

Concept Analysis of Perceived Control

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Background. Perceived control is a personality characteristic that contributes psychological adjustment. It was derived from various theories, so that definitions of perceived control were ambiguous meaning. Disclosing concept of perceived control is required.

Objective. The analysis aims to identify definition and use of perceived control, examine the basic attributes of perceived control, and the measurements of perceived control.

Method. Databases searched for electronic journals and books that were published from 1994 to 2010 were analyzed.

Result. Perceived control is personal belief that refers to controllability on behalf of one's self and ability to control threats or events. The use of perceived control includes maternal, pediatric, medical, surgical, psychiatric, community nursing, and pain management. Perceived control was composed of two dimensions: belief about controllability and belief about ability to control to threats.

Conclusion. Instrument of Anxiety Control Questionnaire most closely corresponds to two dimensions: belief about controllability and ability to control. Defining attributes and dimensions of perceived control are useful for developing tool.

Keywords: perceived control, controllability, ability to control, and agency

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Background

Perceived control is a personality characteristic that contributes to personal development and psychological adjustment to threats or events. Concept of perceived control is related to several theories. Jacelon (2007) reported perceived control which was conceptualized in Social Learning Theory. The concept also attaches under self-efficacy and control in Social Cognitive Theory (Bandura, 1997). Perceived control is formulated from primary and secondary control within Lifespan Theory of Control (Schulz & Heckhausen, 1996). In the framework of Person/Environment, perceived control represents control beliefs for demands and resources (Wallhagen & Lacson, 1999). Conceptualization of perceived control results from subjective and perceived behavioral control in Theory of Planned Behavior (Ajzen, 2002). Lazarus and Folkman (1984) also stated control expectancy which consists of general and specific control. Because perceived control was derived from various theories, the definitions of perceived control were ambiguous meaning.

Perceived control has been measured with various tools based on different theories. Perceived control was measured with the Perceived Control Questionnaire (PCQ) (Wallhagen & Lacson, 1999), Control Attitudes Scale (CAS) (Moser et al., 2007), the Anxiety Control Questionnaire (ACQ) on prediction of worry outcome (Chapman, Kertz, & Woodruff-Borden, 2009), Modified Mastery Scale (MMS) (Kempen et al., 2005), Personal and Interpersonal Scale (PIS) (McColl et al., 2000), Recovery Locus of Control (RLOC) (Johnston, Morrison, Macwalter, & Partridge, 1999), and Personal Control Inventory (PCI) (Faller, Lang, & Schilling, 1995). In fact, use of tools of perceived control has to consider what phenomena will be assigned. It is therefore essential for development of nursing knowledge to identify the concept of perceived control and clarify correlation with other concepts, such as fear, worry, and depression. Concept of perceived control is also beneficial to help patients to deal with internal and external threats.

Objectives

The analysis aims to identify definition and use of perceived control, examine the basic attributes of perceived control, and the measurements of the perceived control.

Method

Electronic retrieval was performed for identifying definitions of perceived control. The key words were used for searching database of the Cumulative Index of Nursing and Allied Health Literature (CINAHL), Medline, Pubmed, Sciencedirect, and Blackwell Synergy for published English papers from 1994 to 2010 that contained the following terms: perceived control, comfort, adaptation, coping, anxiety, pain, hardiness, resilience, and personality used separately and in combination with each other. The papers were analyzed for defining concept of perceived control. Textbook and dictionary were also searched for the concept.

Concept analysis to define perceived control was applied of Walker and Avant (2005) approach. The analysis composes of definition, use, attributes, model case, borderline case, contrary case, antecedents, consequences, and empirical references of perceived control. The analysis also contributes concept development of perceived control in developing tool.

Results

Definitions of perceived control

The Encarta World English, North American Edition (2008) defines 'perceive' as notice using senses: to notice something, especially something that escapes the notice of others. Definition of 'control' is the ability or authority to manage something or to direct something in circumstances beyond our control. In synonym of Thesaurus, perceive indicates to notice, recognize, and become aware of internal and external responses. Control refers to maintain, manage, have power, be in command, overcome, and handle. Table 1 has shown 12 studies stating definitions of perceived control. The definition depended on which theory used was commonly identified as personal belief that individual has controllability on behalf of one's self and ability to control threats or events.

Uses of the concept

Previous studies have indicated various disciplines that utilize the term of perceived control, such as Psychology, Social Learning Theory, Social Cognitive Theory, Lifespan Theory of Control, Person/Environment, Theory of Planned Behavior, and nursing. Jacelon (2007) found that there was no attempt to conduct an all-inclusive review of the use of perceived control across various theories. Regarding to nursing intervention

and outcomes of patients, the majority of the literature has studied in maternal, pediatric, medical, surgical, psychiatric, community nursing, and pain management. Therefore, there was direction to enhance perceived control to improve psychological and physical outcomes.

Perceived control has been applied in maternal nursing to understand phenomena of patients and give intervention. Non pregnant women in Pennsylvania stayed with partner, mature, high education, and good health status likely had high perceived control in considering a future pregnancy and giving birth (Weisman et al., 2008). Hong Kong Chinese first time pregnant women demonstrated a negative relationship between perceived control and maternal anxiety during latent phase, active phase ($r=.3$, $p<.01$), and labour ($r=.2$, $p<.05$) (Cheung, Ip, & Chan, 2007). Mothers screened for children 2-24 months with a positive attitudes and perceptions of personal control tended to have their children immunized (Prislin, Dyer, Blakely, & Johnson, 1998). For nursing intervention, supportive care from nurses during mother giving birth improved significantly perceived control and reduced anxiety and negative mood ($F(1,131)$, 137.81, $p<.001$) (Ford & Ayers, 2009). Non pregnant and lactating women administered with control or cognitive coping significantly reduced cortisol responses as manifested as stress responses to threats (Abelson, Khan, Liberzon, Erickson, & Young, 2008).

In pediatric nursing, perceived control has been explored to identify the impacts of perceived control on psychological and physical outcomes. Children and adolescents tended to have high perceived control when they feel less anxious (Hogendoorn et al., 2008). More specific situation, children of agoraphobic parents with high anxiety and fear perceived less control over various risks (Capps, Sigman, Sena, Henker, & Whalen, 1996). For physical outcomes, children with asthma had high-perceived control showing good pulmonary functions: good forced vital capacity, forced expiratory volume $r=.05$, $p<.01$, peak expiratory flow rate ($r=-.41$, $p<.05$). They also tended to decrease production of the cytokines interleukin-4 (IL-4), IL-5, and IL-13 ($r=$ (Griffin & Chen, 2006).

For medical nursing, perceived control has been found to understand patients with myocardial infarction and osteoarthritis. The interaction between perceived control and anxiety could predict significantly cardiovascular complications in patients with myocardial infarction. Patients with high perceived control had significantly lower anxiety than those who had low perceived control ($p=.001$). Both high anxiety and low perceived control were associated with high risk of complications of patients with myocardial

infarction, such as ventricular tachycardia, ventricular fibrillation, reinfarction, and ischemia (Moser et al., 2007). Patients with myocardial infarction had high perceived control feel less depression ($t=-7.81$, $p<.001$), demonstrated good hostility ($t=-5.30$, $p<.001$), and functional status by walking for 6 minutes ($t=4.77$, $p<.001$) (Dracup et al., 2003). In osteoarthritis women with activity restriction, perceived control and coping with avoidance technique could lessen individually depressive symptoms (Rivard & Cappelliez, 2007).

Perceived control has been disclosed for surgical patients. Pellino and Ward (1998) found the function of perceived control to mediate between pain severity and satisfaction in patients with post orthopedic surgery. Older women with post-fractured neck femur surgery developed good perception of control that correlated significantly with less physical disability as dependent activities in daily living during 30 days post surgery ($p<.01$) (Shaw, McColl, & Bond, 2003). Patients with post-coronary arterial by-pass graft surgery also had good perception of control able to decrease severity of physical symptoms, such as fatigue and pain ($r=-.29$, $p<.05$) and negative affectivity ($r=-.36$, $p<.01$) during two weeks (Bar-Tal, Gardosh, & Barnoy, 2006).

In psychiatric nursing, perceived control has also been described in patients with mental illness. They developed sense of control in particular self-mastery indicating few general psychiatric symptoms ($r=-.52$, $p<.001$) and depressive symptom ($r=-.46$, $p<.001$). There was significant relationship between self-mastery and well-being: psychological health ($r=.6$, $p<.001$), life satisfaction ($r=.49$, $p<.001$), sense of coherence ($r=.64$, $p<.001$), and self-esteem ($r=.63$, $p<.001$) (Eklund & Backstrom, 2006).

For community nursing, perceived control has been studied for home care. Perceived control considerably predicted recovery in a month ($r=.29$, $p<.05$) in stroke patients during 20 days after discharge. Consistently, perceived control was negatively correlated with anxiety ($r=-.24$, $p<.05$) and depression ($r=-.38$, $p<.01$) faced by patients with stroke (Johnston et al., 1999). Another impact of high-perceived control was low posttraumatic stress disorder 3 to 6 months after experiencing myocardial infarction (Doerfler, Paraskos, & Piniarski, 2005). A prospective study reported that high-perceived control had a positive benefit on physical functional change in patients with post coronary artery bypass grafting after discharge to 6 months (Barry, Kasl, Lichtman, Vaccarino, & Krumholz, 2006). In cohort study, low perceived control also could predict mortality in women with low socioeconomic inequalities (Bosma, Schrijvers, & Mackenbach, 1999).

Perceived control also could predict worry both African American and European American young adults as students (Chapman et al., 2009).

Several studies reported perceived control over pain to improve pain management. The impact of perceived control over pain was beneficial to patients when overcame distress and disability (Wells, 1994). For nursing intervention, progressive muscle relaxation was effective to decrease pain intensity ($z=-1.82$, $p<.05$) and enhance perceived control over pain in patients with cancer ($z=-3.02$, $p<.01$) (Kwekkeboom, Wanta, & Bumpus, 2008). In nurse development, McNeil, Reynolds, and Ney (2007) reported that the positive impact of perceived control over pain could improve quality of pain management in cancer patients.

Defining attributes

Based on Walker and Avant approach (2005) guideline, the defining attributes of perceived control often appear in references and have most association to the concept as follows: (a) locus of control, (b) perceived agency, (c) control and mastery, (d) personal and interpersonal agency, (e) individual belief, (f) self-efficacy and controllability, (g) personal control and interpersonal control, (h) personal responsibility, (i) perceived others' control, (j) mastery and self-efficacy, (k) extend to which one assumes oneself to have control over life changes, (l) control over life events, (m) perceived behavioral control, (n) controllability, (o) behalf on own self, and (p) belief in ability to cope. From those attributes, concept of perceived control was initially derived from personal control concept on physical and psychological well-being in nursing (Bowsher & Gerlach, 1990). In the study of relationship between perceived control over pain to distress and disability, Wells (1994) found that perceived control over pain consisted of dimensions: belief about controllability, belief about ability to cope, and expectations about outcomes. Trope (2003) also categorized similar dimensions of self-attribute: perceived control over possession of attribute and perceived control over expression of the attribute in behavior or performance. Perceived control over possession of attribute in behavior reflects the belief that is changeable or unchangeable. Perceived control over expression of attribute in behavior refers to the belief that is capable or incapable of controlling the expression of the attribute in behavior or performance. After clustering the attributes of perceived control within various theories, the concept can be initially classified in two dimensions: belief about controllability and belief about ability to control.

Firstly, controllability refers perception of personal belief which responds threats. Person maintains and manages one's physical and psychological threats to reach well-being as outcomes (Table 1). Dimension of controllability means perceptions of how much control that person can handle situation in lives (Johnston et al., 1999). Belief in personal control is combination between personal agency and interpersonal agency and the efforts from insight power and the extent to which external viewed threats and personal emotional reaction is under own control (McColl et al., 2000).

Secondly, belief about ability to control refers to responsive control as the extent to which individual assumes threats over life events. Person has power to manage or handle basic threats as out stimuli to gain well-being. In Table 1, belief about ability to control was derived from Theory of Planned Behavior (TPB), Social Cognitive Theory, Lifespan Theory of Control, and Person/Environment Framework. Rhodes and Courdeya (2003) revealed that perceived control was derived from concept of perceived behavior control in TPB. Perceived behavioral control is composed of control beliefs, the perceived presence of factors that may facilitate or inhibit performance of behavior (Ajzen, 2002). Perceived control in Theory Lifespan of Control is perception of external influence over outcomes or events in environment or person's success (Chipperfield, Campbell, & Perry, 2003). In person/environment framework, perceived control is defined as the perception of valued aspects to manage life being manageable (Wallhagen & Lacson, 1999). External locus of control is motivated from other power to produce efforts. Situational control refers to a belief in ability to control specific situation (Lazarus & Folkman, 1984).

Model case

Walker and Avant (2005) guide a model case which demonstrates the defining attributes of the concept. It is a pure case of perceived control as follows:

Case (1)

Mr. Ali is a 45-year-old man who is going to have abdominal surgery. Ali develops preoperative anxiety before his turn to operating room. Ali believes that he can deal with preoperative anxiety. Ali starts reading the Holly Qur'an intensively before admitting in operating room. He also continues reciting prayer by himself to reduce his preoperative anxiety before he is unconscious.

This case indicates two critical attributes of perceived control. Ali has belief about controllability to deal with preoperative anxiety. Ali also has belief about ability to control preoperative anxiety by reading the Holly Qur'an and by reciting prayer.

Borderline case

Walker and Avant (2005) reveal that borderline case provides an example case that shows most of defining attributes, but differs substantially with mode case such as intensity of occurrence, for instance:

Case (2)

Mrs. Salma is a 35 year old who had breast surgery. She suffers from postoperative pain after conscious. She believes that she could control over postoperative pain after nurse assess her pain level as much as wounded by kitchen knife. She tries to rub surrounded wound to distract her pain. After 2 hours surgery, she starts grinning and yelling pain because of pain. Nurse assesses her pain level and teaches her relaxation to relive pain, but she does not perform it effectively. She proposes to be given painkiller to alleviate her pain. Nurse administers pain control administration (PCA) in proper dosage. In fact, she remains grinning pain she thinks drug not work.

This patient believes that she can manage postoperative pain based on her experience and ability. This represents her controllability. However, she could not manage when severe pain comes. This phase she does not have ability to control her pain by effective relaxation, even though she was administered with painkiller.

Related case

Related cases represent to similar cases that indicate commonality of attributes of perceived control, but do not include all of them (Walker & Avant, 2005). The following case shows coping mechanism of asthma attack. This example contains coping ability to control in asthma attack, but he does not perceive personal belief about controllability in asthma attack and relies on asthmatic inhaler to handle the problem.

Case (3)

Mr. Toha is a 45 year old who suffers from asthma by dust allergen. He always brings his asthmatic inhaler with him. He walks along the road and the truck is passing that produces dust over the air. He tries to cover his mouth and nose with

handkerchief. Unfortunately, he is sensitive with dust and he gets asthma attack. He takes asthmatic inhaler and deep breathing to relieve his breathless. After few minutes, he stops walking and sit under the tree to make him relief and comfort after asthma attack.

Contrary case

Contrary case describes an example that is not model case definitely (Walker & Avant, 2005). This case shows that she does not have belief about controllability and ability to control her self when she lost her son, which is valuable in her life.

Case (4)

Mrs. Shofie is a 25-year-old widow mother who lost her beloved single son due to Dengue High Fever. She is very sad and cries a lot by saying frequently 'Mom cannot live without you baby...' She always cries. She stops crying, but stays alone. She does not like to have anything to drink and meal.

Antecedents and consequence

According to Walker and Avant (2005) antecedents are incidents which occur prior to apply the concept. The various antecedents to perceived control are the situations, which lead discomfort, pain, anxiety, distress, fear, worry, uncertainty, loss, and adversity. The antecedents include hospital admission, surgery, terminal illness, chronic illness, and admission in ICU. Person has to manage these threats within the period.

Consequences are those outcomes resulted from the occurrence of the concept of perceived control (Walker & Avant, 2005). Consequences of perceived control range a continuum from ease to mastery. Consequence of perceived control to the extent to which she/he faces loss of beloved one or the fact is amenable. The outcome of perceived control dealing with discomfort, distress, and pain is comfort and relief (Siefer, 2002). The functions of perceived control to the one who responses to adversity and stress are as buffer to deal with the threats to perform effective coping behaviors, and develop hardiness (Lambert & Lambert, 1999). Other consequences of perceived control are effective coping, positive adaptation, adjustment, initial resilience, and mastery (Earvolino-Ramirez, 2007; Skinner & Greene, 2007), results in a developmentally acquired and stable personality characteristic (Bullers, 2000).

Empirical referents

Empirical referents are classes or categories of actual phenomena by their existence or presence demonstrate the occurrence of the concept itself (Walker & Avant, 2005). Concept of perceived control is measured by different tools depending on variables stated from various study and population in Table 2. The instruments of perceived control show among variables of the study, sub-dimensions, and items, which evaluate personal belief according theoretical framework. These instruments might have discrepancies among sub-dimensions of perceived control with respect to theories. Jacelon (2007) also found that various tools are composed to measure perceived control in global and specific use. However, three common instruments were identified to measure dimensions of perceived control, which included Attitudes Control Scale, Anxiety Control Questionnaire, and Perceived Control Questionnaire. Perceived Control Questionnaire consists of sub-dimensions; personal responsibility and perceived others' control which were 30 items in Likert-like scale and reliability of 0.93. Perceived Control Questionnaire most closely corresponds with defining attributes of perceived control determined in this concept analysis (Wallhagen & Lacson, 1999). ACS and ACQ particularly evaluate anxiety, even though they are from different theoretical framework. ACQ initially developed based on personal control composed of 30 items, which each item was rated from 0 to 5. Evaluation of ACQ consisted of two dimensions: perceived control over internal emotional reactions and perceived control over external events (Bonetti et al., 2001; Rapee, Craske, Brown, & Barlow, 1996). The current evaluation of ACQ resulted in 3 dimensions: emotional control, threat control, and stress control as well as 15 items (Brown, White, Forsyth, & Barlow, 2004).

Discussion

This section covers the attributes and usefulness of perceived control, and the caution of applying measurement. The exclusion of study encompasses expectations of outcome, perceived control in developmental change, and family. Wells (1994) mentioned that perceived control over pain consisting of belief about controllability, ability to control, and expectations of outcome including both positive and negative expectation of outcomes. The negative expectation of outcome or catastrophizing is contrary with belief about controllability and ability to control. Expectation of outcome is therefore not included in the attributes of perceived control, but includes in coping concept. Coping case

is contrary with model case. Respect to psychology study, Skinner and Greene (2007) divided three dimensions of perceived control: engagement, coping, and development. The scope of this concept of perceived control is involved in developmental change, so that Skinner and Greene study's is excluded in this concept analysis. However, suggestion of Skinner and Greene (2007) should be considered for including many theories in conceptualization of perceived control within theories such as value-expectancy models (Wigfield & Eccles, 2000), Causal Attributions Theory (Weiner, 2005), Learned Helplessness Theory (Seligman, 1975), and Theory of Explanatory Style (Peterson, Maier, & Seligman, 1993). Moreover, the study of family phenomenon was not included in classification of dimension of perceived control. Sokolowski and Israel (2008) evaluate perceived anxiety control of family on stability and adjustment. Even though the result was perceived anxiety control as mediator of relationship between family stability and adjustment as indicated by symptoms of depression and anxiety.

The current critical analysis has attempted to elaborate concept of perceived control properly. Perceived control obviously consists of two sets of defining attributes namely: belief about controllability and ability to control. Both components of perceived control are supported with characteristics of perceived control. The scope of perceived control mainly includes psychological and physiological aspects. The uses of perceived control include maternal, pediatric, medical, surgical, psychiatric, community nursing, and pain management. Perceived control mediates, associates with and can predict many factors. Perceived control mediates to self-efficacy (Moser et al., 2007). Perceived control relates with age, partner support, supportive care in various nursing settings (Weisman et al., 2008). Meanwhile perceived control correlates positively with physical activity (Shaw et al., 2003), pain management (McNeill et al., 2007; Pellino & Ward, 1998), recovery from stroke (Johnston et al., 1999), and satisfaction (Wardle et al., 2004). Person has high-perceived control affecting on immune system of human (Prislin et al., 1998). Endocrine stress system is also influenced by perceived control and cognitive coping (Abelson et al., 2008). Perceived control may correlate with uncertainty in ill patients (McCormick, 2002) and there is evidence that perceived control has bidirectional with uncertainty in undergraduate psychology students (Edwards & Weary, 1996). On the other hands, perceived control indicates a negative relationship with anxiety (Bonetti et al., 2001; Cheung et al., 2007; Hogendoorn et al., 2008; Moser et al., 2007) and cortisol responses as endocrine stress responses to threats (Abelson et al., 2008). Furthermore, perceived control

predicts worry in young adults (Chapman et al., 2009) and depression (Rivard & Cappeliez, 2007). Surprisingly, perceived control can predict mortality in patients facing socioeconomic inequality (Bosma et al., 1999). Perceived control obviously correlates with physiological and psychological aspects, so that perceived control might be relevant to social, cultural, and spiritual diversities. Because patients as holistic person may encounter various problems in hospital and community, further study should overcome the later issues.

The measurements of perceived control were developed based on the theoretical backgrounds as shown in Table 2. Therefore, the use of the measurements is caution in considering theoretical framework and phenomena. In particular, measurement of Perceived Control Questionnaire is most relevant to components and attributes of perceived control. This instrument corresponds to two components of perceived control: belief about controllability and ability to control. This instrument is also similar to Anxiety Control Questionnaire, consisting of 30-items on a 6-point Likert-like scale ranging from 0 (strongly disagree) to 5 (strongly agree) (Bonetti et al., 2001; Chapman et al., 2009; Rapee et al., 1996; Zebb & Moore, 1999). Further study should clarify the proposition of perceived control among related concepts and theories. Further review will provide broadly understanding concept of perceived control.

Conclusion

The analysis has captured definition of perceived control, use of the concept, the basic elements of the concept, and measurements of perceived control. Definition of perceived control is personal belief that individual has controllability on behalf of one's self and ability to control threats or events. The uses of perceived control in nursing phenomena are maternal, pediatric, medical, surgical, psychiatric, community nursing, and pain management. The basic attributes of the perceived control include belief about controllability and ability to control to threats. Instrument of Perceived Control Questionnaire most closely corresponds to two dimensions: belief about controllability and ability to control. Defining attributes and dimensions of perceived control is useful for developing tool.

Table 1 Definition and dimension of perceived control related Theory

Definition of Perceived Control	Source	Component and Attribute		Theory
		Belief about Controllability	Belief about ability to control	
Belief that individuals have a coping response that can positively influence adverse events or circumstances	Moser et al.(2007)	General control	Situational control	Coping Theory
One's perceived influence over outcomes or events in environment	Chipperfield et al. (2003)	Primary control	Secondary control	Lifespan Theory of Control
A multidimensional construct composed personal control over outcome, personal responsibility, and perceived others' control	Kuzmann et al. (2002)	Personal responsibility	Perceived other's control	Lifespan Theory of Control
The perception that salient or valued aspect of one's life are manageable or being managed	Wallhagen and Lacson (1999)	On behalf of one's own self	Control belief of resource and demand	Person/Environment
Individual's generalized beliefs about his/her ability to effect desired outcome and avoid undesired outcome	Bullers (2000)	General belief	Specific belief	Social Cognitive Theory
Global belief in personal control which is combination of personal agency and interpersonal agency	Smith et al.(2000)	Personal agency	Interpersonal agency	Social Cognitive Theory

Table 1 (Continued)

Definition of Perceived Control	Source	Component and Attribute		Theory
		Belief about controllability	Belief about ability to control	
The belief that is important aspect to control one's life	Ranchor et al. (2010)	Self-efficacy	Mastery control	Social Cognitive Theory
The extent to which the individual believes that they control key process	Johnson et al. (1999)	Internal Locus of control	External locus of control	Social Learning Theory
Belief about the extent to which have control over their lives either generally or in specific domains	Griffin and Chen (2006)	Global focus of control	Specific focus of control	Social Learning Theory
Personal belief of emotional reaction and external threat	Rapee et al. (1996)	Emotional reaction	External control	Social Learning Theory
Personal belief or cognition about to control emotion, threats, and stress on behalf of one's self	Brown et al. (2004)	Emotional, stress control	Threat control	Social Learning Theory
Control beliefs, the perceived presence of factors that may facilitate or inhibit performance of behavior	Ajzen (2002)	Maintaining power	Perceived behavioral control	Theory of Planned Behavior

Table 2 Measurements of perceived control

Instrument	Variables of Study	Population	Source	Attribute	Item	Theory
Control Attitudes Scale	Perceived control, anxiety	Myocardial Infarction	Moser et al. (2007)	4 belief statements	28 items (7-point Likert-like scale) Reliability 0.89	Coping Theory
Personal Control Inventory	Perceived control, development	Adult	Lang and Heckhausen (1995)	Primary and secondary control	4 items	Lifespan Theory of Control
Perceived Control Questionnaire	Perceived control, psychological/ physiological functioning	Type 2 Diabetes	Wallhagen and Lacson (1999)	Personal responsibility, perceived other's control	30 items (Likert-like scale) Reliability 0.93	Person/Environment
Mastery Scale	Perceived control, psychological distress	Cancer	Ranchor et al. (2010)	Self-efficacy , Mastery control	7 items	Social Cognitive Theory
Modified Mastery Scale	Perceived control, long-term change	Disability older person	Kempen et al. (2005)	Self-efficacy , Mastery control	7 items	Social Cognitive Theory
Personal and Interpersonal Scale	Perceived control , psychological well-being	Adult	Smith et al. (2000)	Personal agency Interpersonal agency	12 items	Social Cognitive Theory
Locus of Control Scale	Perceived control		Rotter as cited by Jacelon (2007)	Internal and external locus of control	13 items	Social Learning Theory
Recovery Locus of Control	Perceived control, coping, disability	Stroke	Johnson et al. (1999)	Internal and external locus of control	9 items	Social Learning Theory

Table 2 (Continued)

Instrument	Variables of Study	Population	Source	Attribute	Item	Theory
Anxiety Control Questionnaire	Perceived control over anxiety-related event	Anxiety disorder	Rapee et al. (1996)	Emotional reaction External control	30 items (6-point Likert-like scale)	Social Learning Theory
Anxiety Control Questionnaire	Perceived control, distress, worry	Young adult	Chapman et al. (2009)	Emotional reaction and external control	30 items (6-point Likert-like scale)	Social Learning Theory
Anxiety Control Questionnaire	Perceived control	Anxiety disorder	Brown et al. (2004)	Emotional, threat, and stress control	15 items (6-point Likert-like scale)	Social Learning Theory

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