

Social constraints and quality of life among chinese-speaking breast cancer survivors: a mediation model

Jin You · Qian Lu

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Abstract

Purpose Literature has revealed detrimental effects of unsupportive interpersonal interactions on adjustment to cancer. However, no studies have examined this effect and the underlying psychological pathways among Chinese-speaking breast cancer survivors. The study investigated the relationship between social constraints and adjustment to cancer and the underlying psychological pathways among Chinese-speaking breast cancer survivors.

Methods Chinese-speaking breast cancer survivors ($N = 120$) completed a questionnaire package assessing social constraints, intrusive thoughts, affect, and quality of life.

Results Results revealed a negative relationship between social constraints and quality of life. Such a relationship between social constraints and quality of life was mediated by negative affect and intrusive thoughts, while the association of intrusive thoughts and quality of life were completely mediated by positive and negative affect.

Conclusion Findings highlight the negative association between unsupportive interpersonal interactions and adjustment through cognitive and affective pathways among Chinese-speaking breast cancer survivors.

Keywords Unsupportive interpersonal interaction · Social constraints · Intrusive thoughts · Adjustment · Affect · Minority breast cancer survivors

Introduction

A diagnosis of breast cancer, as a traumatic event, always poses a variety of physical and psychological challenges. Survivors are physically tormented by disease symptoms and cancer treatment. They are also psychologically burdened by a variety of disease-related concerns such as fear of recurrence, challenges of world view, and extreme emotional distress [1]. Social cognitive processing theory argues that unsupportive interactions may hinder adjustment to cancer by interrupting the cognitive processing of trauma [2], but the adverse effects of unsupportive interactions are relatively understudied.

Social constraints refer to the objective existence and subjective construal of social conditions (e.g., unwanted support, negative interactions) that lead individuals to refrain from or modify their disclosure of trauma-related concerns or feelings [3]. Social constraints have displayed strong associations with more intense emotional distress and worse psychological well-being among cancer survivors [4–6]. However, the psychological pathways underlying these associations are unclear. Furthermore, studies are primarily conducted with non-Hispanic whites, and no studies have been conducted with Chinese-speaking breast cancer survivors.

Literature has shown that Chinese American breast cancer survivors express more concerns about cancer and possess fewer opportunities for disclosing their concerns to others than do Caucasian counterparts [7–10], suggesting the prevalence of social constraints among Chinese American breast cancer survivors. Quality of life, as an index of self-assessed health status, is one of the most sensitive parameters of adjustment to cancer [11, 12], cancer-related morbidity, and mortality [13–15]. Thus, this study investigated the relationship between social

J. You
Department of Psychology, Wuhan University,
Wuhan, Hubei, China
e-mail: jy@whu.edu.cn

Q. Lu (✉)
Department of Psychology, University of Houston,
126 Heyne Building, Houston, TX 77204, USA
e-mail: qlu3@uh.edu

constraints and quality of life and its underlying psychological pathways among Chinese-speaking breast cancer survivors.

Social constraints and quality of life

Literatures have well documented the positive associations between social constraints and psychological distress among Caucasian cancer survivors. For instance, social constraints were related to greater depression, higher posttraumatic stress disorder symptoms, lower psychological well-being, and worse psychosocial adjustment among breast cancer survivors [4, 16], prostate cancer survivors [5], cancer survivors who received bone marrow transplantation [17], and even women at risk for breast cancer [6]. Social constraints were also inversely correlated with healthy behaviors, such as exercise [18], adherence to self-care activities among patients with diabetes [19], and self-examination among breast cancer survivors [2]. The above findings suggest that social constraints would be inversely related to quality of life among cancer survivors, though no studies have tested it.

It is important to note that no efforts have been made to examine the role of social constraints in adjustment among Chinese-speaking breast cancer survivors. Chinese-speaking breast cancer survivors, particularly those with fewer education and lower acculturation, might experience social constraints to a greater extent than Caucasian counterparts. Studies have revealed that compared to Caucasians, Chinese American breast cancer survivors reported more medical and psychosocial concerns due to cancer-related beliefs (e.g., “Cancer is incurable”) and strong gender norms (e.g., “women should prioritize family over self”) [7, 8]. However, Chinese women had fewer opportunities of disclosure, since they are separated from social network in home country [9] and are discouraged from the direct communication of personal problems [10]. Therefore, we hypothesized that social constraints would be high and be inversely related to quality of life among Chinese-speaking breast cancer survivors.

Cognitive pathways underlying social constraints and quality of life

In explaining the relationship between social constraints and adjustment to cancer, a mediator is intrusive thoughts: recurrent and unwanted trauma-related thoughts. Intrusive thoughts reflect individuals’ attempts to make sense of the trauma [20–22] and thus are conceptualized as the marker of incomplete cognitive processing [2, 23, 24]. Studies have shown that intrusive thoughts predict worse mental health [5, 25], lower physical functioning [26], and poorer well-being [27].

Social cognitive processing theory [2, 3] proposes that social environments shape individuals’ cognitive processing and adjustment to cancer. Social constraints toward individuals’ disclosure may hinder adjustment by limiting the opportunities for gaining new insights and by diminishing the chances to habituate to the trauma. Empirical findings confirmed the positive relationship between social constraints and intrusive thoughts among cancer patients [4, 16]. Cordova et al. [4] found that intrusive thoughts mediated the association between social constraints and depression among Caucasian breast cancer survivors. Thus, we hypothesized that intrusive thoughts would mediate the association between social constraints and quality of life.

Affective pathways underlying social constraints and quality of life

Other mediators that have not previously been tested are positive and negative affect. Theories have proposed the possible associations of social constraints with positive and negative affect. The emotions-in-relationship model [28] posits that negative affect arises when others’ behaviors violate social norm of close relationships. Social constraints may violate social norms of supporting close others, consequently incurring more negative affect and less positive affect. Other theorists [2, 24, 29] speculate that social constraints may lead to individuals’ inability to regulate emotions, causing prolonged negative affect and less positive affect. Studies demonstrated that unsupportive interactions, typical forms of social constraints, were strongly related to more frequent negative affect and less frequent positive affect [30, 31].

Positive and negative affect can also be the by-product of incomplete cognitive processing of the trauma. According to cognitive processing theories [24, 32, 33], individuals are motivated to process trauma-related information until it is assimilated or accommodated into the preexisting schema. While the integration of trauma-related information to preexisting schema evokes positive affect, the existence of cognitive incongruity elicits negative affect. Intrusive thoughts have been found to decrease positive affect and increase negative affect when individuals experience social constraints [2, 27].

Moreover, the broaden-and-build theory [34, 35] postulates that positive and negative affect is equally important for human survivorship. Positive affect broadens the scope of attention and builds resources for coping with adversity, initiating upward spirals of flourishing [36]. By contrast, negative affect narrows individuals’ thought–action repertoires and reduces coping resources, ultimately compromising well-being [37, 38]. Previous studies have found that positive and negative affect predict quality of life [39–41].

Based on these findings, we expected that affect might play a dual role in the relationship between social constraints, intrusive thoughts, and quality of life. First, affect may directly mediate the relationship between social constraints and quality of life. Second, affect may also mediate the relationship between intrusive thoughts and quality of life (Fig. 1).

The present study

To summarize, the present study aimed to (1) investigate how social constraints were related to quality of life and (2) explore the potential psychological pathways, as marked by intrusive thoughts and positive and negative affect, underlying such a relationship in a sample of Chinese-speaking breast cancer survivors. We hypothesized that:

1. Social constraints would be negatively related to quality of life.
2. The relationship between social constraints and quality of life would be mediated by intrusive thoughts and affect.
3. The relationship between intrusive thoughts and quality of life would be mediated by affect.

Methods

Participants and procedures

The sample included 120 participants aged 31 to 83 years ($M = 54.65$, $SD = 8.61$). Of them, 12.5 % were at stage 0, 29.2 % were at stage I, 40.8 % were at stage II, 15.0 % were at stage III, and the remaining were unknown. The mean survival length is 21.78 months ($SD = 12.84$). Details of demographic and medical characteristics can be found in Table 1.

The study was a baseline survey of an on-going intervention study. Potential participants were told that the study aimed to understand the experience with breast cancer. Study inclusion criteria were (1) being diagnosed with breast cancer at stage 0–III within 5 years and (2) self-identified to be comfortable speaking, reading, and writing in Chinese (e.g., Mandarin, Cantonese). The study was announced at cultural events, educational conferences, peer support groups, and community newsletters of Chinese community organizations in Southern California. Breast cancer survivors who indicated interest in the study were contacted by community research staff via phone to determine eligibility. After eligible participants agreed to participate in the study, the questionnaires along with a consent form were mailed to participants. Participants were instructed to complete the questionnaires comfortably at

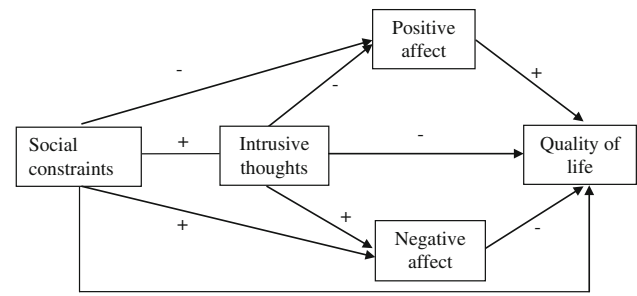


Fig. 1 The hypothesized models for the relationship between social constraints, intrusive thoughts, affect, and health-related quality of life

Table 1 Descriptive statistics of demographic and medical characteristics

	Percentage/mean (SD)
Education	
Lower than high school	12.5 %
High school education	32.5 %
College education	50.0 %
Postgraduate education	3.4 %
Missing	1.6 %
Marital status	
Married	70.8 %
Divorced	13.3 %
Never married	6.7 %
Widowed	4.2 %
Separated	3.3 %
Missing	1.7 %
Annual household income	
Less than \$15,000	31.7 %
\$15,000–\$45,000	23.3 %
\$45,000–\$75,000	17.5 %
More than \$75,000	15.8 %
Missing	11.7 %
Stage of cancer	
0	12.5 %
I	29.2 %
II	40.8 %
III	15.0 %
Missing	2.5 %
Age	54.65 (8.61)
Months since diagnosis	21.78 (12.84)

home and return the completed questionnaires with the signed consent form in a sealed envelope to community research staff. Participants were offered monetary compensation (US\$20) for completing the survey. The study received institutional IRB approval.

Measures

Demographic and medical information

Demographic (age, education, annual household income, and marital status) and medical (stage of cancer, time since diagnosis) variables were assessed.

Social constraints

Social constraints were assessed by the 15-item social constraints scale (SCS-15) [42]. The SCS-15 is designed to measure the frequency with which cancer survivors felt constrained from discussing their cancer-related thoughts from their spouse (primary caregivers for those without a spouse) in the past month [3]. An example item is: “How often did they act uncomfortable when you talked about your illness?” Participants were asked to rate on a 5-point Likert scale ranging from “1 = almost never” to “5 = almost always,” and the ratings were averaged. The alpha coefficient of the scale was .91.

Intrusive thoughts

Intrusive thoughts were measured by the intrusive thoughts subscale from the impact of events scale (IES) [43]. The IES has two subscales, intrusive thoughts and avoidance. The subscale of intrusive thoughts includes seven items assessing the frequency with which individuals had cancer-related intrusive thoughts in the past 7 days (e.g., “I thought about it (the illness) when I didn’t mean to”). Consistent with the original scale [43], participants were asked to rate on a 4-point Likert scale: “0 = not at all,” “1 = rarely,” “3 = sometimes,” or “5 = often,” and the ratings were averaged over 7 items. The alpha coefficient of the subscale was .91.

Positive and negative affect

Positive and negative affect was assessed with the Positive and Negative Affect Schedule (PANAS) [44]. The scale consists of 10 descriptors for positive affect (e.g., “interested,” “excited”) and 10 descriptors for negative affect (e.g., “afraid,” “distressed”). Participants were asked to indicate the degree to which they experienced each affect in the past week on a 5-point Likert scale ranging from “1 = very slight or not at all” to “5 = extremely.” The mean score of each subscale was calculated. The alpha coefficients of the subscales for positive and negative affect were .91 and .93, respectively.

Quality of life

Participants’ quality of life was assessed by the Chinese version of the Functional Assessment of Cancer Therapy-Breast (FACT-B) [45]. The scale includes 38 items measuring breast cancer survivors’ physical (e.g., “I have a lack of energy”), social (e.g., “I get emotional support from my family”), emotional (e.g., “I am losing hope in the fight against my illness”), and functional (e.g., “I am able to work”) well-being, and concerns about breast cancer (e.g., “I have been short of breath,” recoded score) [46]. Participants were asked to rate their quality of life in the past week on a 5-point scale ranging from “0 = not at all” to “4 = extremely,” and the ratings were summed. The alpha coefficient of the scale was .90.

The SCS-15, IES, and PANAS were translated into Chinese through the standard translation and back-translation procedures [47]. At least three bilingual researchers conducted a comparative and iterative translation process until the items in both language versions were identical in meaning. The reliabilities for all the questionnaires were satisfactory in the current study and were comparable to those in the original English version of questionnaires [42–44, 46].

Results

Descriptive statistics of major variables are shown in Table 2. Results from zero-order correlation showed that education and stage of cancer were related to social constraints or quality of life, see Table 3. To test hypothesis 1 regarding the pure relationship between social constraints and quality of life, a hierarchical regression analysis was conducted by entering the covariates into Block 1, social constraints into Block 2, and quality of life as the dependent variable. Results showed that social constraints were negatively related to quality of life ($B = -15.72$, $SE = 2.47$, $\beta = -.49$, $p < .001$), after controlling for education and stage of cancer.

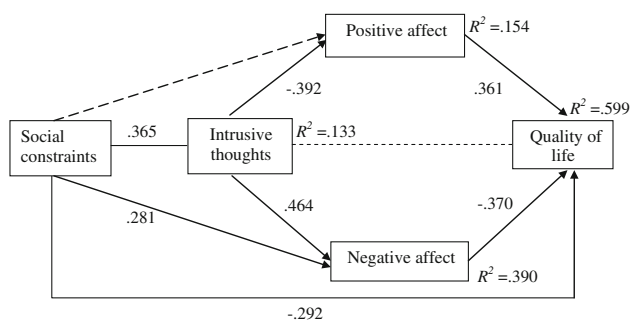
To test the hypotheses 2 and 3 about the psychological pathways, a path analysis was conducted with EQS software [48]. Results showed that the pathway from social

Table 2 Descriptive statistics of major variables

	Range	Mean (SD)
Social constraints	1–5	2.02 (.63)
Intrusive thoughts	1–5	1.55 (1.08)
Positive affect	1–5	2.70 (.88)
Negative affect	1–5	1.79 (.77)
Quality of life	0–152	91.50 (20.71)

Table 3 Zero-order correlations between major variables and covariates

	Social constraints	Intrusive thoughts	Positive affect	Negative affect	Quality of life
Intrusive thoughts	.365**				
Positive affect	-.236*	-.392**			
Negative affect	.472**	.563**	-.471**		
Quality of life	-.565**	-.525**	.622**	-.730**	
Age	-.131	-.190*	.136	-.088	.156
Education	-.169	-.290**	.240**	-.188*	.263**
Marital status	-.033	-.087	-.097	.060	-.037
Household income	-.023	-.061	.064	-.129	.085
Stage of cancer	.194*	.188*	-.205*	.287**	-.304**
Time since diagnosis	-.084	-.102	-.049	-.073	.057

* $p < .05$, ** $p < .01$ **Fig. 2** Path analysis for the relationship between social constraints, intrusive thoughts, affect, and health-related quality of life. *Note* Values are standardized coefficients for significant paths. *Solid lines* indicate the significant paths, and *broken lines* are nonsignificant pathways that are removed from the final model

constraints to positive affect and that from intrusive thoughts to quality of life were non-significant. We therefore dropped these two pathways from the hypothesized model, and the modified model fit well, $\chi^2(2) = 2.27$, $p > .05$, CFI = .99, RMSEA = .035. As shown in Fig. 2, social constraints not only were directly related to quality of life ($B = -9.42$, $SE = 2.08$, $Z = -4.53$, $p < .001$), but were indirectly related to quality of life through negative affect ($B = -6.01$, $SE = 1.55$, $Z = -3.87$, $p < .001$). Intrusive thoughts were indirectly related to quality of life through positive affect ($B = -2.30$, $SE = .73$, $Z = 3.15$, $p < .001$) and negative affect ($B = -2.97$, $SE = .99$, $Z = 2.98$, $p < .001$). Considering that the measure for quality of life contained a subscale of emotional well-being, which had conceptual overlap and high statistical correlation with affect, we also excluded the subscale of emotional well-being from the total score of quality of life and repeated the path analysis. After excluding the subscale of emotional well-being from the total score of quality of life, the above model held, $\chi^2(2) = 1.45$, $p = .49$, CFI = 1.00, RMSEA = .00, and all the pathway coefficients were largely unchanged.

Discussion

This study made the first attempt to investigate the association between social constraints and quality of life and the underlying psychological pathways among Chinese-speaking breast cancer survivors. Findings from the study revealed a strong negative association between social constraints and quality of life after controlling for education and stage of cancer. This relationship was explained by negative affect as well as the intrusive thoughts-affect link. Such findings contribute to the literature by providing the first evidence for a negative association between social constraints and quality of life among Chinese-speaking breast cancer survivors, and by highlighting the importance of integrating affect into the theory explaining the phenomena relevant to social constraints.

Literature has demonstrated the impacts of social constraints on emotional well-being [4, 6, 49] and health behaviors [2, 19] among Caucasians. Unknown is the effect of social constraints on physical health and quality of life, particularly among minority groups [3]. Our findings showed that social constraints was higher among Chinese-speaking breast cancer survivors ($M = 2.02$) than that reported by Caucasian breast cancer survivors ($M = 1.77$) [4] and revealed a strong negative association of social constraints with quality of life ($r = -.565$) among Chinese-speaking breast cancer survivors. Future studies should directly employ a cross-cultural paradigm to compare whether social constraints indeed are higher and have a stronger association with quality of life among Chinese-speaking breast cancer survivors than among their Caucasian counterparts.

Previous studies have shown that intrusive thoughts predicted worse health outcomes [5, 25–27] and mediated the relationship between social constraints and depression [4]. We found that the relationship between intrusive thoughts and quality of life was fully accounted for by

positive and negative affect. Intrusive thoughts are automatic and unwanted thoughts about breast cancer (e.g., worries about children) and thus are emotionally distressing and unpleasant by nature. Such negative affective valence of intrusive thoughts might not only prolong their negative feelings, but might reduce positive feelings, eventually compromising quality of life.

Furthermore, negative affect also directly mediated the association between social constraints and quality of life. This confirms our hypothesis derived from interpersonal [28] and emotion regulatory [2, 24, 29] perspectives. Social constraints, due to its negative affective valence, may violate the norm of being supportive in close relationships and disrupt the harmony of relationships and act as a source of emotional distress in addition to cancer-related burdens [24, 28, 30]. Thus, survivors may attempt to conserve their resources to resolve the interpersonal problems, thereby precipitating ineffective emotional regulation and poorer quality of life.

Moreover, we found that only negative affect directly mediated the association between social constraints and quality of life. This may reflect the direct and immediate adaptive functions of negative affect when facing aversive reactions from others. Unsupportive interpersonal interactions may evoke negative affect, signifying the inappropriateness of disclosure [34, 35]. Although immediately adaptive, negative affect may result in poor quality of life in the long run [50].

Limitations

We acknowledge several limitations. First, this study is cross-sectional. Thus, no causal inference could be made. Cancer survivors with poorer health were more interpersonally sensitive and reported more social constraints [51, 52]. Future studies should use experimental design to determine the causal relationship between social constraints on adjustment to cancer. Second, we primarily relied on self-reports. Social constraints arise in the dynamic transaction of objective interpersonal interactions and subjective interpretation [3]. Future work should combine other-reports and laboratory observations to capture the dynamics of social constraints.

Conclusion

This study provides the first evidence for a negative association between social constraints and adjustment and the underlying psychological pathways among minority breast cancer survivors. Confirming social cognitive processing theory [2, 3], we revealed that intrusive thoughts acted as a mediator in the relationship between social constraints and

quality of life. Although researchers have speculated that affect plays a role in the health effects of social constraints [24], this is the first empirical study revealing the mediating role of affect in the relationship between social constraints and quality of life.

Recommendations

This study recognizes the substantial role of unsupportive social interactions in determining quality of life by impeding cognitive processing and emotion regulation among minority breast cancer survivors. Future research efforts should work toward exploring whether the health effects of social constraints are culturally/ethnically unique. Psychosocial interventions and clinical programs should be designed to eliminate the adverse effects of social constraints on quality of life among minority breast cancer survivors.

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