

Illness life change, illness-related distress, perceived control, self-care behaviors, and depression in chronic patients: A dual illness adaptation path

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Depression is the key issue of patients with chronic disease that has received the most attention. The purpose of this study was to examine the influence of chronic disease patient on suffered depression how through the multiple components influenced complex process from illness adaptation. The participants comprised 227 clinic patients, 110 patients with hypertension and 117 patients with type 2 diabetes and male 121, female 106. The mean age is 60.94. Five scales were conducted by invited inform consent procedure, the scales including illness life change scale, expectancy health control scale, chronic illness-related distress scale, self-care behaviors scale and Beck Depression II scale. The results show that the research hypotheses are partially supported by the significant direct effects and indirect effects in our path model. The relationship between the illness life change and depression may mediate by illness-related distress, and self-care play mediating role between expectancy control and depression. We discussed the contributions and implications of the bi-route mediating model of illness adaptation affecting depression as well as the clinical applications and future research suggestions. Finally we also discussed the limitations of the study.

Keywords: *chronic disease, depression, illness-related distress, expectancy control, self-care*

Depression is a key chronic or recurrent problem faced by chronic disease patients when adapting to their ongoing treatment. It impairs patients' daily self-care, and is associated with adverse health outcomes, poor quality of life, and the exacerbation of disease progression (Larson, 2009; Sarafino & Smith, 2017; Moussavi et al., 2007). It increases the burden of medical symptoms and results in functional impairment, poor adherence to self-care regimens, and a higher risk of morbidity and mortality (Katon, 2011).

As the prevalence rates of chronic diseases continue to rise in Taiwan, and the burden of depression and other psychological conditions increases globally, there is an urgent need to better understand and intervene in the interplay between psychological conditions and diseases (Lee, 2007; Lee, 2015). Although multiple factors influence the complex process of illness

adaptation (Polenick, Martrie, Hemphill, & Stephens, 2015), researchers have emphasized the need to ameliorate emotional distress as a component of ongoing comprehensive care for all patients (Fisher, Mullan, Arean, Glasgow, Hessler, & Masharani, 2010). For instance, certain lifestyle changes (especially dietary self-care) are longitudinally associated with psychological distress and depression (Wing, Phelan, & Tate, 2002). Patients with chronic disease experience rapid life changes related to their illness, which constitute a source of continued and unavoidable distress that is detrimental to physical and psychological well-being (Fryling, 2008; Taylor & Aspinwall, 1996). Therefore, we attempt to determine whether a higher rate of illness-related life changes leads to more illness-related distress, and whether such distress increases the likelihood of depression.

However, although patients facing illness-related

life changes and distress may more experience depression symptoms, not all face their situation passively. According to the social cognitive theoretical framework, patients may have learned from the challenges associated with their chronic diseases how to cooperate with doctors and seek good medical resources and disease self-management strategies (Leach & Schoenberg, 2008). Although illness-related life changes or distress may impact illness management, perceived control over future events allows one to believe that an unfavorable event is manageable or will not be repeated (Taylor, 1983). Perceived control may positively affect health by increasing coping efforts and persistence, providing a positive self-image, and reducing distress (Bandura, 1977). Many studies have shown that perceptions of control facilitate adjustment to chronic illness (Taylor & Brown, 1988; Taylor, Lichtman, & Wood, 1984). However, researchers have also noted that unrealistic perceptions of control may have negative health outcomes because patients with severe chronic conditions are vulnerable to disconfirmation. Little research has focused on how perceived control and its relationship with the daily activities of self-care are more or less adaptive in response to depression in non-fatal chronic patients. Interestingly, the findings of our research show that patients' self-care mediates the relationship between expectancy of health outcome control and depression.

Cramm and Nieboer (2012) suggest that all diabetes patients, even those whose diabetes-related emotional distress reaches the level of major depressive disorder, can benefit from directing self-care effectively based on the content of their emotional distress. Self-care can be seen not only as a process of managing and adapting to one's illness, but also as a major outcome of that process. Perceived control should be cultivated to maximize patients' ability to engage in everyday activities despite their illness. This is a fundamental goal of healthcare (Ausili, Masotto, Dall'Ora, Salvini, & Mauro, 2014).

Based on this literature review, chronic disease patients adapting to their illness may experience either a route to depression via illness-related life changes (the life changes risk route) or a route away from depression via the protective effect of perceived control by engaging more self-care behaviors. Thus, this study aimed to

investigate (a) whether illness-related distress mediates the link between perceived life changes and depression; (b) whether patients with more perceived health control engage more in self-care behaviors, potentially alleviating the risk of depression; and (c) the nature of the relationships between the life changes risk route and the expectancy protective route.

Methods

This study recruited 227 chronic disease patients: 110 (48.5%) with hypertension and 117 (51.5%) with type 2 diabetes. The average age was 60.94 years, and 121 (53.5%) of the patients were male and 106 were female (46.7%). In terms of education level, 68 (30.30%), 64 (28.7%), 69 (20%), and 22 (9.7%) of the participants had attended junior high school or lower, senior high school, college, and graduate school, respectively.

The study was conducted in the family medicine clinic at a medical center in northern Taiwan. Physicians referred eligible patients to our research staff. After receiving an introduction to the study, patients who agreed to participate provided written informed consent. Next, demographic and research data were collected using self-reported questionnaires. Each questionnaire contained an illness life change scale (Wu, 2009), an expectancy health control scale (Chen, 2014), a chronic illness related distress scale (Ren, 2006), a self-care behaviors scale, and the Beck Depression II scale (Beck, 1996).

1. The six-item **illness life change scale** (Wu, 2009) was administered to assess changes in psychosocial functioning due to the patient's illness in six domains: (a) energy, (b) sleep quality, (c) work efficiency, (d) daily activities, (e) family or other relationships, and (f) self-value. Responses were given on a scale ranging from 1 (never) to 5 (always), where higher scores indicated more perceived negative life changes. Cronbach's α was .88.
2. The six-item **expectancy health control scale** (Chen, 2014) was administered to assess the degree of belief in and expectancy of health control due to medical intervention by doctors or self-management by the patient. Responses were given on a scale ranging from

0 (never) to 5 (always), where higher scores indicated a stronger perception of disease control through treatment. Cronbach's α was .74.

3. The six-item **chronic illness related distress scale** (Ren, 2006) was administered to assess the experience of distress caused by the patient's illness, as manifested in anxiety, worry, sadness, anger, etc. Responses were given on a scale ranging from 0 (0% true) to 5 (100% true), where higher scores indicated that more illness-related distress was felt. Cronbach's α was .78-.82 (Ren, 2006; Huang, et al., 2018).
4. The 15-item **self-care behaviors scale** (Chen, 2014) was administered to assess health- or illness-related self-care behaviors. Anchors ranged from 0 (never) to 5 (always), where higher scores indicated more healthy self-care efforts. Cronbach's α was .86.
5. The **Beck Depression Inventory II—Chinese Version** (Beck, 1996; Chen, 2000) comprises 21 questions. Each answer was scored on a Guttman scale ranging from 0 to 3, where higher total scores indicated more severe depressive symptoms. Cronbach's α was .93.

Results

The path analysis results (Figure 1) showed that "illness life change" significantly predicted "illness-related distress" ($\beta = .36, p < .001$), "self-care" ($\beta = -.13, p < .05$), and "depression" ($\beta = .30, p < .001$), but not "Expectancy health control" ($\beta = .01, p = .88$). "Expectancy health control" significantly predicted "self-care" ($\beta = .33, p < .001$) and "depression" ($\beta = -.13, p < .05$), but not "illness-related distress" ($\beta = .08, p = .23$). "Self-care" significantly predicted depression ($\beta = -.13, p < .05$), but not "illness-related distress" ($\beta = -.10, p = .14$). Furthermore, "illness-related distress" significantly predicted "depression" ($\beta = .21, p < .01$).

An indirect effect test using bootstrapping revealed two significant paths (Table 1). The first was from "illness life change" via "illness-related distress" to "depression" ($p < .01$), and the second was from "expectancy health control" via "self-care" to "depression" ($p < .05$). One of the cross-route paths, from "illness life change" via "self-care" to "depression," was nearly significant (p

$= .053$), but the other three cross-route paths (from "expectancy health control" via "illness-related distress" to "depression" ($p = .079$); from "expectancy health control" via "self-care" and "illness-related distress" to "depression" ($p = .079$); and from "illness life change" via "self-care" and "illness-related distress" to "depression" ($p = .078$)) were insignificant. The squared multiple correlation coefficient of depression for the full model was .24.

The research hypotheses were partially supported by the significant direct and indirect effects in our path model. The relationship between illness life change and depression was mediated by illness-related distress, and self-care played a mediating role between expectancy control and depression.

Conclusions and Discussion

Here, we discuss the contributions and implications of the dual route (risk vs. protective) mediation model of depression in patients adapting to chronic diseases. The results indicate that (a) patients with chronic diseases who perceive more life changes and suffer more illness-related distress may have a higher risk of depression; and (b) chronic disease patients who show greater perceived health control and engage in more self-care behaviors may have better protection against depression.

In terms of clinical applications, the results indicate that promoting self-care behavior with high expectancy control can help prevent depression (NINR, 2011). They also emphasize the need to help patients avoid accumulating distress about their illness-related life changes, as such distress is associated with depression (Winchester, Williams, Wolfman, & Egede, 2016). The dual route mediation model of illness adaptation indicates that two mediating factors, self-care and illness-related distress, affect the probability of depression. These two factors play essential roles in disease management. The results suggest that promoting appropriate daily self-care and fostering the ability to regulate the distressing emotions aroused by illness-related life changes may make patients more willing to commit to an action plan for illness adaptation (Kennedy, Rogers, & Bower, 2007),

and may decrease their risk of depression.

Which theory best explains the prevalence of comorbid depressive disorders among patients with chronic diseases? In our study, the possible mechanisms of the intermediary part of the dual-route path model favored the behavioral activation theory of depression (Jacobson, Martell, & Dimidjian, 2001). When life changes and failed self-actions cause more losses than reinforcements, leading a patient to experience more

distress, depression may be activated through the complex cognitive and behavioral process of illness adaptation. Based on our model, clinical applications focusing on adaptation to chronic illness may benefit from enhancing patients' daily emotional regulation and providing a self-care plan to improve their quality of life that is tailored to their particular circumstances (de Ridder, Geenen, Kuijer, & van Middendorp, 2008; Matcham et al., 2014; Richard & Shea, 2011).

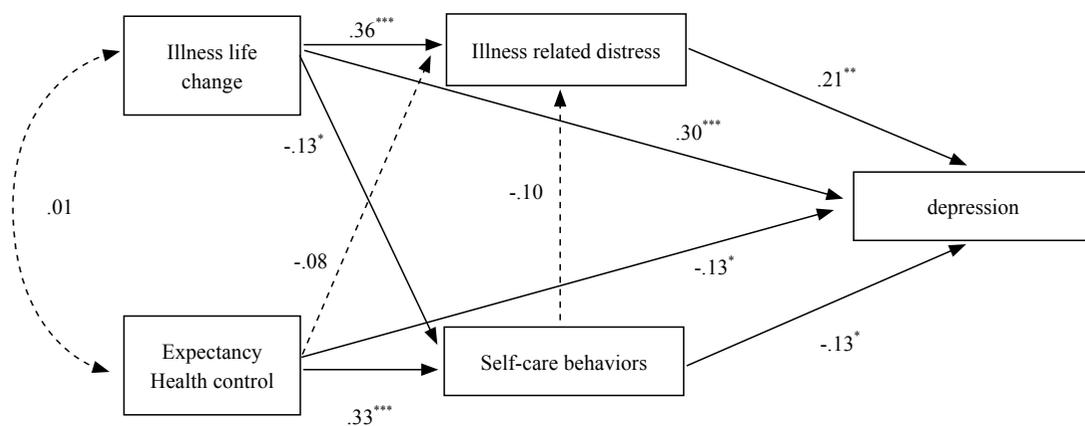


Figure 1. The results of path analysis on the dual illness adaptation paths model of depression in chronic patients. Standardized β coefficient presented in the figure. Solid line indicates significant route, dashed line indicates insignificant route.

* $p < .05$; ** $p < .01$; *** $p < .001$.

Table 1. Statistic table of indirect effect among variables in dual paths model

	Indirect effect	95%CI	p
Life change \rightarrow depression	.110	(.036, .154)	.002
Life change \rightarrow illness distress \rightarrow depression	.087	(.031, .172)	.003
Life change \rightarrow self-care \rightarrow depression	.020	(.000, .076)	.053
Life change \rightarrow self-care \rightarrow illness distress \rightarrow depression	.003	(.000, .016)	.079
Expectancy control \rightarrow depression	-.045	(-.144, .022)	.205
Expectancy control \rightarrow illness distress \rightarrow depression	.022	(-.006, .069)	.079
Expectancy control \rightarrow self-care \rightarrow depression	-.058	(-.152, -.005)	.035
Expectancy control \rightarrow self-care \rightarrow illness distress \rightarrow depression	-.009	(-.037, .001)	.078
Life change \rightarrow illness distress	.016	(-.006, .054)	.206
Expectancy control \rightarrow illness distress	-.048	(-.129, .015)	.151
Self-care \rightarrow illness distress	-.013	(-.039, .004)	.155