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Fatalism and Psychological Distress Among Chinese American Breast Cancer Survivors: Mediating Role of Perceived Self-control and Fear of Cancer Recurrence

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Abstract

Background—Extant literature on the relationship between cancer fatalism and psychological distress among Chinese American breast cancer survivors has been mixed, and few studies have examined potential mediators of this relationship. The current study examined how cancer fatalism is associated with psychological distress by investigating perceived personal control and fear of cancer recurrence as mediators, and acculturation as a moderator of these relationships.

Method—A total of 220 Chinese American women diagnosed with stage 0–III breast cancer were recruited from California cancer registries and completed a telephone survey. The measurement of cancer fatalism examined one's view of health as a result of destiny. Validated measures of psychological distress (i.e., depressive and anxiety symptoms), fear of cancer recurrence, and perceived personal control were used. Acculturation was defined by English proficiency, preferred interview language, and number of years lived in the USA.

Results—Higher cancer fatalism was directly associated with greater depressive and anxiety symptoms after controlling for covariates. This association was also mediated by higher fear of cancer recurrence, but not by perceived control. The mediation was not moderated by acculturation.

Conclusion—Our findings suggest that Chinese American breast cancer survivors' fatalistic beliefs may exacerbate fear of cancer recurrence, and, in turn, depressive and anxiety symptoms. Fear of recurrence was more salient than perceived control in their associations with psychological distress among Chinese American cancer survivors. Future intervention research may adopt cognitive approaches to alter Chinese survivors' fatalistic views of health outcomes to reduce their psychological distress.

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Conflict of Interest The authors declare no competing interests.

Declarations

Ethical Statement All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Consent Statement Informed consent was obtained from all individual participants included in the study.

Keywords

Chinese; Breast cancer; Cancer fatalism; Perceived personal control; Fear of cancer recurrence

Background

The annual incidence rate of breast cancer has steadily increased over the past two decades for Chinese American women [1, 2], for whom breast cancer is the most common type of cancer [3]. As advances in treatment lead to improved prognosis, the number of Chinese American breast cancer survivors has also steadily increased. A recent systematic review indicated that Asian American breast cancer survivors suffer from various degrees of depressive symptoms, anxiety, and post-traumatic stress symptoms [4]. While researchers have begun to examine psychosocial sequela that contribute to the development of depressive and anxiety symptoms among Chinese American breast cancer survivors, they have largely focused on examining the influence of coping styles or their social support networks [5, 6]. To our knowledge, culturally based psychological processes, such as cancer fatalism, have received relatively less attention in the extant literature. Moreover, the limited number of studies that have been conducted on cancer fatalism among this population has found cultural differences in the understanding and function of cancer fatalism—pointing to the importance of further examination [7].

Cancer fatalism refers to the belief that the outcome of having cancer is predetermined and unavoidable regardless of personal action [8, 9]. Cancer fatalism has been linked with less frequent cancer screening, less use of prevention behaviors, and poorer psychosocial adjustment among European Americans [10–12]. However, no study to our knowledge has examined potential mediators of the relationship between cancer fatalism and psychological distress (i.e., depressive and anxiety symptoms) among Chinese American breast cancer survivors. According to the Cognitive Adaption Theory [13], perceived personal control may be a potential mediator of the relationship between cancer fatalism and psychological distress. The Cognitive Adaption Theory posits that when individuals have lower levels of personal control over stressful events, they adapt poorly and experience maladjustment. Thus, in the cancer survivorship context, Chinese Americans with strong fatalistic beliefs may perceive lower levels of personal control and in turn experience greater depressive and anxiety symptoms. Indeed, previous research has found that European American cancer survivors with low perceived personal control experience lower levels of psychological well-being [14]. Furthermore, fear of cancer recurrence may also be a mediator of the relationship between cancer fatalism and psychological distress. According to Powe and Johnson’s Cancer Fatalism Model [15], cancer fatalism is characterized in part by fear of recurrence. As such, it is plausible that Chinese American breast cancer survivors with high levels of cancer fatalism may have greater fears of cancer recurrence, and in turn higher levels of psychological distress [16, 17].

The examination of psychological constructs among individuals from diverse cultural backgrounds is important as the majority of studies on the adjustment of breast cancer survivors have been disproportionally examined among European Americans from the USA.

As culture can strongly influence the way individuals think, feel, and act [18], beliefs about the predetermination of the course of cancer and associated treatment outcomes would also likely be influenced by culture. Indeed, the limited number of studies on cancer fatalism in the extent literature among Chinese individuals has found some evidence of a culturally unique conceptualization of cancer fatalism. Cancer fatalism, also referred to as *Ming* in Mandarin Chinese, is a Chinese cultural concept that has been passed through generations with roots in morality and Confucianism. *Ming* is characterized as an invisible force that dictates the ebbs and flows of an individual's life course that is present from birth to death [19]. While *Ming* is considered to dictate all of an individual's life circumstances, there is also a parallel belief that one does not have to passively accept it. *Ming* is believed to be shapeable through engagements in prosocial behaviors and cleaning of negative thoughts and actions. Thus, this conceptualization of cancer fatalism among Chinese breast cancer survivors was coined "fatalistic voluntarism" by Cheng and colleagues [7] and supported by Chinese proverbs such as "Do whatever is humanly possible, and leave the rest to what is fated by *Ming*" [19]. Accordingly, Chinese breast cancer survivors with high levels of cancer fatalism may accept their inability to escape what is dictated by *Ming*, but still actively engage in resolving problems during cancer survivorship [7]. Consistent with this view, some studies found that higher levels of cancer fatalism was associated with greater engagement with health promotion behaviors among Chinese and Korean immigrants [21].

However, it is not yet resolved in the literature whether the Chinese notion of cancer fatalism —"fatalistic voluntarism" —is less maladaptive in its relationship with psychological distress. Moreover, it is important to consider the large within-group heterogeneity among the Chinese American community in their exposure to and experiences with Chinese and American cultures to better understand the relationship between cancer fatalism and psychological distress [22, 23]. Acculturation refers to the process in which immigrants manage to keep or let go of their heritage culture, and their adjustments to the values and norms of the mainstream American culture [24]. It is possible that the relationships between cancer fatalism and psychological distress may be weaker or not associated among Chinese American breast cancer survivors who are less acculturated to mainstream American culture because they hold views of cancer fatalism that are more based in "fatalistic voluntarism." In other words, low acculturated Chinese American breast cancer survivors may similarly perceive less control and have fear of recurrence, but their acceptance of fate stemming from "fatalistic voluntarism" may attenuate these relationships. In contrast, among Chinese American breast cancer survivors who are highly acculturated, the direct and indirect relationships between cancer fatalism and anxiety and depressive symptoms through the potential mediators (i.e., perceived personal control and fear of cancer recurrence) may be more similar to those previously found among European American breast cancer survivors.

Current Study

To clarify the role of cancer fatalism in Chinese American cancer survivors' mental health, the purpose of the present study was (1) to examine whether the relationships between cancer fatalism and depressive and anxiety symptoms were mediated by perceived personal control and fear of cancer recurrence, and (2) to examine the role of acculturation in moderating the mediation models (i.e., moderated mediation models).

Methods

Participants and Procedure

The current study utilized the Chinese American data from a larger mixed-method research study that examined racial differences in breast cancer survivorship [25]. Chinese American women who were over 20 years old, diagnosed with stage 0–III breast cancer, had completed primary treatment (e.g., surgery, radiation, and/or chemotherapy) within 1–5 years, and had no recurrence or other cancers were invited to participate in this study. Chinese individuals with breast cancer were randomly selected from the Greater Bay Area and Los Angeles cancer registries, resulting in a total of 1117 individuals who were mailed an opt-in form for participation. After ten business days, follow-up phone calls were made to those who have not yet returned the form. Of the 1117 individuals that received our invitation letters, we reached 722 potential participants that resulted in 220 individuals who enrolled in the study (~ 35% response rate after including those with non-specified eligibility and excluding 89 individuals who were identified as ineligible or deceased). Our response rate was similar to response rates reported in prior cohort studies that enrolled multi-ethnic cancer survivors [26]. Informed consent was obtained verbally as this study posed minimal risk. In total, 220 Chinese American breast cancer survivors completed a survey over the telephone. All survey measures were translated into Chinese and the face validity of the Chinese translations were verified by Chinese patients through qualitative interviews [27]. Participants were compensated with a $25 gift card for their time. The present study was approved by the Institutional Review Boards at Georgetown University Medical Center, the California Health and Human Services Agency, and the Cancer Prevention Institution of California.

Measures

Cancer Fatalism—Cancer fatalism was assessed by 4 items adopted from the Pathways study among European Americans and Asian Americans [28]. These items (i.e., “I have no control over the things that affect my health,” “There is little one can do to prevent getting cancer,” “I cannot control my destiny,” and “Getting cancer is due to bad luck”) were rated on a 5-point Likert scale ranging from “Strongly disagree” to “Strongly agree.” An overall fatalism score was created by summing the four items. The reliability and validity of these items has been established in previous studies with Chinese and European Americans [28]. The Cronbach’s α for the present sample was 0.69. Furthermore, we conducted an exploratory factor analysis of the four items, which suggested a one-factor solution that explained 52.12% of the variance (eigenvalue = 2.09; factor loadings ranged from 0.56 to 0.79). Higher scores represent greater endorsement of cancer fatalism.

Fear of Recurrence—The intensity of breast cancer survivors’ fears of cancer recurrence was assessed by two items from the Concerns About Recurrence Scale [29]. The items were “How worried are you about having a recurrence of breast cancer?” and “How concerned are you about having an increased risk for other cancers?” The items were rated on a 5-point Likert scale ranging from “Not at all” to “Extremely.” The two items were summed to create an overall fear of recurrence score with higher values representing stronger fears of recurrence. The Cronbach’s α for the present sample was 0.84.

Perceived Personal Control—Perceived control over emotional responses to cancer, physical side effects, type of follow-up care they received, and the course of their cancer was assessed by the 4-item Perceived Personal Control scale [30]. Items were rated on a 5-point Likert scale ranging from "No control at all" to "Complete control." An overall perceived personal control score was created by summing the four items with a higher score representing higher levels of perceived personal control. Previous studies have reported an internal consistency of Cronbach's αs ranging from 0.71 to 0.83 among a sample of European, Asian, and Hispanic Americans [31]. In the present study, the Cronbach's α was 0.68. We also conducted an exploratory factor analysis of the four items, which suggested a one-factor solution that explained 52.21% of the variance (eigenvalue = 2.05; factor loadings ranged from 0.63 to 0.77). Higher scores represent greater endorsement of perceived personal control.

Depressive and Anxiety Symptoms—The National Institutes of Health Patient-Reported Outcome Measurement Information System customized short forms [32] were used to assess depression and anxiety. Depressive symptoms were assessed by 8 items (e.g., "I felt worthless," "I felt unhappy"), and anxiety symptoms were assessed by 7 items (e.g., "I felt fearful"). Both depressive and anxiety symptom items were rated on a 5-point Likert scale ranging from "Never" to "Always." Cronbach's α for the present sample was 0.92 and 0.91 for depressive and anxiety symptoms, respectively.

Acculturation—Chinese American breast cancer survivors were grouped as high or low acculturated to the USA based on three commonly used indicators of acculturation: (1) English proficiency, (2) language selected to complete the telephone survey (i.e., English or Mandarin/Cantonese), and (3) number of years lived in the USA [33]. As such, Chinese Americans who completed the telephone survey in English, or had high proficiency in speaking, listening, reading, and writing English, as well as lived in the USA for 25 years or more (median of the sample), were categorized as the highly acculturated group, with the remaining participants categorized as the less acculturated group. Prior research has shown that English proficiency, years lived in the USA, and the preferred language for completing a research interview are three commonly used proxy measures of acculturation that were highly correlated with validated acculturation scales, such as the Short Acculturation Scale for Hispanics [34]. English proficiency has been found to account for the majority of variance (~ 54.50%) of an acculturation scale [35]. In a study examining Hispanic Americans' acculturation, Fernández and colleagues [36] reported that language orientation (i.e., English vs. Spanish) and length of time spent in the USA (> 25 years vs. ≤ 25 years) were indicators of acculturation and predicted Hispanic Americans' mood/anxiety disorders in the past year. Prior research has also showed that preferred interview language is a better measure of Asian Americans' acculturation level compared to self-reported English proficiency [33]. The proxy measure of acculturation used in the present study has been used in previous research to show behavioral differences between less and highly acculturated Chinese immigrants and their European American counterparts in physical activity level [37], communication with providers and perceived control [25], and socioeconomic stress [38].

Data Analytic Plan

Preliminary analyses examined bivariate correlations of study variables and the relationships between cancer fatalism with age, education level, acculturation level, and cancer stage. Because the cross-sectional nature of the data did not allow us to support the temporal precedence implication of mediation [39], we refer to "mediation" as an analytic approach to estimate the degree to which the perceived personal control and fear of recurrence accounted for the relationship between fatalism and depressive and anxiety symptoms. The PROCESS macro [40] was used to examine whether the relationships between cancer fatalism and depressive and anxiety symptoms were mediated by perceived personal control and fear of cancer recurrence, controlling for age, education level, and cancer stage. A significant indirect effect was indicated when zero was not present within the lower and upper bounds of the 95% confidence interval. Then, we examined whether acculturation moderated the mediation models, also controlling for age, education level, and cancer stage. All analyses were conducted using IBM SPSS Statistics for Window, version 27.

Results

Sample Characteristics and Preliminary Analyses

Participants were 57.48 years old on average (SD = 10.40). Approximately, 68.2% of the participants were diagnosed with stage 0–I breast cancer and 31.8% were diagnosed with stage II–III breast cancer. Participants reported an average of 32.97 months (SD = 13.96) since they received their diagnosis. 31.8% reported high school or less education and 67.3% endorsed having at least some college experience. 14.1% of the participants were 2nd-generation Chinese Americans (i.e., born in the USA) and 85.9% were 1st-generation Chinese Americans (i.e., foreign-born). Participants were born in mainland China (41.8%), USA (14.1%), Taiwan (18.2%), Hong Kong (15.9%), and from various other Asian countries (e.g., Malaysia, Burma). About 70% of the participants preferred to respond to the survey questions in Mandarin or Cantonese, with the remaining 30% in English. Among the 220 Chinese American breast cancer survivors, 136 participants (62%) were categorized as less acculturated, and 84 participants (38%) were categorized as highly acculturated. Sample characteristics by acculturation level are presented in Table 1. Table 2 presents correlations among study variables. Fatalism was significantly correlated with greater fears of recurrence, lower perceived personal control, and higher depressive and anxiety symptoms (all $p < 0.05$).

Fatalism was positively associated with age such that older Chinese American breast cancer survivors endorsed higher levels of fatalism ($r = 0.19$, $p < 0.01$). Higher cancer stage at diagnosis was associated with higher levels of depressive symptoms ($r = 0.14$, $p < 0.05$), but was not associated with fatalism ($r = -0.04$, $p = 0.58$). Chinese American breast cancer survivors with a graduate education endorsed the lowest level of fatalism ($M = 9.09$, $SD = 3.01$), followed by those with at least some college education ($M = 10.56$, $SD = 3.27$), and finally by those with a high school or less education ($M = 12.90$, $SD = 2.74$), $F(2,215) = 21.10$, $p < 0.001$. Less acculturated ($M = 11.96$, $SD = 9.61$) Chinese American survivors reported higher levels of fatalism than their highly acculturated counterparts ($M = 9.61$, $SD = 3.13$), $t(218) = 5.41$, $p < 0.001$.

Mediation Analyses

Results from the mediation models, which controlled for age, education level, and cancer stage, are presented in Fig. 1. In the depressive symptoms model, fatalism was associated with lower perceived personal control ($\beta = -0.42$, $p < 0.001$) and greater fears of recurrence ($\beta = 0.23$, $p < 0.01$). In turn, greater fear of recurrence ($\beta = 0.26$, $p < 0.001$) was associated with higher depressive symptoms. The test of indirect effect was significant for fear of cancer recurrence (indirect effect point estimate = 0.06, 95% CI = [0.02, 0.11]). Perceived personal control was no longer associated with depressive symptoms after controlling for fear for recurrence, age, education, and cancer stage, and thus was not a significant mediator.

With regard to anxiety symptoms, perceived personal control was no longer associated with anxiety symptoms ($\beta = -0.12$, $p > 0.05$) after controlling for covariates, but greater fear of recurrence was associated with higher levels of anxiety symptoms ($\beta = 0.34$, $p < 0.001$). The test of indirect effects showed that fear of recurrence mediated the association between fatalism and anxiety symptoms (indirect effect point estimate = 0.08, 95% CI = [0.03, 0.13]), but perceived personal control was not a significant mediator.

Moderated Mediation Analyses

The relationships from cancer fatalism through perceived personal control (index of moderated mediation point estimate = −0.02, 95% CI = [−0.005, 0.14]) or fear of cancer recurrence (index of moderated mediation point estimate = 0.02, 95% CI = [−0.05, 0.09]) to depressive symptoms were not moderated by acculturation. Similarly, the relationships from cancer fatalism through perceived personal control (index of moderated mediation point estimate = −0.02, 95% CI = [−0.07, 0.02]) or fear of cancer recurrence (index of moderated mediation point estimate = 0.02, 95% CI = [−0.07, 0.12]) to anxiety symptoms were not moderated by acculturation.

Discussion

Our findings indicated that cancer fatalism was directly and negatively related to depressive and anxiety symptoms. These relationships were mediated by fear of recurrence rather than perceived control, despite a strong bivariate relationship between fatalism and perceived control. Moreover, the results did not support the hypothesis that the relationship between cancer fatalism and depressive and anxiety symptoms would be moderated by acculturation. These findings are in contrast to prior work showing adaptive qualities of cancer fatalism among Chinese and Korean breast cancer survivors [7, 20, 41]. Our findings are more in line with studies among European Americans and African Americans that have pointed to the detrimental effects of cancer fatalism [12].

The bivariate correlations were consistent with past research [14] indicating that lower perceived personal control was associated with higher cancer fatalism and depressive/anxiety symptoms. However, contrary to our hypothesis, perceived personal control was not associated with depressive and anxiety symptoms after controlling for the influence of fear of cancer recurrence in the model and thus perceived personal control did not mediate the relations between cancer fatalism and depressive and anxiety symptoms. This

suggests that fear of recurrence is a more robust mechanism through which cancer fatalism was associated with anxiety and depressive symptoms— highlighting a potential target for improving mental health in the development of psychosocial interventions for reducing cancer fatalism among Chinese American breast cancer survivors.

Interestingly, acculturation was not a significant moderator of the association between cancer fatalism and perceived personal control and fear of cancer recurrence in the present study. This is inconsistent with previous research findings that cancer fatalism was less harmful and, in some cases, adaptive among Chinese breast cancer survivors [7, 20, 41]. This may be partially attributed to differences in how cancer fatalism was assessed in these studies. Prior research used the cancer fatalism subscale of the Mini-Mental Adjustment to Cancer Scale (Mini-MAC), which included items that contained more positive valence (e.g., “Counting blessings and “Life is precious”). In fact, in one study that examined the factor structure of the Mini-MAC among Taiwanese breast cancer survivors, the cancer fatalism subscale loaded on to two separate factors—labeled “adaptive benefit-finding” and “passive fatalism,” respectively [42]. Interestingly, the passive fatalism factor, which was similar to the items used in the current study, was also associated with greater depressive and anxiety symptoms, whereas items from the “adaptive benefit-finding” subscale were not associated with psychological distress. In this vein, our findings suggest that even among the less acculturated Chinese American breast cancer survivors who are more likely to hold the Chinese concept of *Ming*, the fear of cancer recurrence that is associated with the passive acceptance of one’s fate is debilitating enough for psychological distress.

Study Limitations

There are several limitations in the present study that should be considered. First, the cross-sectional data limits our ability to make causal conclusions. However, the use of mediation in the present study was modeled based on well-founded theoretical foundations for the causal direction, as well as prior findings, and thus cross-sectional mediation has the potential to reveal causal mechanisms [43, 44]. Indeed, the use of cross-sectional data for mediation can show a “snapshot” of the relationships among the variables, especially when these relationships are understudied in Chinese cancer survivors. Second, the assessment of acculturation in this study focused on language use, English proficiency, and years of immigration. It may have measured more on behavioral acculturation without taking the value-based acculturation (e.g., engaging in American foods and making American friends) into account. It is unknown whether there may be different study results when using a value-based acculturation scale. Future studies may adopt a value-based assessment of acculturation to examine the replicability of the current findings. Third, our sample of Chinese American breast cancer survivors were recruited from California, a highly multicultural and multiethnic environment. The results may not be applied to Chinese Americans living in other geographic areas. Furthermore, the current study focused on breast cancer survivors. The relationships between fatalism and psychological distress may not be the same among patients who are newly diagnosed with breast cancer and still receiving primary breast cancer treatment. To thoroughly investigate how cancer fatalism affects cancer patients’ psychological distress, more research is needed to clarify the temporal relations between cancer fatalism and mental health and confirm whether our

current findings generalize to those who are in treatment. Nonetheless, the present study contributed to our understanding of acculturation, cancer fatalism, and psychological distress for Chinese American breast cancer survivors.

Clinical Implications

Findings from the present study have clinical implications. First, healthcare providers need to be aware that Chinese American breast cancer survivors who are older and have lower educational attainment endorsed higher levels of cancer fatalism, which was associated with anxiety and depressive symptoms. Second, cancer fatalism is likely modifiable. For instance, Powe and Weinrich [45] used a psychoeducation-based video intervention to reduce cancer fatalism among a sample of rural elders. While not conducted among individuals with cancer, a recent study improved Chinese American's anxiety symptoms by culturally adapting cognitive behavioral therapy to include elements of Taoism [46]. Similar approaches may be applied to develop culturally appropriate psychosocial and educational interventions for Chinese American breast cancer survivors. Our findings suggest that future cognitive-based psychotherapies may consider the role of cancer fatalism in Chinese breast cancer survivors' experience of anxiety and depressive symptoms—with a focus on reducing cancer fatalism and fear of cancer recurrence as intervention targets. This study contributes to clarify theoretical views of cancer fatalism among Chinese American breast cancer survivors, disentangle these relationships with emotional sequelae of breast cancer, and identify ways to improve psychological well-being among the growing, but underserved, population of Chinese American breast cancer survivors.

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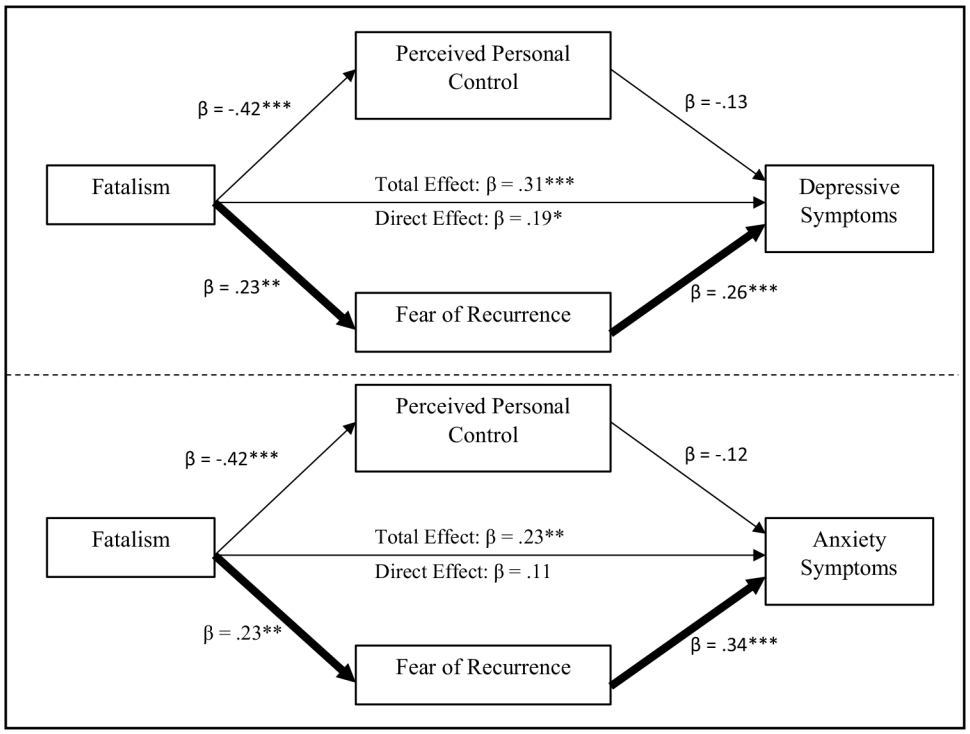

Fig. 1.

Perceived personal control and fear of recurrence as mediators of the link between fatalism and depressive and anxiety symptoms. Covariates include age, education level, and cancer stage. Bolded lines indicate a significant indirect effect through the mediator. *$p < .05$. **$p < .01$. ***$p < .001$

Table 1

Sample characteristics

Characteristics	Low-acculturated Chinese (*n* = 136)	High-acculturated Chinese (*n* = 84)	*p*-value
Age (*M/SD*)	58.69 (10.40)	55.52 (10.17)	.03
Education level, *n* (%)			
High school or less	66 (48.9%)	4 (4.8%)	< .001
Some college or college	56 (41.5%)	58 (69.9%)	
Graduate degree	13 (9.6%)	21 (25.3%)	
Cancer stage, *n* (%)			< .01
Stage 0-I	94 (69.1%)	56 (66.7%)	
Stage II-III	42 (30.9%)	28 (33.3%)	
Married, *n* (%)	102 (75.56%)	54 (64.29%)	.12
Employed, *n* (%)	61 (44.85%)	58 (69.05%)	< .001
Insured, *n* (%)	133 (98.52%)	84 (100%)	.11
Time since diagnosis, *n* (%)			.20
≤ 36 months	82 (60.29%)	56 (66.67%)	
> 37–60 months	54 (39.71%)	28 (33.33%)	
Cancer fatalism (*M/SD*)	11.96 (3.15)	9.61 (3.13)	< .001
Perceived personal control (*M/SD*)	10.95 (3.60)	12.47 (2.94)	< .001
Fear of recurrence (*M/SD*)	4.65 (2.09)	4.96 (1.56)	.10
Depressive symptoms (*M/SD*)	47.50 (9.01)	45.02 (7.49)	.02
Anxiety symptoms (*M/SD*)	49.10 (9.70)	48.74 (8.30)	.39

Frequency in cell sizes may not add up to total number of low and high-acculturated Chinese American breast cancer survivors due to missing data

Table 2

Descriptive statistics and zero-order correlations among study variables

	1	2	3	4	5
1. Cancer fatalism	–				
2. Perceived personal control	–.39***	–			
3. Fear of recurrence	.18**	– .30***	–		
4. Depressive symptoms	.28***	– .32***	.35***	–	
5. Anxiety symptoms	.16*	– .29***	.42***	.78***	–
M	11.06	11.52	4.77	46.55	48.96
SD	3.34	3.44	1.91	8.53	9.17

* $p < .05$

** $p < .01$

*** $p < .001$