

Roles of unmet supportive care needs, supportive cancer care service disruptions, and COVID-19–related perceptions in psychological distress among recently diagnosed breast cancer survivors in Hong Kong

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ABSTRACT

Introduction: Receiving a cancer diagnosis and living with breast cancer can be particularly stressful during pandemic situations. This study examined how cancer care service disruptions, unmet supportive care needs (SCNs), and coronavirus disease 2019 (COVID-19)–related perceptions were associated with psychological distress among Hong Kong breast cancer survivors (BCS) during the COVID-19 pandemic.

Methods: A total of 209 female BCS diagnosed since January 2020 (ie, the start of the COVID-19 pandemic in Hong Kong) were recruited from the Hong Kong Breast Cancer Registry to complete a cross-sectional survey measuring the aforementioned variables.

Results: Multivariable logistic regression analysis indicated that unmet physical/daily living needs (odds ratio [OR]=1.03; $P=0.002$), unmet psychological needs (OR=1.06; $P<0.001$), and perceived severity of COVID-19–related health consequences in BCS (OR=1.67; $P=0.02$) were significantly associated with moderate-to-severe psychological distress. However, cancer treatment/supportive care service disruptions, fear of COVID-19, and unmet SCNs in patient care/health system information/sexual domains were not significant contributors ($P=0.77$ – 0.89).

Conclusion: Half of the BCS in Hong Kong experienced substantial psychological distress during the pandemic. Survivors with higher levels of unmet

SCNs in physical/daily living and psychological domains, as well as those with greater perceived severity of COVID-19–related health consequences, were more likely to experience moderate-to-severe psychological distress. These findings suggest that efforts to address specific unmet SCNs and risk perceptions are important for reducing psychological distress among BCS during pandemic situations.

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New knowledge added by this study

- At least 50% of breast cancer survivors (BCS) in Hong Kong experienced a moderate-to-severe level of psychological distress during the coronavirus disease 2019 (COVID-19) pandemic.
- Unmet needs in physical/daily living and psychological domains were associated with moderate-to-severe psychological distress among local BCS.
- Perceived COVID-19 severity, but not fear of COVID-19, was associated with moderate-to-severe psychological distress among local BCS.

Implications for clinical practice or policy

- To address the physical and psychological needs of BCS, healthcare providers should consider how telemedicine services can provide remote support for symptom management and psychological counselling.
- The provision of up-to-date educational materials can help alleviate distress and risk perceptions related to COVID-19.

未被滿足的支援照護需求、癌症支援服務受阻及與新冠肺炎相關的認知與香港乳癌患者於疫情期間心理困擾的關係

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引言：在新冠疫情期間確診乳癌可能增加患者的壓力。本研究探討了在疫情期間癌症護理服務受阻、未被滿足的支援照護需求，以及與新冠肺炎相關的認知與香港乳癌患者的心理困擾之間的關係。

方法：我們透過香港乳癌資料庫中招募了209名自2020年1月（即新冠疫情在香港開始爆發期間）診斷患上乳癌的女性，完成一項問卷調查。

結果：多變量邏輯迴歸分析顯示，未被滿足的生理／日常生活需求（比值比=1.03； $P=0.002$ ）、未被滿足的心理需求（比值比=1.06； $P<0.001$ ）及認為染上新冠肺炎對乳癌患者健康有嚴重影響（比值比=1.67； $P=0.02$ ）與中等至嚴重程度的心理困擾顯著相關。然而，其他因素（包括癌症治療／支援照護服務受阻、對新冠疫情的恐懼，及在病患照護／健康系統資訊／性領域中未被滿足的支援照護需求）則無顯著關係（ $P=0.77-0.89$ ）。

結論：逾半數香港乳癌患者在疫情期間經歷嚴重的心理困擾。有較多生理／日常生活和心理方面的支援照護需求未被滿足，和認為感染新冠對健康造成較嚴重影響的患者較大可能經歷中等至嚴重的心理困擾。研究結果反映，在疾病大流行期間支援乳癌患者未被滿足的特定照護需求和改變她們對風險的看法，對減輕她們的心理困擾十分重要。

Introduction

The coronavirus disease 2019 (COVID-19) pandemic has had a broad public health impact on global populations. Pandemic-control measures (eg, social distancing regulations and changes in hospital services) have affected both the general population and individuals with chronic diseases (including cancer survivors).¹ A recent meta-analysis found that 53.9% of cancer patients ($n=27\,590$) experienced high levels of distress during the COVID-19 pandemic²; breast cancer survivors (BCS) reported highest prevalence of post-traumatic stress symptoms (52.3%) among all groups of cancer patients.² In Hong Kong, 40% of cancer survivors reported feeling anxious and depressed during COVID-19.³ However, factors associated with psychological distress among local BCS during the pandemic have been understudied.

After completion of active treatment, BCS require a range of supportive cancer care services for rehabilitation. To prioritise resources for managing COVID-19, some oncology services were postponed in Hong Kong.⁴ Among a heterogeneous sample of cancer survivors in Hong Kong,³ <10% reported that the COVID-19 pandemic had affected their hospital treatments or follow-ups. Despite this low prevalence, the potential negative impacts of

such disruptions on cancer survivors' well-being should not be ignored. A systematic review found that delays or changes in treatment plans were associated with high levels of psychological distress, above and beyond the contributions of other socio-demographic factors.⁵ Similarly, BCS in the United Kingdom who experienced disrupted oncology services reported worse emotional well-being.⁶ In China, a 3-week treatment delay was significantly associated with increased psychological symptoms among BCS.⁷ Based on these findings, we speculated that cancer treatment and supportive care service disruptions would be associated with greater psychological distress among BCS in Hong Kong.

Given that cancer survivors are more aware of the risks of infection compared with the general population,⁸ their emotional reactions and perceptions towards COVID-19 also contribute to their well-being. Due to the rapidly changing pandemic situations caused by different variants of the COVID-19 virus, cancer survivors tend to experience fear of contracting COVID-19 and express concerns about the severity of its negative health impacts on cancer prognosis.^{9,10} Based on a review of 51 studies (19.5% conducted in Asia), COVID-19-related fear and worries were associated with psychological distress among cancer survivors.¹¹ However, a recent study in Hong Kong showed that 49.7% of cancer survivors did not feel worried about contracting COVID-19,³ and they did not consider themselves to experience more negative consequences of contracting COVID-19 compared with the general population.¹² Whether COVID-19-related fear and risk perceptions are associated with psychological distress among BCS in Hong Kong has yet to be explored.

The COVID-19 pandemic has led to unmet supportive care needs (SCNs) among BCS. According to Fitch's Supportive Care Needs Framework,¹³ a medical diagnosis affects people's abilities to meet their own needs across life domains; unmet needs may result in worse adjustment outcomes. It is common for cancer survivors to report physical, psychological, social, and health system-related unmet needs during COVID-19.¹⁴ A longitudinal survey of Asian and Asian American cancer survivors revealed a significant increase in psychological and healthcare access needs during COVID-19.¹⁵ In Hong Kong, higher levels of unmet SCNs were identified in the health system/information, psychological, and patient care/support domains among cancer survivors during COVID-19.³ In Australia, unmet SCNs were associated with greater psychological distress among haematological and gynaecological cancer survivors.¹⁶ However, research examining the associations between unmet SCNs and BCS' psychological distress has been sparse.

This study examined factors associated with psychological distress among Hong Kong BCS during COVID-19. We hypothesised that different domains of unmet SCNs, disruptions in cancer treatment and supportive cancer care services, increased fear of COVID-19, and a stronger belief that COVID-19 would cause more severe health consequences for BCS (compared with the general population) were associated with greater psychological distress.

Methods

Prospective participants were recruited from the Hong Kong Breast Cancer Registry, the most representative monitoring system for BCS in Hong Kong.¹⁷ Based on the cancer registry data, those fulfilling the inclusion criteria were invited to participate in a cross-sectional survey. Breast cancer survivors eligible for the study were required to be: ≥ 18 years old, diagnosed with stages 0 to III cancer since January 2020, in active treatment, able to read Chinese and communicate in Cantonese, and able to provide informed consent.

Among 946 BCS contacted, 409 were unreachable, 23 were ineligible, and 227 were uninterested in the study. With verbal consent given over the phone, those who were eligible and interested in the study ($n=287$) received a mail package enclosing a cover letter explaining the study details, a consent form, a questionnaire packet, a stamped return envelope, and a thank-you card. After they had provided consent, participants completed the survey at home. Participants were compensated with supermarket vouchers (worth HK\$100) for their time upon returning the completed survey. The study was conducted between June and December 2022. Overall, 209 completed surveys were returned (from 287 sent), yielding a completion rate of 72.8%.

Measurement

Psychological distress

The one-item National Comprehensive Cancer Network Distress Thermometer was used to assess participants' psychological distress over the past week.¹⁸ On an 11-point Likert scale, the thermometer ranged from 0 (no distress) to 10 (extreme distress).¹⁹ A higher score indicated a higher level of psychological distress. A cut-off point of ≥ 4 indicated moderate-to-severe distress.²⁰ The Chinese version of the Distress Thermometer has demonstrated reliability and validity among Chinese cancer patients.²¹

Cancer treatment and supportive cancer care service disruptions during coronavirus disease 2019

Participants' experiences of any postponement or cancellation of various types of cancer treatments

(eg, surgery and adjuvant therapies) and supportive cancer care services (eg, psychological counselling and peer support groups) during COVID-19 were measured (no=0, yes=1).

Supportive care needs

The Chinese version of the 34-item Short-Form Supportive Care Needs Questionnaire was used to measure five domains of SCNs (namely, physical/daily living, psychological needs, patient care and support, sexuality, and health system/information needs) over the past month. On a five-point scale (no need–not applicable, no need–satisfied, low need, moderate need, high need), items were scored using standardised guidelines.²² Higher scores indicated higher levels of unmet SCNs. The scale has shown reliability and validity among Hong Kong cancer survivors.^{3,22}

Fear of coronavirus disease 2019

The Chinese version of the seven-item Fear of COVID-19 Scale was adapted to measure participants' fear of COVID-19.²³ On a five-point scale (1=strongly disagree, 5=strongly agree), a higher mean score indicated greater fear of COVID-19 (eg, "My heart races or palpitates when I think about getting COVID-19"; Cronbach's $\alpha=0.88$). The scale has demonstrated reliability and validity in a Chinese general population.²³

Perceived severity of consequences of coronavirus disease 2019 on breast cancer survivors

A single item was developed to measure participants' perception of the severity of COVID-19 health consequences for BCS (ie, "COVID-19 can cause more severe health consequences in BCS than in the general population"). Responses were recorded on a five-point scale (1=strongly disagree, 5=strongly agree); higher scores indicated greater perceived severity.

Clinical and socio-demographic characteristics

Participants self-reported the following characteristics: (1) socio-demographic information; (2) treatment-related variables (surgery undergone, treatments being received or completed, and time since last treatment); and (3) breast cancer-related variables (eg, stage at diagnosis and time since diagnosis).

Planned analyses

Descriptive statistics and bivariate correlations among the variables were computed. Multivariable logistic regressions were used to examine associations between independent variables and moderate-to-severe levels of psychological

distress (binary-coded), based on the suggested Distress Thermometer cut-off of ≥ 4 . Simple logistic regression analysis was used to assess how individual variables (including socio-demographic/cancer-related variables, cancer treatment/supportive cancer care service disruptions, unmet SCNs, fear of COVID-19, and COVID-19 risk perception) were associated with psychological distress. Odds ratios (ORs) were obtained by separately fitting each variable against psychological distress.²⁴ Significant variables in the simple analyses were then entered into a multivariable logistic regression model using the enter method. These analyses were performed using SPSS (Windows version 26.0; IBM Corp, Armonk [NY], US). P values < 0.05 were considered statistically significant.

Sample size calculation

Based on prior studies regarding BCS' psychological distress,^{24,25} we assumed a similar prevalence of 30% for moderate-to-severe levels of psychological distress in our target population. With $\alpha=0.05$ (two-tailed) and a statistical power of 80%, a sample size of 203 would be sufficient to detect an OR of 1.56 for the key independent variables (G*Power version 3.1.2).²⁶ The current sample size ($n=209$) was sufficient to detect the expected effect sizes with adequate statistical power.

Results

Participant characteristics

Among the 209 participants, 69.3% were aged ≤ 60 years. Regarding cancer-related characteristics, 4.8%, 28.7%, 41.1%, and 25.4% were diagnosed with Stage 0, Stage I, Stage II, and Stage III breast cancer, respectively. Most participants (94.3%) had undergone breast cancer surgery. Most had also received chemotherapy (72.7%) and radiotherapy (76.1%). The average time since diagnosis was 16.6 months (standard deviation=8.00). During COVID-19, 32.1% of participants had a prior diagnosis of COVID-19; 20.1% experienced cancer treatment disruptions (eg, surgery/adjuvant therapies); and 49.3% experienced supportive cancer care service disruptions (eg, psychological counselling, patient support groups). Based on a Distress Thermometer score ≥ 4 , 50.2% of participants reported a moderate-to-severe level of psychological distress (Table 1).

Correlations between major variables and psychological distress

Based on the correlation analysis results (Table 2), participants who had experienced supportive cancer care service disruption, perceived greater fear of COVID-19, and held a stronger belief that COVID-19 causes more severe health consequences in BCS tended to report increased psychological

TABLE 1. Participant demographic characteristics ($n=209$)^{*}

	No. (%)
Socio-demographic characteristics	
Age, y	
≤ 50	82 (39.2%)
51-60	63 (30.1%)
≥ 61	62 (29.7%)
Refused to answer	2 (1.0%)
Female sex	209 (100%)
Education	
Primary education	15 (7.2%)
Secondary education	102 (48.8%)
Tertiary education or higher	91 (43.5%)
Refused to answer	1 (0.5%)
Marital status	
Single	33 (15.8%)
Married	154 (73.7%)
Divorced/widowed	22 (10.5%)
Monthly household income, HK\$	
$\leq 10\,000$	46 (22.0%)
10 001-30 000	43 (20.6%)
30 001-50 000	43 (20.6%)
$\geq 50\,000$	35 (16.7%)
Refused to answer	42 (20.1%)
Have a religious affiliation	99 (47.4%)
Work mode	
Full-time	72 (34.4%)
Part-time	20 (9.6%)
Retired/housewife/unemployed/other	114 (54.5%)
Refused to answer	3 (1.4%)
Cancer- and treatment-related characteristics	
Stage 0	10 (4.8%)
Stage I	60 (28.7%)
Stage II	86 (41.1%)
Stage III	53 (25.4%)
Time since diagnosis, mo (mean $\pm$ SD)	16.6 $\pm$ 8.0
Underwent breast cancer surgery	197 (94.3%)
Lumpectomy	103 (49.3%)
Axillary dissection	126 (60.3%)
Mastectomy	97 (46.4%)
Breast reconstruction	25 (12.0%)
Treatment	
Chemotherapy	152 (72.7%)
Radiotherapy	159 (76.1%)
Targeted therapy	60 (28.7%)
Immunotherapy	8 (3.8%)
COVID-19 experiences	
Prior COVID-19 diagnosis	67 (32.1%)
Treatment disruption (eg, cancer-related surgery, non-surgical therapies)	42 (20.1%)
Supportive care service disruption (eg, psychological counselling, patient support groups)	103 (49.3%)
Moderate-to-severe psychological distress	105 (50.2%)

Abbreviations: COVID-19 = coronavirus disease 2019; HK\$ = Hong Kong dollars; SD = standard deviation

^{*} Data are shown as No. (%), unless otherwise specified

TABLE 2. Correlation coefficients among major variables (n=209)

	1	2	3	4	5	6	7	8	9	10
1. Psychological distress	N/A									
2. Cancer treatment disruption [§]	-0.02	N/A								
3. Supportive care service disruption [§]	0.16 [†]	0.22 [‡]	N/A							
4. COVID-19 risk perception [¶]	0.29 [‡]	0.04	0.07	N/A						
5. Fear of COVID-19	0.34 [‡]	0.02	0.18 [†]	0.50 [‡]	N/A					
6. Unmet health system and information needs	0.42 [‡]	0.03	0.08	0.12	0.22 [‡]	N/A				
7. Unmet psychological needs	0.64 [‡]	-0.02	0.20 [†]	0.15 [*]	0.29 [‡]	0.59 [‡]	N/A			
8. Unmet physical and daily living needs	0.56 [‡]	0.06	0.20 [†]	0.19 [†]	0.24 [‡]	0.52 [‡]	0.64 [‡]	N/A		
9. Unmet patient care support needs	0.47 [‡]	0.01	0.12	0.19 [†]	0.18 [*]	0.76 [‡]	0.69 [‡]	0.58 [‡]	N/A	
10. Unmet sexuality needs	0.33 [‡]	0.06	0.17 [*]	-0.03	0.06	0.42 [‡]	0.52 [‡]	0.31 [‡]	0.44 [‡]	N/A
Mean	3.91	0.20	0.49	3.58	2.55	40.42	36.66	33.56	36.33	19.00
Standard deviation	2.49	0.40	0.50	0.99	0.70	27.28	22.21	22.55	26.20	22.81
Cronbach's alpha	N/A	N/A	N/A	N/A	0.88	0.96	0.93	0.82	0.94	0.91

Abbreviations: COVID-19 = coronavirus disease 2019; N/A = not applicable

* P<0.05

† P<0.01

‡ P<0.001

§ No=0, Yes=1

¶ Belief that COVID-19 causes more severe health consequences in breast cancer survivors than in the general population

distress (sample correlation coefficients=0.16-0.34; all P<0.01). All five domains of unmet SCNs were associated with increased psychological distress (sample correlation coefficients=0.33-0.64; all P<0.001).

Logistic regression analyses

In the simple logistic regression analyses (Table 3), no background variables showed significant associations with psychological distress; accordingly, adjustments for those variables were not included in the final multivariable regression model. On the other hand, all domains of unmet SCNs (ORs=1.03-1.07; all P<0.001), cancer supportive care service disruption (OR=1.75; P=0.05), fear of COVID-19 (OR=2.11; P=0.001), and the perception that COVID-19 causes more severe health consequences in BCS (OR=1.72; P<0.001) were associated with moderate-to-severe psychological distress (Table 4). The multivariable logistic regression results indicated that only unmet physical needs (OR=1.03; P=0.002), unmet psychological needs (OR=1.06; P<0.001), and perceived severity of COVID-19-related health consequences in BCS (OR=1.67; P=0.02) were associated with moderate-to-severe psychological distress (Table 4).

Discussion

At least 50% of BCS in Hong Kong experienced a moderate-to-severe level of distress during

COVID-19. This prevalence was comparable to that of gynaecological cancer survivors in Turkey,²⁷ but lower than that of sarcoma patients in Italy.²⁸ Discrepancies in prevalence might be attributed to varied pandemic situations across regions, including differences in survey periods, cancer types, and specific pandemic-control measures. Future research could investigate how these factors jointly contribute to BCS' psychological distress. Among the studied variables, multivariable logistic regression analysis revealed that higher levels of unmet SCNs in physical and psychological domains, along with a stronger belief that COVID-19 could cause more severe health consequences in BCS, were associated with greater psychological distress among BCS in Hong Kong.

Supportive care service disruption was associated with breast cancer survivors' psychological distress

We found that 20.1% and 49.3% of BCS experienced cancer treatment and supportive cancer care service disruptions, respectively, during COVID-19. Only the disruption of supportive cancer care services (but not cancer treatments) demonstrated a significant univariate association with moderate-to-severe psychological distress. Previously, cancer care service disruptions during COVID-19 were associated with worse psychological outcomes among BCS in the United Kingdom,⁶ Canada,²⁹

TABLE 3. Univariate logistic regression models for associations between background variables and moderate-to-severe psychological distress (n=209)

	Odds ratio (95% CI)
Age, y	
≤55	1
>55	0.72 (0.42-1.25)
Education level	
Primary/secondary education	1
College education or higher	1.06 (0.62-1.84)
Monthly household income, HK\$	
<20 000	1
≥20 001	0.70 (0.38-1.30)
Treatment	
Surgery	2.10 (0.61-7.22)
Chemotherapy	1.06 (0.58-1.96)
Radiotherapy	0.53 (0.28-1.02)
Targeted therapy	1.08 (0.60-1.97)
Immunotherapy	0.99 (0.24-4.07)
Have at least one child	1.15 (0.65-2.03)
Live alone	0.82 (0.35-1.92)
Have a religious affiliation	1.02 (0.59-1.76)
Marital status	
Married	0.72 (0.39-1.33)
Time since diagnosis	0.67 (0.38-1.17)
Work mode	
Full-time	0.83 (0.47-1.47)
Cancer stage	
0/I	1
II	0.78 (0.42-1.48)
III	1.23 (0.60-2.52)

Abbreviations: 95% CI = 95% confidence interval; HK\$ = Hong Kong dollars

and Ireland.³⁰ Given that disruptions of supportive cancer care services (but not cancer treatments) were positively associated with unmet SCNs, the absence of timely supportive care might make coping with and living with cancer particularly difficult during COVID-19.¹¹ However, supportive cancer care service disruption was no longer significant in multivariable logistic regression analyses when other independent variables were considered. This finding implies that more proximal factors related to BCS' daily lives and challenges (eg, different domains of unmet SCNs) had relatively greater prominence in explaining psychological distress among BCS in Hong Kong during COVID-19.

Unmet supportive care needs in relation to breast cancer survivors' psychological distress

Breast cancer survivors in Hong Kong reported moderate levels of unmet SCNs across different domains, with the highest score in the health system/information domain and the lowest score in the sexuality domain (Table 5). These levels of unmet SCNs were comparable to those reported by other local cancer survivors in 2021.³ Our findings showed that all five domains of unmet SCNs were associated with moderate-to-severe psychological distress, but only unmet SCNs in the psychological and physical/daily living domains constituted significant contributors in the final multivariable logistic regression model (Table 4). These findings were similar to a study conducted among survivors of mixed cancer types (56.7% diagnosed within the previous year) in Turkey.³¹ According to that study,³¹ conducted during COVID-19, all domains of unmet

TABLE 4. Multivariable logistic regression analyses to explain psychological distress (n=209)

Dependent variable: Moderate-to-severe psychological distress (Distress Thermometer score ≥4)						
Independent variables	Simple logistic regression model			Multivariable logistic regression model		
	OR* (95% CI)	Wald†	P value	OR‡ (95% CI)	Wald†	P value
Cancer treatment disruption	0.78 (0.39-1.54)	0.52	0.47	N/A	N/A	N/A
Supportive cancer care service disruption	1.75 (1.01-3.03)	4.01	0.05	0.91 (0.44-1.88)	0.06	0.80
Unmet physical needs	1.06 (1.04-1.08)	43.77	<0.001	1.03 (1.01-1.06)	9.79	0.002
Unmet psychological needs	1.07 (1.05-1.09)	46.35	<0.001	1.06 (1.03-1.09)	14.21	<0.001
Unmet patient care and support needs	1.04 (1.02-1.05)	30.03	<0.001	1.00 (0.97-1.02)	0.09	0.77
Unmet health system and information needs	1.03 (1.02-1.04)	22.18	<0.001	1.00 (0.98-1.02)	0.02	0.88
Unmet sexuality needs	1.03 (1.01-1.04)	12.92	<0.001	1.00 (0.98-1.02)	0.86	0.77
Fear of COVID-19	2.11 (1.38-3.22)	11.98	0.001	1.04 (0.56-1.96)	0.02	0.89
COVID-19 risk perception§	1.72 (1.27-2.33)	12.22	<0.001	1.67 (1.08-2.57)	5.39	0.02

Abbreviations: 95% CI = 95% confidence interval; COVID-19 = coronavirus disease 2019; N/A = not applicable; OR = odds ratio

* Not adjusted for background variables

† Degree of freedom=1

‡ Adjusted for other variables

§ Belief that COVID-19 causes more severe health consequences in breast cancer survivors than in the general population

SCNs were correlated with depression/anxiety, but only unmet SCNs in the psychological and physical/daily living domains independently contributed to depression/anxiety in the multivariable analysis. In contrast, among cancer survivors in Jordan (77% diagnosed ≥ 6 years prior), all domains of unmet SCNs during COVID-19 were independently associated with quality of life.³² Given that our participants were recently diagnosed BCS (with an average time since diagnosis of 16.6 months; all diagnosed after the COVID-19 pandemic began), they were still in the process of coping with the reality of the cancer diagnosis, the discomfort and side-effects of treatment, uncertainties about the future, and potential cancer recurrences. Considering the time since diagnosis, the relative contributions of SCNs in the psychological and physical/daily living domains to psychological distress were particularly strong among recently diagnosed BCS during COVID-19.

Coronavirus disease 2019–related risk perception was associated with psychological distress

Fear of COVID-19 was associated with greater psychological distress only in the simple analysis, but not in the multivariable regression model. Previously, fear of COVID-19 was associated with greater psychological distress among cancer survivors in the US³³ and the general population in Hong Kong³⁴ during earlier phases of the COVID-19 pandemic in 2020 to 2021. Due to Hong Kong's unique experiences in successfully managing prior pandemics (eg, the severe acute respiratory syndrome and the H1N1 pandemics),³⁵ pandemic fatigue (ie, a state of emotional and physical exhaustion resulting from prolonged anti-pandemic measures) was observed during the fourth and fifth waves of the pandemic in Hong Kong (2021–2022).³⁶ Such fatigue was reflected in the lower levels of fear of COVID-19 (ie, affective and physiological states of anxiety and fear towards COVID-19) among our sample surveyed in 2022, compared with the general population surveyed in early 2021,³⁴ using the same measurement. This finding might explain why the contribution of fear of COVID-19 to psychological distress among local BCS was weaker than expected.

Conversely, we found that the perceived severity of the health consequences of COVID-19 for BCS was a stronger contributor to psychological distress than fear of COVID-19. Cancer and its treatments (eg, chemotherapy) can weaken patients' immune systems, and it is common for BCS to believe that being immunocompromised might lead to more severe health consequences if they contract COVID-19.¹ Risk perception has been associated with coping behaviours. For example, a recent study found that risk perception about COVID-19 was a stronger contributor to information-seeking

TABLE 5. Moderate or high unmet supportive care needs among breast cancer patients (n=209)*

Physical/daily living	
Pain	54 (25.8%)
Lack of energy/tiredness	40 (19.1%)
Feeling unwell a lot of the time	29 (13.9%)
Work around the home	23 (11.0%)
Being unable to do the things you used to do	42 (20.1%)
Psychological	
Anxiety	41 (19.6%)
Feeling down or depressed	34 (16.3%)
Feelings of sadness	22 (10.5%)
Fears about the cancer spreading	64 (30.6%)
Worry that the results of treatment are beyond your control	47 (22.5%)
Uncertainty about the future	66 (31.6%)
Learning to feel in control of your situation	28 (13.4%)
Keeping a positive outlook	34 (16.3%)
Feelings about death and dying	40 (19.1%)
Concerns about the worries of those close to you	37 (17.7%)
Sexuality	
Changes in sexual feelings	10 (4.8%)
Changes in your sexual relationships	10 (4.8%)
Being given information about sexual relationships	13 (6.2%)
Health system/information	
Being given written information about important aspects of your care	44 (21.1%)
Being given information (written, diagrams, drawings) about managing your illness and side-effects at home	37 (17.7%)
Being given explanations of tests for which you would like explanations	56 (26.8%)
Being adequately informed about the benefits and side-effects of treatments before you choose to have them	55 (26.3%)
Being informed about your test results as soon as feasible	61 (29.2%)
Being informed about cancer that is under control or diminishing	53 (25.4%)
Being informed about things you can do to help yourself get well	71 (34.0%)
Having access to professional counselling (eg, psychologist, social worker, counsellor, nurse specialist) if you, family, or friends need it	57 (27.3%)
Being treated like a person, not just another case	54 (25.8%)
Being treated in a hospital or clinic that is as physically pleasant as possible	58 (27.8%)
Having one member of hospital staff with whom you can talk	66 (31.6%)
Patient care/support	
More choice about which cancer specialists you see	51 (24.4%)
More choice about which hospital you attend	36 (17.2%)
Reassurance by medical staff that the way you feel is normal	40 (19.1%)
Hospital staff attending promptly to your physical needs	51 (24.4%)
Hospital staff acknowledging, and showing sensitivity to, your feelings and emotional needs	50 (23.9%)

* Data are shown as No. (%)

behaviour among the general population in Hong Kong than among their counterparts in China and Taiwan.³⁷ We expected that this phenomenon would also be apparent among Hong Kong BCS. However, health information about COVID-19 may not always be tailored for cancer survivors or effectively communicated through local mass media,¹ which could be associated with psychological distress among BCS. To alleviate such COVID-19-related risk perceptions, we recommend that health organisations tailor health information and provide counselling for cancer survivors through alternative platforms (eg, social media and online forums).

Limitations

This study had several limitations. First, given its cross-sectional design, it could not establish causal relationships among the variables. Cancer survivors' risk perceptions about COVID-19 and unmet SCNs are likely to change throughout the course of their cancer journey. Future studies could utilise longitudinal designs to better understand the temporal relationships among variables and psychological distress. Second, although the Hong Kong Breast Cancer Registry is the most comprehensive registry for BCS in Hong Kong, it does not cover the entire BCS population due to its voluntary enrolment system. The generalisability of the findings to BCS in other countries with different healthcare systems and pandemic situations should be interpreted with caution. Third, other important independent variables might contribute to BCS' psychological distress. Studies have revealed that additional daily COVID-19 stressors (eg, increased responsibilities at home and difficulties obtaining daily necessities) and coping strategies (eg, catastrophising) may play key roles in explaining psychological distress among cancer survivors.^{12,29} The inclusion of such variables could further improve the explanatory power of the regression model. Fourth, to reduce participant burden, we measured risk perceptions related to COVID-19 using a self-developed item. Specifically developed items are commonly used as predictors of psychological outcomes to capture nuances in the local COVID-19 context.³⁸ However, researchers are encouraged to confirm our findings using fully validated instruments for the measurement of COVID-19 risk perceptions.

Implications

This study highlights the importance of addressing BCS' unmet SCNs in the physical/daily living and psychological domains, as well as their risk perceptions of COVID-19, in relation to psychological distress during the pandemic. To address physical/daily living needs, survivors might

need to engage in self-monitoring of health (eg, reporting symptoms and metrics to healthcare providers through patient portals). Psychological well-being should be regularly monitored, and communication between providers and survivors should be maintained through virtual means. In addition to information about cancer symptom management, survivors should be provided with accessible mental health services that can support them in coping with the emotional impacts of their diagnosis and treatment.³⁹ Regarding COVID-19 risk perception, it may be beneficial to offer accurate and up-to-date educational materials explaining BCS' risks associated with COVID-19 and how they can protect themselves. Research suggests that telehealth can empower survivors and provide strategies for coping during unprecedented times. A recent study in Iran indicated that a tele-nursing intervention—including supportive telephone calls with explanations about cancer, treatment side-effects, symptom management, and self-care—reduced unmet SCNs among Iranian cancer survivors undergoing chemotherapy.⁴⁰ Researchers should explore the applicability of such service models in Hong Kong and other regions.

Conclusion

Half of BCS in Hong Kong experienced a moderate-to-severe level of psychological distress during COVID-19. Efforts to address unmet SCNs in the physical/daily living and psychological domains, manage risk perceptions regarding health consequences of COVID-19, and provide supportive cancer care services through alternative modes might help alleviate psychological distress among BCS in future pandemic situations.

Author contributions

Concept or design: All authors.

Acquisition of data: NCY Yeung, STY Lau.

Analysis or interpretation of data: NCY Yeung, STY Lau.

Drafting of the manuscript: NCY Yeung, STY Lau.

Critical revision of the manuscript for important intellectual content: NCY Yeung.

All authors had full access to the data, contributed to the study, approved the final version for publication, and take responsibility for its accuracy and integrity.

Conflicts of interest

All authors have disclosed no conflicts of interest.

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Ethics approval

This research was approved by the Joint Chinese University of Hong Kong–New Territories East Cluster Clinical Research Ethics Committee, Hong Kong (Ref No.: 2021.286) and the Hong Kong Breast Cancer Foundation. Informed consent was obtained from all individual participants included in the study.

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