

CLINICAL CORRESPONDENCE

Psychological distress during the 2019 Coronavirus Disease (COVID-19) pandemic among cancer survivors and healthy controls

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1 | BACKGROUND

There is unprecedented global disruption due to the SARS-CoV2 pandemic, causing a potentially lethal form of atypical pneumonia (COVID-19), first reported in Wuhan, China, in December 2019. Pandemic spread was apparent by February 2020 with clusters of confirmed cases locally in Hong Kong (HKSAR), and in Korea, Japan, Australia/NZ, Europe and North America. Following 5 million cases and over 330 000 deaths, the psychological effects of COVID-19 remain poorly documented. Previous experience with serious respiratory infectious disease (RID) outbreaks, for example, SARS, indicates that such outbreaks can cause high levels of psychological distress.¹ Understanding how this distress can be attenuated during the COVID-19 pandemic, particularly in vulnerable populations such as cancer patients, requires identifying its risk factors to inform tailored interventions.²

We hypothesized that attentional bias, COVID-19-related catastrophic thinking, health anxiety and coping would contribute towards psychological distress during the COVID-19 pandemic among Chinese cancer survivors and healthy controls, and generate differences in risk perception towards COVID-19 and the adoption of precautionary measures.

2 | METHODS

2.1 | Participants and design

Ethical approval was obtained from participating institutions (ref: UW20-254).

To test if attentional bias assessed by an experimental paradigm was associated with distress levels during the pandemic, we re-contacted the participants from two previous studies of attentional bias among Hong Kong Chinese cancer patients and matched healthy women^{3,4}: a cross-sectional study that had recruited 140 women with breast cancer³ and 150 healthy women (unpublished), and a longitudinal study that had followed 270 patients with breast or colorectal cancer for 12 months, which assessed attentional bias at baseline.⁴ Two modified dot-probe tasks involving visually presented word stimuli were employed to assess attentional bias.^{3,4}

The present study recruited participants from the original studies who had completed the dot-probe tasks and agreed to be re-contacted for future study. A total of 260 cancer survivors and 98 healthy controls were invited by phone, giving us 358 potential participants. The phone survey was conducted from 28 April to

May 3, 2020. At this time there were few active COVID-19 cases in HKSAR, all imported and no reported local transmission.

The survey instrument comprised seven sections: (a) psychological distress, assessed using the 14-item Chinese Hospital Anxiety and Depression Scale (HADS)⁵; (b) coping behavior, assessed using the 28-item Chinese Brief COPE⁶; (c) health anxiety, included as a distress covariate, assessed by the Chinese Short Health Anxiety Inventory (SHAI)⁷; (d) catastrophic thinking, assessed using a modification of the 13-item Chinese Pain Catastrophizing Scale (PCS) reworded to COVID-19 instead of pain; (e) risk perception, assessed using categorical Likert scales for participants' perceived risk (susceptibility, severity and worry) from COVID-19 and perceived self-efficacy in preventing COVID-19; (f) precautionary measure compliance, assessed by asking participants the adoption of various precautionary measures against COVID-19 over the previous week; and (g) participants' socio-demographics and clinical data.

Reaction times in the dot-probe tasks were extracted from the previous datasets.^{3,4} A positive bias score represents a tendency to attend *towards* target stimuli (vigilance); whereas a negative bias score represents a tendency to direct attention *away* from target stimuli (avoidance).⁸ The parameters of dot-probe tasks are described in details in the original studies.^{3,4}

3 | DATA ANALYSIS

Chi-squared tests or univariate ANOVAs, where appropriate, were conducted to identify potential correlates of distress levels. All variables significant at a 0.10 level were included in Multiple Linear Regressions to determine the contribution of variables to distress. Fully-adjusted Multivariate Logistic Regression and a series of χ^2 tests were performed to assess health status (cancer sample vs healthy controls) differences in the study covariates.

4 | RESULTS

Overall, 129/358 (36%) consented and completed the survey. Socio-demographics, excepting age ($P = .049$) and occupation status ($P = .023$), did not differentiate between participants and refusals. Exclusions included 12/129 (9.3%) male participants to avoid unrepresentatively small sample size. The final sample comprised 117 women, 72 cancer survivors averaging 5 years ($SD = 2.8$) since diagnosis, and 45 healthy controls (Table 1). The mean levels of anxiety and depression observed in this study sample were low.

Psychological distress did not vary by prior attentional bias scores, age, marital status nor education. After adjusting for the effects of occupation status and psychological distress assessed in the original studies, enhanced psychological distress during the pandemic was significantly associated with greater COVID-19-related catastrophizing ($\beta = 0.25$, $P = .013$ for HADS-A; $\beta = 0.24$, $P = .031$ for HADS-D), increased general health anxiety ($\beta = 0.32$, $P = .002$ for HADS-A; $\beta = 0.28$, $P = .014$ for HADS-D), greater use of support-seeking coping ($\beta = 0.20$, $P = .020$ for

Key points

- Low perceived risk from COVID-19, but high compliance with the adoption of precautionary measures was observed in both cancer survivors and healthy control.
- About 1 in 8 reported borderline-to-clinical levels of anxiety in both samples.
- About 1 in 7 cancer survivors and 1 in 9 healthy controls reported borderline-to-clinical levels of depressive symptoms.
- Cancer survivors reported more catastrophizing about COVID-19 pandemic, but experienced less general anxiety than did healthy controls.
- Use of support-seeking coping associated with high distress, possibly due to social distancing.

HADS-A), but less use of problem-focused coping ($\beta = -0.30$, $P = .002$ for HADS-A; $\beta = -0.26$, $P = .013$ for HADS-D), and being a healthy control. Compared with healthy controls, cancer survivors reported less distress during the pandemic ($\beta = -0.25$, $P = .009$ for HADS-A; $\beta = -0.21$, $P = .043$ for HADS-D).

Using logistic regression, compared with healthy controls, cancer survivors reported greater COVID-19-related catastrophizing ($OR = 1.09$, 95%CI = 1.03, 1.16), increased general health anxiety ($OR = 1.21$, 95%CI = 1.06, 1.37), greater use of avoidance coping ($OR = 1.35$, 95%CI = 1.05, 1.72), but less use of problem-focused ($OR = 0.86$, 95%CI = 0.78, 0.95) and emotion-focused ($\beta = 0.76$, 95%CI = 0.62, 0.93) coping, less perceived negative consequence of contracting COVID-19 ($OR = 0.64$, 95%CI = 0.47, 0.86), and lower HADS-anxiety during the pandemic ($OR = 0.78$, 95%CI = 0.63, 0.98).

Risk perception (self-perceived likelihood of contracting COVID-19) (Evens/likely: 25% cancer, 95%CI = 15%, 35% vs 22% control, 95%CI = 10%, 34%), perceived likelihood of being seriously ill (Likely/certain: 60% cancer, 95%CI = 48%, 71% vs 73% control, 95%CI = 60%, 86%) or death (Likely/certain: 58% cancer, 95%CI = 47%, 70% vs 73% control, 95%CI = 60%, 86%) from COVID-19 for cancer patients, worry about developing COVID-19 (Not-at-all: 36% cancer, 95%CI = 25%, 47% vs 42% control, 95%CI = 28%, 57%) and perceived self-efficacy in preventing against COVID-19 (Yes: 76% cancer, 95%CI = 67%, 86% vs 91% control, 95%CI = 83%, 99%) did not differ significantly by health status.

Cancer survivors relative to healthy controls were less likely to avoid healthcare visits (72% cancer vs 28% control, $P = .049$). No significant differences were seen for the adoption of other precautionary measures, for example, use of facemask (Always: 96% cancer vs 93% control), handwashing with soap/sanitizer (Always: 57% cancer vs 40% control), avoid touching high-touch surface (Always: 47% cancer vs 47% control), avoid going out (74% cancer vs 80% control), and social distancing (82% cancer vs 80% control).

TABLE 1 Demographic characteristics of cancer survivors and healthy controls (n = 117)

	Cancer survivors (n = 72)	Healthy control (n = 45)
Age (years) mean ± SD	52.96 ± 8.34	57.78 ± 8.77
Marital Status, n (%)		
Single/Divorced/Widowed	26 (36.1%)	19 (42.2%)
Married	46 (63.9%)	26 (57.8%)
Education level, n (%)		
No formal/primary	8 (11.1%)	6 (13.3%)
Secondary or above	64 (88.9%)	39 (86.7%)
Occupation status, n (%)		
Employed	36 (50.0%)	20 (44.4%)
Retired	17 (23.6%)	8 (17.8%)
Housewife	14 (19.4%)	14 (31.1%)
Unemployed	5 (6.9%)	3 (6.7%)
Family monthly income, n (%)*		
≤HK\$10000	22 (30.6%)	6 (13.3%)
HK\$10101-30 000	26 (36.1%)	12 (26.7%)
≥HK\$30001	19 (26.4%)	25 (55.6%)
Missing	5 (6.9%)	2 (4.4%)
Anxiety mean ± SD	3.20 ± 3.23	3.36 ± 4.52
Depression mean ± SD	3.45 ± 3.61	3.62 ± 4.30
Borderline anxiety cases ^a , n (%)	6 (8.3%)	3 (6.7%)
Borderline depression cases ^a , n (%)	7 (9.7%)	2 (4.4%)
Clinical anxiety cases ^b , n (%)	3 (4.2%)	3 (6.7%)
Clinical depression cases ^b , n (%)	4 (5.6%)	3 (6.7%)
General health anxiety mean ± SD*	12.80 ± 7.45	10.03 ± 4.34
Perceived negative consequence of contracting COVID-19 mean ± SD	2.99 ± 2.20	3.36 ± 2.26

*P < .05.

^aHADS cut-off scores of 8-10 for borderline cases.^bHADS cut-off scores of ≥11 for clinical cases.

5 | DISCUSSION

Both cancer survivors and healthy controls reported low psychological distress in response to the COVID-19 pandemic, possibly due to the fact that the survey was conducted at a time when the number of local confirmed cases was low and social distancing restrictions were imposed. Our intention is to rerun the survey during any future local wave. The current findings can serve as a reference for future comparison.

Nevertheless, some interesting findings were observed. Catastrophizing about COVID-19 correlated with greater distress despite low pandemic impact in the HKSAR, consistent with previous studies implicating catastrophic thinking as a key cognitive component of other common mental health difficulties.⁹ Catastrophizing may disrupt

evidence disconfirmation, leading to the overestimation of the pandemic threat value, thereby enhancing distress.¹⁰ As expected, problem-solving oriented coping, which is often viewed as adaptive, was associated with less psychological distress during the pandemic. In contrast, support seeking was associated with enhanced anxiety, perhaps reflecting perceived social support diminution following social distancing. This warrants further study. Attentional bias toward threatening stimuli was unrelated to distress levels during the pandemic. Attentional bias may be content specific. We did not use COVID-19-related stimuli to assess the priming effect due to the current social distancing restriction.

Interestingly, our study showed cancer survivors reported greater catastrophizing about COVID-19 and greater health anxiety, while reporting less psychological distress in comparison to healthy controls. The Health Anxiety Inventory measures perceived likelihood and severity of becoming ill and body vigilance generally and therefore it is unsurprising to observe greater health anxiety among cancer survivors. Conversely, the cancer experience might prepare cancer survivors emotionally to better respond to the COVID-19 pandemic. This may be reflected in our finding that cancer survivors perceived significantly less negative consequences from COVID-19 than did healthy controls.

The observed low COVID-19-related risk perceptions among both groups are rational as the assessment was conducted during a quiescent phase of the pandemic. Both groups adopted most SARS-CoV2 precautionary measures, which might be attributable to previous experience with SARS in Hong Kong in 2003, leading to high levels of suspicion for COVID-19 among the general population.

The limitations of this survey during the COVID-19 pandemic include that the stability of distress is unknown due to its assessment at a single time, potential response bias due to low response rate (36%), the limited sample size and the use of existing cohort samples. However, this enabled us to adjust for the effects of distress assessed under non-pandemic conditions. In addition, the generalizability of our findings to male cancer survivors remains questionable.

5.1 | Clinical implications

This survey is believed to be among the first studies to identify of COVID-19-related distress correlates in cancer populations during the pandemic. The identification of these potential distress correlates suggests intervention targets. This is particularly important in terms of guiding local psycho-oncologists to develop appropriate support to address cancer survivors' needs during the pandemic when limited community social support is available. For instance, our data suggest that interventions helping cancer survivors to manage catastrophizing and enhance problem-focused coping skills may be more effective than offering tips on managing general distress.

CONFLICT OF INTEREST

Nil.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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