%)
Marital status	
Married	10 (83.3%)
Widowed	2 (16.7%)
Diagnosis	
Cervical cancer	6 (50.0%)
Ovarian cancer	4 (33.3%)
Endometrial cancer	2 (16.7%)
Cancer stage	
II A-B	4 (33.3%)
III A-B	8 (66.7%)

SD: standard deviation

Feasibility outcomes

The recruitment rate of this study was 63%, with 12 out of 19 participants meeting the inclusion criteria, accepting the invitation to participate, and signing the informed consent. Similarly, the response rate (proportion of participants that completed the questionnaire at the pre-intervention time (w1) and post-intervention (w10)) and participation rate (proportion of participant attendance in social-media educational and tele-coaching activities over ten weeks) was 50% (6 out of 12), resulting in an attrition rate (proportion of participants leaving the intervention) of 50% (**Table 3**).

Table 3. Primary outcomes

Outcomes	n	f (%)
Recruitment rate	19	12 (63)
Response rate	12	6 (50)
Participation rate	12	6 (50)
Attrition rate	12	6 (50)

Our study included 54 telehealth sessions completed by six participants and 12 sessions by six discontinued participants. The average tele-coaching session through Zoom or WhatsApp video call was 4.6 for each participant, with 30 to 60 minutes duration in the first five weeks, while the average teleconsultation through WhatsApp messages, voice notes, or phone calls was about four sessions for each participant during the last five weeks. Although only a few participants completed the program, most of the participants and their families have regularly sent text messages to the nurse coach for information or consultation on their condition pre- or post-chemotherapy. During the coaching sessions, the discussion topics include physical and psychological side effects, nutrition and supplements, daily activities, including exercise, stress management, and sexualities. Through short messages, participants also asked about the food and supplements they should take, their control schedule, and laboratory and diagnostic test results.

Generally, the participants reported that the study's virtual interventions were feasible and satisfied with them. The majority (83.3%) believed coach attitudes during tele-coaching, education, and consultation were 'excellent' and they also agreed that the coach's ability to answer questions and provide other support was 'excellent', while the remaining participants (16.7%) rated the coach's support was 'good'. Two-thirds of participants rated 'excellent' for tele-coaching voice quality, duration, and comfort, as presented in **Table 4.**

Table 4. Satisfaction of telehealth encounters (n=6)

Statements	Poor (%)	Fair (%)	Good (%)	Excellent (%)
Voice quality of tele-education/coaching	0	0	33.3	66.7
Quality of education materials (video and infographics)	0	0	50.0	50.0
Comfort in telecommunication using Zoom/Video Call/WhatsApp	0	0	33.3	66.7
Duration of tele-education/coaching with the nurse-coach	0	0	33.3	66.7
Nurse-coach companionship (coaching, education, consultation) during chemotherapy	0	0	16.7	83.3
The thoroughness, attention, and mentoring skills of the nurse-coach	0	0	16.7	83.3
Coach attitudes (courtesy, respect, sensitivity, friendliness)	0	0	0.0	100.0
Coach's ability to respect privacy	0	0	0.0	100.0
Coach's ability to respond to chemotherapy-related questions, its side effects, and its management.	0	0	16.7	83.3
Overall FoRSHE-X telehealth experience	0	0	0.0	100.0

Three prominent themes were identified during the qualitative content analysis study feasibility: acceptance, barriers in telehealth, and recommendations from the participants. The emerging themes resulting from the content analysis are described in **Table 5**. The virtual intervention was perceived as providing help to support the survivors passing through the side effects and maintaining their health. The participants express their need to communicate their health concerns to the care providers. They usually choose the coaching topics to be discussed and find the management options. Although some participants experienced technology barriers to involve in the study persistently, the remaining participants felt the benefits of this virtual intervention and intended to invite another cancer survivor to join. Some participants hoped to be connected with the hospital's informational systems, particularly the appointment scheduling systems and rapid referral response.

Table 5. The emerging qualitative themes

Themes	Subthemes	Exemplary quotes
Acceptance	Information and support helping chemotherapy continuation	"The support and information given by the coach help me to keep me healthy and understand what to do after and before next chemotherapy" (Participant 2, 8, 9, 12) "I am feeling blessed and happy to join the study" (participants 1, 2, 8, 9, 12)
	Share concerns regarding diagnostic test results	"My participants often showed me her lab results, asking the meaning of the results related to their health" (Coach 1, 2, 3)
Barriers	Technology issues	"My phone is broken and needs to be fixed, so I use my daughter's phone." (Participant 3)
	Skills in using Zoom and Instagram.	"I cannot use Zoom or Instagram." (Participants 3, 4) "Older participants were usually asking help from their family to use Zoom or Instagram or video call" (Coach 1, 2, 3)
	Difficulties in talking sexuality topics online	"Can we talk about sexuality another time, please? My husband is around, and he can hear me." (Participants 1, 2)
Recommendation	Recommend the study to other cancer survivors (P)	"My friend has got breast cancer; she was asking me how to join this telehealth program as she needs support from people like you" (Participant 2)
	Expecting telehealth with the physician	"Can a physician be involved in the telehealth sessions?" (Participant 1) "Can you ask the doctor when can I have the operation?" (Participant 3)
	Need more updated health information from social media	"Can you update the health information regularly, so I can share the media with my friends who also got cancer?" (Participant 2)
	Telehealth is connected to the hospital information system	"Can you help me book the doctor's appointment, so I do not have to wait too long in the hospital?" (Participant 12)

Pilot outcomes

After ten weeks of implementing FoRSHE-X telehealth, the statistical analysis reveals that the study has prominent impacts on participants' knowledge and ability to manage physical diversion after chemotherapy but fewer effects on participants' distress level and sexual quality of life, as listed in **Table 6**. With a maximum score of 10, the average participants' distress score is 3.3 pre-intervention and post-intervention. The survivors' knowledge has increased in terms of both chemotherapy side effects and their management; they experience fewer side effects. The intervention also had a strong impact on the average self-efficacy scores, which increased by 10.833 points. Nevertheless, the participants' sexual quality of life scores remained the same over ten weeks of intervention, supported by the fact that most participants refused to talk about their sexuality through digital communication mentioned in qualitative inquiry.

Shapiro-Wilk test indicated that the data of knowledge of chemotherapy side effects, knowledge of chemotherapy side effects management, self-efficacy, and sexual quality of life are normally distributed. Thus, t-tests were performed for normally distributed data and Wilcoxon tests were performed for non-normally distributed data. The mean difference test indicates that the FoRSHE-X intervention significantly affects knowledge of chemotherapy side effects (p=0.02) and their management (p=0.04), chemotherapy side effects in the last week (p=0.03) and self-efficacy (p=0.01). However, the study has no significant effect on the participant's distress level (p=1.00) and sexual quality of life (p=0.93) (**Table 6**).

Table 6. Comparative analysis of pilot outcomes pre- and post-interventions (n=6)

Outcomes	Mean (SD)		Mean difference	p-value (95%CI)
	Pre-intervention	Post-intervention		
Distress	3.30 (1.86)	3.3 (2.42)	0.00	1.00^b
Knowledge of chemotherapy side effects	6.50 (3.56)	11.50 (3.02)	-5.00	0.02^a (-8.51–(-1.49))
Knowledge of chemotherapy side effects management	10.00 (1.27)	13.67 (3.72)	-3.67	0.04^a (-6.96–(-0.37))
Chemotherapy side effects in the last one week	4.00 (2.00)	1.50 (0.84)	2.50	0.03^b
Self-efficacy	31.17 (9.60)	42.00 (7.38)	-10.83	0.01^a (-17.74–(-3.92))
Sexual quality of life	45.83 (8.68)	46.67 (16.38)	-0.83	0.93^a (-24.87–23.20)

SD: standard deviation

^{a} Analyzed using *t*-test; ^{b} Analyzed using Wilcoxon test

Discussion

This feasibility study highlights the importance of digital technology utilization in improving the quality of life among gynecological cancer survivors in Indonesia. Because of the limited consultation time provided by the healthcare providers in the hospital [8], telehealth programs may become alternative interventions for healthcare providers in delivering health information, assessing and advising on health issues, and coaching self-care skills. The pilot outcomes revealed that education and coaching sessions during telehealth encounters were feasible and valuable in boosting the survivor's knowledge of chemotherapy side effects and self-efficacy according to the quantitative analysis; meanwhile, the qualitative data indicated the acceptability of the FoRSHE-X telehealth program. Although this study's intervention has less impact on women's mental health and sexuality, the combination of digital education and nurse-led tele-coaching was feasible and acceptable by some gynecological cancer survivors without digital technology barriers and increase the knowledge and skills to master their communication constraints with the healthcare professionals during therapy. A previous systematic review suggested that cancer survivors across 22 studies perceived this method as convenient for ensuring engagement with health care services across physical distances and providing personalized care to persons living with and beyond cancer [34].

Using telehealth to deliver nursing care to improve the quality of life of gynecology cancer survivors can be a promising approach, although it may come with several possible obstacles. This study's feasibility analysis demonstrated a limited number of gynecological cancer survivors who completed the process of telehealth implementation. Some potential challenges, such as technology, personal, and health issues, have distracted many eligible gynecological cancer survivors from participating or continuing the virtual meeting with the nurse coach. However, sending messages became a better communication option for some participants. One potential obstacle to telehealth delivery is poor computer literacy among cancer survivors [35]. Additionally, technological barriers, such as poor internet connectivity, have impeded effective and smooth communication during sessions, especially for individuals living in suburban or rural areas [36,37].

Exploring the participants' viewpoints and experiences provides valuable information about the study's acceptance. This study indicated that the survivors were satisfied with the FoRSHE-X serial sessions. Although they addressed potential obstacles, they appraised solutions given for handling health issues post-chemotherapy, such as fatigue, anemia, pain, and constipation, as well as preparing for the subsequent chemotherapy, which usually causes distress. The qualitative component of the study also discovered additional possible implications for health service settings and future improvement. Social media education and virtual coaching or consultation effectively enhance engagement and interactivity in a significantly more visual and vibrant way. The delivery forms include text messages, sound, images, videos, and other multimedia approaches. These kinds of interventions help cancer survivors learn how to manage some cancer-related issues and increase their awareness of their condition. As a result, they may feel more empowered and willing to care for themselves to improve their quality of life [37]. Studies have shown that telehealth care reduces the length of hospital stay, reduces cancer survivors' demands for emergency care, decreases financial burden, improves access to health care, and promotes the management of disease conditions [38,39].

Those completing the telehealth supporting sessions ascertained that these digital health interventions provide several benefits, including improved self-efficacy on side-effect management. This study affirmed significant improvement in the survivors' understanding of chemotherapy side effects and their management. Thus, they also had better self-efficacy in adjusting to the side effects. They recommended that other cancer survivors access this type of program. Nevertheless, this current study affirmed fewer effects on the survivor's level of distress and sexual issues. Virtual meetings may distract closeness, limit participants' openness to sensitive topics, and halt willingness to engage fully in tele-coaching sessions. Even though telehealth interventions supplement standard care [36,40] rather than replace it, cancer survivors may feel that they lack the “personal touch." Another pilot study among young adults with a cancer diagnosis hinted that sexual health and fertility counseling were the least popular telehealth topics [41]. However, a number of the reviewed studies showed that survivors could establish trustworthy relationships with healthcare professionals through digital communication [40,42,43]. Telehealth interventions empower patients control and confidence by giving them the time and space to concentrate on communicating their health issues.

Basically, the FoRSHE-X digital intervention is feasible in responding to the needs of gynecological cancer survivors for supporting education and companionship during chemotherapy through digital platforms. Nevertheless, this telehealth program may increase the healthcare workload and cost. The strength of FoRSHE-X implementation includes digital health transformation that makes it easy for health information, coaching, and consultation to be delivered from anywhere at any time. Through this study, patients at DNCC have been exposed to the benefits of mobile health services. However, there were several challenges to the program implementation, including adherence to coaching sessions affected by the physical and psychological issues deteriorated by the chemotherapy process, aging, lower education level, late cancer staging, and comorbid. Obstacles included low response rates due to technological barriers, including the availability of compatible devices, the ability to use digital platforms, and low internet bandwidth in some areas.

The research participants, who were recruited non-randomized from a single hospital, may limit the data's generalizability. The research findings reflect the participant's characteristics and experiences in these circumstances. As a result, the findings may be less relevant for a more diverse or geographically dispersed population, such as individuals living in rural areas with limited access to online resources. Rural populations frequently have particular barriers to accessing healthcare and technology, which can significantly impact their response to digital treatments. Therefore, while the findings may be helpful for the hospital's patient population, they should be applied to a broader, more diverse community, particularly those with limited internet access.

Conclusion

The FoRSHE-X digital intervention highlights the importance of telehealth as a convenient and practical approach to health care delivery, which can reduce treatment burden and ensuing interruption to the lives of cancer survivors during chemotherapy. It is pre-examined in increasing gynecologic cancer survivors' self-efficacy in preventing and overcoming barriers to completing therapy and planning for life after treatment. The intervention allows patients to connect with healthcare services, regardless of geography or time constraints. Digital technology has provenly broadened the reach of healthcare services and increased patient participation in sustainable self-care. The feasibility and acceptability of this FoRSHE-X study indicate the urgency to develop a more targeted supportive intervention that covers the needs of gynecologic cancer survivors undergoing chemotherapy. This pilot's findings may become the foundation for a more effective and attractive digital program supporting cancer survivors' life continuity. Clinical practitioners should also integrate the benefits of telehealth with traditional care to give comprehensive and optimal care.

Ethical approval

The Ethics Committees of Nursing Faculty, Universitas Indonesia, Depok, Indonesia, (REC number: KET-136/UN2.F12. D1.2.1/PPM.00.02/2023) and Dharmais National Cancer Centre (REC number: 259/KEPK/VIII/2023) have approved the protocol for this study. The trial was reviewed and registered by the ISRCTN registry (ISRCTN13311651). Any changes or modifications to the protocol during the study data collection must be communicated to the ethics committee, research team, and participants, if necessary.

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Competing interests

The authors declare no competing interests.

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Underlying data

Derived data supporting the findings of this study are available at https://figshare.com/s/aa8c5d37652d9f3425b3, https://www.youtube.com/@FoRSHE-X and https://www.instagram.com/forshe_x/.

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