Tele-delivered supportive cancer care for breast cancer survivors: abridged secondary publication

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KEY MESSAGES

1. Among breast cancer survivors, 55% to 65% reported moderate-to-high intention to use various tele-delivered supportive cancer care (SCC) services including psychosocial care, complementary care, peer support, and medical consultation.
2. Higher intention to use different types of tele-delivered SCC was associated with performance expectancy, social influence, effort expectancy, facilitating conditions, unmet psychological needs, and unmet patient care and support needs.
3. Participants with higher intention to use tele-delivered SCC reported more favourable perceptions of telehealth than those with lower intention.

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Introduction

The COVID-19 pandemic has impacted supportive cancer care (SCC) services for breast cancer survivors in Hong Kong. Telehealth offers an alternative means for delivering SCC during the pandemic.[1] This study aimed to assess the acceptability of tele-delivered SCC services (including psychosocial care, medical consultation, complementary care, and peer support) among breast cancer survivors in Hong Kong during the pandemic. We also evaluated how telehealth-related perceptions, multiple domains of unmet supportive care needs, and fear of COVID-19 were associated with intention to use tele-delivered SCC. Using a mixed-methods design based on the Unified Theory of Acceptance and Use of Technology,[2] this study provided quantitative and qualitative findings for comprehensive understanding of factors associated with intention to use tele-delivered SCC.

Methods

Between June and December 2022, Cantonese-speaking breast cancer survivors diagnosed at stages 0-III since the outbreak of COVID-19 (January 2020) were recruited from the Hong Kong Breast Cancer Registry. In phase 1, 209 eligible breast cancer survivors completed a cross-sectional survey in home settings; 30 of them (10 at each level of intention to use tele-delivered SCC [low, moderate, high]) were invited to participate in phase II qualitative interviews at the Hong Kong Breast Cancer Foundation or on Zoom. Participants received HK$100 and HK$300 supermarket coupons as compensation in phases I and II, respectively.

Outcome measures included telehealth perceptions (ie, performance expectancy, effort expectancy, social influence, facilitating conditions, and technology anxiety), unmet supportive care needs, fear of COVID-19, and sociodemographic/cancer-related variables. The interviews explored how these factors affected participants' intention to use tele-delivered SCC.

Variables with a P value of ≤0.05 in univariate regression models were entered into multivariate logistic regression models. Intention scores of ≥3 indicated moderate-to-high intention, whereas scores of 1 or 2 indicated low intention.

Interview transcripts were thematically analysed. Two coders independently coded each transcript, generating subthemes and themes through line-by-line content analysis. Discrepancies were resolved by consensus.

Results

Most breast cancer survivors reported moderate-to-high intention to use tele-delivered SCC: 55% for psychosocial care, complementary care, and peer support, and 65% for medical consultation (Table 1).

In univariate logistic regression, higher intention to use all four types of tele-delivered SCC were associated with performance expectancy, effort expectancy, social influence, and facilitating conditions (Table 2). Specifically, technology anxiety

was associated with lower intention to use tele-delivered medical consultation and complementary care. Greater unmet needs in the psychological, health system/information, and patient care/support domains were associated with higher intention to use tele-delivered medical consultation. Greater unmet psychological needs were also associated with higher intention to use tele-delivered psychosocial care.

In multivariate logistic regression, higher intention to use all four types of tele-delivered SCC remained associated with performance expectancy (odds ratio [OR]=1.66, P<0.05) and social influence (OR=4.64, P<0.01) [Table 2]. Specifically, effort expectancy was associated with higher intention to use tele-delivered medical consultation (OR=1.69, P<0.05). Facilitating conditions were associated with higher intention to use tele-delivered peer support (OR=1.87, P<0.01). Unmet psychological needs and patient care and support needs (OR=1.02, P<0.05) were associated with higher intention to use tele-delivered medical consultation.

Higher performance expectancy, effort expectancy, social influence, and facilitating conditions were associated with higher intention to use tele-delivered SCC. Qualitative findings were largely consistent with the quantitative results (Table 3), indicating that participants with higher intention to use tele-delivered SCC perceived more favourable telehealth perceptions, compared with participants with lower intention. Technology anxiety was the least-mentioned telehealth perception.

Participants with high intention to use tele-delivered SCC generally believed that telehealth was useful (performance expectancy) and easy to use (effort expectancy). Some noted the importance of access to appropriate devices (facilitating conditions) and support from others (social influence) when using tele-delivered SCC.

Participants with moderate intention to use tele-delivered SCC preferred face-to-face SCC but considered tele-delivered SCC helpful (performance expectancy) and easy to use (effort expectancy). However, some reported difficulties in using tele-delivered SCC without appropriate devices and access to the services (facilitating conditions). Support and recommendations from healthcare providers (social influence) could facilitate intention to use tele-delivered SCC.

Participants with lower intention to use tele-delivered SCC had lower performance expectancy and effort expectancy and less favourable facilitating conditions. Despite recommendations from close contacts (social influence) about tele-delivered SCC, some participants had insufficient resources and relevant knowledge (facilitating conditions) to use tele-delivered SCC.

Most unmet supportive care needs were not associated with intention to use tele-delivered SCC. Regardless of intention levels, participants generally experienced pain and physical limitations after breast cancer treatments (physical needs). They reported long waiting times and shorter-than-expected medical treatment durations in public hospitals (patient care and support needs), expressed a need to manage their emotions due to fear of recurrence (psychological needs), and encountered a lack of information about recovery and follow-ups (health system and information needs). Needs related to sexuality issues were also expressed.

Fear of COVID-19 was not associated with intention to use tele-delivered SCC (Table 3). Participants reporting high and moderate intention to use tele-delivered SCC expressed fear of contracting COVID-19 and considered telehealth an acceptable alternative. However, one participant with low intention to use tele-delivered SCC perceived a low level of fear of COVID-19 due to strict measures in public hospitals.

TABLE 1. Acceptability of tele-delivered supportive cancer care (SCC) among breast cancer survivors (n=209)

Tele-delivered SCC	No. (%) of participants with moderate or high intention to use SCC
Psychosocial care	
Psychotherapy	117 (56.0)
Psychological counselling and support	119 (56.9)
Psycho-oncology counselling	140 (67.0)
Therapist-led group sessions	133 (63.6)
Counselling for adjustment for cancer survivors and family members	113 (54.0)
Family counselling	71 (34.0)
Medical consultation	
Cancer helpline	130 (62.2)
Specialist medical consultation	132 (63.1)
Second opinion on treatment options	128 (61.2)
Palliative care consultation	129 (61.7)
Expert consultation	126 (60.3)
Nutrition consultation	165 (78.9)
Complementary/alternative/Chinese medicine consultation	139 (66.5)
Complementary care	
Movement and exercise activities (eg, yoga, qi gong, exercises for pain relief)	146 (69.9)
Creative therapies (music and art therapy)	105 (50.2)
Relaxation/breathing/meditation group sessions	121 (57.9)
Mindfulness exercises	103 (49.2)
Massage therapy	108 (51.7)
Peer support groups	
Internet forum with peers	95 (45.5)
Patient support group	131 (62.6)

TABLE 2. Variables associated with moderate-to-high intention to use tele-delivered supportive cancer care

Variables	Mean ± standard deviation	Odds ratio (95% confidence interval)	P value	Adjusted odds ratio (95% confidence interval)	P value
Tele-delivered psychosocial care					
Performance expectancy	3.65±0.65	4.87 (2.68-8.88)	<0.001	3.56 (1.74-7.28)	0.001
Effort expectancy	3.50±0.77	2.16 (1.42-3.30)	<0.001	1.14 (0.64-2.02)	0.66
Facilitating conditions	3.40±0.85	2.10 (1.43-3.09)	<0.001	1.09 (0.66-1.8)	0.74
Social influence	3.13±0.72	2.62 (1.65-4.16)	<0.001	3.42 (1.83-6.39)	0.00
Technology anxiety	2.38±0.75	0.71 (0.48-1.06)	0.09	-	-
Health system and information needs	40.42±27.28	1.01 (1.00-1.02)	0.19	-	-
Psychological needs	36.66±22.21	1.02 (1.00-1.03)	0.014	1.01 (0.99-1.02)	0.42
Physical needs	33.56±22.55	1.01 (0.99-1.02)	0.35	-	-
Patient care and support needs	36.34±26.20	1.01 (1.00-1.02)	0.16	-	-
Sexuality needs	18.98±22.81	1.01 (1.00-1.02)	0.11	-	-
Fear of COVID-19	2.55±0.70	1.10 (0.74-1.66)	0.64	-	-
Tele-delivered medical consultation					
Performance expectancy	3.65±0.65	2.16 (1.45-3.23)	<0.001	4.64 (2.50-8.62)	<0.001
Effort expectancy	3.50±0.77	2.16 (1.45-3.23)	<0.001	1.69 (1.06-2.70)	0.03
Facilitating conditions	3.40±0.85	1.98 (1.38-2.84)	<0.001	1.49 (0.98-2.27)	0.06
Social influence	3.13±0.72	2.66 (1.68-4.20)	<0.001	3.06 (1.82-5.13)	0.001
Technology anxiety	2.38±0.75	0.61 (0.41-0.89)	0.01	0.75 (0.49-1.17)	0.21
Health system and information needs	40.42±27.28	1.01 (1.00-1.03)	0.007	1.02 (1.01-1.03)	0.003
Psychological needs	36.66±22.21	1.02 (1.00-1.03)	0.02	1.02 (1.00-1.03)	0.02
Physical needs	33.56±22.55	1.01 (0.99-1.02)	0.38	-	
Patient care and support needs	36.34±26.20	1.02 (1.01-1.03)	0.002	1.02 (1.01-1.03)	0.001
Sexuality needs	18.98±22.81	1.01 (1.00-1.03)	0.056	-	
Fear of COVID-19	2.55±0.70	0.92 (0.62-1.36)	0.671	-	
Tele-delivered complementary care					
Performance expectancy	3.65±0.65	3.22 (1.90-5.45)	<0.001	3.07 (1.76-5.36)	<0.001
Effort expectancy	3.50±0.77	1.98 (1.32-2.98)	0.001	1.52 (0.97-2.49)	0.67
Facilitating conditions	3.40±0.85	1.48 (1.05-2.10)	0.03	1.07 (0.69-1.65)	0.76
Social influence	3.13±0.72	1.91 (1.24-2.92)	0.003	1.79 (1.15-2.79)	0.01
Technology anxiety	2.38±0.75	0.64 (0.43-0.95)	0.03	0.82 (0.53-1.28)	0.38
Health system and information needs	40.42±27.28	1.00 (0.99-1.01)	0.73	-	-
Psychological needs	36.66±22.21	1.00 (1.00-1.02)	0.25	-	-
Physical needs	33.56±22.55	1.01 (0.99-1.02)	0.48	-	-
Patient care and support needs	36.34±26.20	1.01 (1.00-1.02)	0.10	-	-
Sexuality needs	18.98±22.81	1.00 (0.99-1.01)	0.93	-	-
Fear of COVID-19	2.55±0.70	0.94 (0.63-1.40)	0.76	-	-
Tele-delivered peer support					
Performance expectancy	3.65±0.65	2.61 (1.61-4.23)	<0.001	2.16 (1.30-3.56)	0.003
Effort expectancy	3.50±0.77	1.86 (1.26-2.75)	0.002	1.31 (0.84-2.06)	0.23
Facilitating conditions	3.40±0.85	2.43 (1.65-3.58)	0.00	1.87 (1.19-2.94)	0.01
Social influence	3.13±0.72	1.68 (1.12-2.51)	0.012	1.66 (1.08-2.55)	0.02
Technology anxiety	2.38±0.75	0.69 (0.47-1.01)	0.06	-	-
Health system and information needs	40.42±27.28	1.00 (0.99-1.01)	0.42	-	-
Psychological needs	36.66±22.21	1.01 (1.00-1.03)	0.58	-	-
Physical needs	33.56±22.55	1.01 (1.00-1.02)	0.18	-	-
Patient care and support needs	36.34±26.20	1.01 (1.00-1.02)	0.23	-	-
Sexuality needs	18.98±22.81	1.01 (1.00-1.02)	0.16	-	-
Fear of COVID-19	2.55±0.70	1.32 (0.89-1.95)	0.17	-	-

TABLE 3. Exemplary quotes regarding telehealth perceptions, supportive care needs, and fear of COVID-19 (n=30)

Exemplary quote
Telehealth perceptions
Performance expectancy
"Telehealth helps a lot when I am not able to walk comfortably during treatment. It is convenient; we can use the service anytime and anywhere." (P36, high intention)
"It is handy when I do not want to go out and feel unwell." (P58, high intention)
"I prefer seeing the doctor or attending a class in person. Face to face would be best; they can know and understand your current situation, but during the pandemic, using telehealth is still good." (P4, moderate intention)
"I like using telehealth to meet with doctors as it is convenient and saves time on transportation and waiting." (P8, moderate intention)
"There are limitations with telehealth for Chinese medicine consultations. Doctors can't touch and observe the patients clearly during telehealth sessions." (P62, low intention)
"I think telehealth can't help breast cancer patients much." (P6, low intention)
"I sometimes get lymphedema, itches, and rashes on my body, which need doctors to check physically. I really can't imagine how telehealth could address that." (P42, low intention)
Effort expectancy
"It is easy to revisit the content with video recording." (P60, high intention)
"It would be easy once you master the skills." (P13, high intention)
"If we are willing to learn, it wouldn't be difficult." (P54, high intention)
"It is easy to use. Just click on the link you sent me." (P8, moderate intention)
"It is clearer to use video calls to describe my symptoms and understand instructions from doctors by seeing their facial expressions. However, it is harder to communicate by phone calls." (P38, moderate intention)
"I feel I have put much effort into those group sessions, but it is easy to miss things when I am not fully focused." (P42, low intention)
Facilitating conditions
"With the help of others' instructions, I have adapted to telehealth software." (P36, high intention)
"Having a mobile phone and laptop, I don't find it very challenging." (P59, high intention)
"People will likely use telehealth if they know how to use it." (P15, high intention)
"I only have a phone, not an iPad or devices with a larger screen. The screen is too small for me, but it is not too hard to use telehealth." (P7, moderate intention)
"It is hard to express my feelings clearly in front of the device." (P43, moderate intention)
"Telehealth services also require reservations, and the quotas are limited." (P4, moderate intention)
"My family members and healthcare workers suggested that I use telehealth, but you need Wi-Fi. I didn't have Wi-Fi at home before… so I was not willing to use it." (P26, low intention)
"I haven't tried it yet because I don't know new technology well." (P33, low intention)
"I only have a phone for telehealth, not an iPad, and the screen on my phone is too small for me." (P14, low intention)
Social influence
"Nurses from the non-governmental organisation encouraged me to download Zoom as the clinic visit service was cancelled." (P13, high intention)
"Nurses from the hospital encouraged me to join a support group meeting on Zoom before the next visit, so that I would know what to expect when I meet the doctor again." (P4, moderate intention)
"I didn't know how to make an appointment in telehealth at first. After the staff helped me download the app and taught me how to use it, I found it was not hard to use." (P25, moderate intention)
Technology anxiety
"I feel nervous about not knowing how to use it." (P7, moderate intention)
"I am nervous about mistakenly pressing the wrong button on telehealth platforms." (P8, moderate intention)
"At first, I was worried that I didn't know how to use Zoom with its different functions such as raising my hand, connecting with video and audio, but I felt better after learning it." (P13, high intention)
Supportive care needs
Physical needs
"My physical strength and skin conditions have worsened." (P59, high intention)
"I am not able to carry heavy things." (P29, moderate intention)
"The medicines definitely have side effects; I sleep poorly after taking them." (P62, low intention)

TABLE 3. (cont'd)

Exemplary quote
Psychological needs
"The chance of recurrence makes me worried." (P36, high intention)
"I am worried that it will spread to other parts of my body." (P3, moderate intention)
"After getting cancer, you are scared that it might happen again." (P6, low intention)
Patient care & support needs
"In public hospitals, especially for us, we have to wait from morning until night to see the doctor, and we can't ask many questions." (P13, high intention)
"The doctor at the private hospital made me angry; he answered my questions casually and didn't care much about me." (P3; moderate intention)
Heath system & information needs
"I would like a full body check after the treatments, but I don't know relevant information, like how or where to check." (P13, high intention)
"I think I need information about nutrition and diet after surgery, what exercises I should do, etc." (P8; moderate intention)
"There is no follow-up, like a PET scan after radiotherapy. How can I know if the treatment is effective?" (P43, low intention)
Sexuality needs
"We do not have sex after my surgery because my husband is so scared; he doesn't dare to look at it." (P13, high intention)
"I get nervous when changing clothes. I don't want my husband to see my scars." (P7; moderate intention)
"Sometimes when my husband kisses my left breast, he smells something like ointment… he doesn't want to kiss anymore." (P14, low intention)
COVID-19 perception
Fear of Covid-19
"Besides going to the hospital… I don't go out, because I am very scared of getting infected. Through this Zoom session, chatting with other cancer patients, I feel there's some support… otherwise, it would like total isolation from the outside world." (P58, high intention)
"I feel safe from infection by joining the services remotely during the pandemic." (P7, moderate intention)
"I'm not scared… there are fewer people in the hospitals during the pandemic… they won't let you in without checking you thoroughly; you don't need to be scared." (P33, low intention)

Discussion

Among breast cancer survivors during the COVID-19 pandemic, 55% to 65% reported moderate-to-high intention to use different types of tele-delivered SCC. Our findings are consistent with the acceptability of telemedicine in approximately 60% of Singaporean cancer patients during the pandemic.[4] Higher education level and confidence in using technological devices were associated with higher intention to use tele-delivered SCC. These findings are consistent with those reported from Western countries, suggesting cultural or geographical universality.

Most variables based on the Unified Theory of Acceptance and Use of Technology were associated with intention to use tele-delivered SCC. The importance of performance expectancy was highlighted. Based on the qualitative findings, participants with high intention to use tele-delivered SCC tended to view telehealth as convenient, efficient, time-saving, and useful. Emphasising these benefits in daily living may increase intention to use.[5]

Social influence was associated with intention to use tele-delivered SCC. In Chinese culture, family opinions are crucial for cancer patients' treatment decisions and psychosocial care. During the pandemic, online consultations and support programmes facilitated non-co-residential family members to participate. Chinese people value healthcare workers' recommendations. Greater support from close contacts and healthcare workers increased the acceptance of tele-delivered SCC. Future interventions should more effectively involve family members in cancer patients' SCC.

Facilitating conditions were associated with intention to use tele-delivered psychosocial care and peer support, whereas effort expectancy was not associated with intention to use tele-delivered peer support. Chinese breast cancer survivors rarely utilise psychological care and peer support groups. Open disclosure of personal challenges in counselling or support groups may conflict with the cultural preference to avoid showing negative emotions in front of others. Despite finding telehealth easy to use (high effort expectancy), breast cancer survivors still considered that they needed more knowledge, preparation, or courage before joining

tele-delivered psychosocial care and support groups. This was echoed by a participant who noted that a lack of personal space in the family environment was a barrier to participating in certain tele-delivered psychosocial or peer support services.

Unmet supportive care needs did not differ significantly across participants with different levels of intention to use tele-delivered SCC. However, unmet psychological needs and patient care and support needs were associated with higher intention to use tele-delivered medical consultation. During the pandemic, breast cancer survivors commonly experienced long waiting times, shorter-than-expected medical consultation durations, and a lack of timely support from healthcare staff (patient care and support needs), as well as concerns about recurrence (psychological needs). Considering that telehealth might offer more timely care, patients reporting greater unmet psychological and patient care and support needs may be more receptive to tele-delivered medical consultation.

The role of fear of COVID-19 in facilitating intention to use tele-delivered SCC was inconsistent between quantitative and qualitative findings. This may be due to the scale used to measure fear of COVID-19, which primarily captured participants' affective responses to COVID-19-related cues rather than their perceived risk of contracting COVID-19 in social settings. Greater specificity in measuring fear of COVID-19, threats, or concerns may improve the ability to explain intention to use tele-delivered SCC.

This study had some limitations. First, we recruited voluntary breast cancer survivors through a single registry, which might not represent all breast cancer survivors in Hong Kong and potentially limiting the generalisability of the findings. Second, not all variables associated with intention to use tele-delivered SCC were investigated. Other variables (eg, characteristics of tele-delivered SCC and contextual factors such as pandemic situations) could have been associated.[5] Healthcare professionals should recognise the importance of enhancing telehealth skills, promoting positive perceptions of telehealth, and addressing specific supportive care needs that facilitate the use of tele-delivered SCC, particularly during future pandemics. For breast cancer survivors who are older, of lower socioeconomic status, or not confident in using technological devices, digital literacy programmes and assistance in accessing technological devices may enhance intention to use tele-delivered SCC.

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Disclosure

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1. Yeung NCY, Lau STY, Mak WWS, et al. Applying the unified theory of acceptance and use of technology to identify factors associated with intention to use teledelivered supportive care among recently diagnosed breast cancer survivors during COVID-19 in Hong Kong: Cross-sectional survey. JMIR Cancer 2024;10:e51072.

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