# Perceived Control

Suzanne C. Thompson and Michèle M. Schlehofer

*Description, Theoretical Background, and History*

Personal control is the perception that one has the ability, resources, or opportunities to get positive outcomes or avoid negative effects through one's own actions. The concept of control has been one of the most pervasive and enduring ideas in psychological research and theory. Numerous theories posit a important role in human behavior for control constructs such as **self-efficacy** (Bandura, 1977), **personal causation** (deCharms, 1968), **effectance motivation** (White, 1959), **perceived control** (Thompson, 1981), and **helplessness** (Seligman, 1975).

Having a sense of control has consistently been found to have adaptive effects. Perceived control is associated with emotional well-being, reduced physiological impact of stressors, enhanced ability to cope with stress, improved performance, less pain, and a greater likelihood of making difficult behavior changes (Thompson & Spacapan, 1991). Across a variety of environments, from the classroom to the workplace to the medical center, and in diverse populations including children to older adults, it is generally adaptive to have a sense of control.

Personal control is an important predictor of health behaviors for several reasons. First, individuals may need to feel efficacious in order to decide to make behavior changes. If people do not feel they have the skills to change a particular behavior (e.g., stop smoking), they are unlikely to exert the effort. Second, research on animals and humans has found that feelings of helplessness generally decrease attempts to change one's situation even when effective action is available (Seligman, 1975). Thus low personal control can lead to apathy that depresses the likelihood of any attempts to make positive changes. Furthermore, one particular type of control, control over one's own actions, is likely to play an important role in effective lifestyle changes.

For instance, a dieter presented with a tray of high-fat sweets needs to exert self-control in order to maintain his or her weight loss plan. Low levels of self-control are not compatible with successful health protective changes if the changes necessitate restricting oneself from temptation. Finally, the preference or desire for control may be an important determinant of whether or not people decide to make health-protective changes. Those high in desire for control may act to make changes themselves whereas those low in desire for control may want others to act for them or use a more fatalistic or passive approach.

## *Components of Personal Control*

Because personal control is a central concept in many theories of human behavior and has generated extensive research, a considerable number of different control constructs and types of control have been studied. This can be helpful to a health behavior researcher who has a clear idea of what type of control is most relevant to a particular study, but can cause confusion for those who are less familiar with the area. Here we identify six key distinctions among control constructs that are relevant to health behaviors.

### *Perceived Control and Components: Locus of Control and Self-Efficacy*

Perceived control, the perception that one can take action to get desired outcomes, consists of two parts: locus of control and self-efficacy. **Locus of control** refers to beliefs about the locus of reinforcements: whether or not people in general can get good outcomes and avoid bad through their own actions (internal locus of control) or whether external factors control these outcomes (external locus of control). **Self-efficacy** refers to the perception that the self has the skills/abilities to enact these effective responses. People have a sense of perceived control when they believe that, in general, personal action controls outcomes (internal locus of control) and they personally have the skills to enact those actions (self-efficacy). Thus perceived control can

be decomposed into two elements ("there are effective responses for people in general" and "I can enact them") or measured as composite belief ("I can take action to get what I want").

*Perceptions of Control vs. Control Strategies*

**Personal control** is both a belief that one possesses the ability to act and get desired outcomes (perceived control) and a behavioral orientation toward taking action to solve problems or deal with stress (control strategy). Most research has focused on perceived control, but there are also measures of active or passive control-related strategies, the self-reported tendency to take or not take action in the face of a problematic situation (Wrosch, Schulz, & Heckhausen, 2002).

*General vs. Specific Control*

The questions on general measures of perceived control are worded in broad terms and are intended to refer to an overall sense of personal control. In contrast, specific measures refer to a particular event that the individual might want to achieve or avoid and ask about control related to that situation.

*Realistic vs. Unrealistic control*

Another important distinction is between judgments of personal control that are accurate assessments of actual control, as opposed to overestimations of control. **Realistic control** is based on taking action to protect oneself or to obtain a desired goal; **unrealistic control** is not tied to effective action (Zuckerman, Knee, Kieffer, Rawsthorne, & Bruce, 1996). There is some evidence that an inappropriately high sense of control over making health behavior changes (e.g., smoking cessation) is associated with a lower likelihood of actually making the changes (Haaga & Stewart, 1992).

*Desire for Control/Preference for Involvement*

People also differ in the extent to which they want to have control, a concept termed **desire for control**. Independent of perceived control, some people want to be involved in protecting their health or making decisions about medical care; others would prefer to leave these issues to medical personnel or family members or to seek solutions that do not involve taking responsibility for one's own health.

*Target of Control*

A final distinction concerns the target of an individual's control efforts, in particular perceiving control over the external environment vs. perceiving control over one's self (Tiffany & Tiffany, 1996). Self-control or self-regulation is likely to be an important determinant of the success of health protective changes, especially for changes that require resistance to tempting alternative behaviors.

## *The Role of Control in Health Behavior Theories*

Several health behavior theories include a personal control component. The ways in which personal control is used to explain health behaviors differs slightly between the theories, but all have an underlying theme: personal control increases the chances a person will perform a health behavior. Below is a brief explanation of the role of control in the most common health behavior theories.

*Two-Process Model of Perceived Control*

The model, as presented by Rothbaum, Weisz, and Snyder (1982), makes a distinction between **primary control,** which involves taking action to get desired outcomes, and **secondary control,** which refers to changing one self to adjust to the environment. Secondary control also enhances an overall sense of personal control. The important contribution of this approach to control is that it proposes that both direct action on the environment and adjusting to the

environment are sources of personal control. Although many parts of this theory are not directly relevant to health behavior change and the theory has not been widely applied in that area, this approach focuses attention on control strategies, which are the ways people use to get desired outcomes or handle stressful situations. Control strategies could have important implications for health protection. For example, those who use primary control strategies of changing the environment may be more likely to act to protect themselves. In addition, the theory identifies a source of personal control enhancement (i.e., secondary control acceptance of one's situation) that may bolster the personal control that is necessary for health behavior change.

*Theory of Planned Behavior*

In the **theory of planned behavior** (TPB), perceived behavioral control is assumed to be a proxy indicator of actual behavioral control. Research with the TPB has found that the theory is accurate at predicting intentions to perform health behaviors (Godin & Kok, 1996; Schifter & Ajzen, 1985), and research comparing the TPB with the theory of reasoned action has found that, generally, the inclusion of the perceived behavioral control construct in the TPB adds to predictive ability (Terry & O'Leary, 1995). However, researchers have generally operationalized perceived control as self-efficacy, and it is possible that if research used measures of perceived control the predictive power of the model would be further increased (Godin & Kok, 1996; Terry & O'Leary, 1995).

*Social Cognitive Theory*

**Social cognitive theory** (Bandura, 1986) is an extension of social learning theory, a behavioral theory that states individuals learn behaviors by observing similar others receive reinforcement or punishment for similar behaviors. In social cognitive theory, self-regulatory systems, or internal controls over one's behavior guide behavioral decisions. Bandura defines

self-regulation as the "exercise of influence" over one's behavior. In the model, one's ability to self-regulate is dependent on the presence of two efficacy perceptions: **self-efficacy** and **response efficacy**. As mentioned earlier, these two efficacy perceptions comprise the construct of perceived control. The model places great emphasis on self-efficacy, which is defined as "the belief in one's capabilities to organize and execute the sources of action required to manage prospective situations." That is, self-efficacy is the belief that one can perform a behavior (e.g., use a condom correctly). The response efficacy component refers to beliefs that a certain behavior will reach a desired outcome (e.g., using condoms will prevent unplanned pregnancy). Response efficacy, therefore, is a belief in the efficaciousness of the health behavior. The greater self and response efficacy perceptions (and, hence, the greater perceived control one has), the greater likelihood that the behavior will be performed.

*Protection Motivation Theory*

**Protection motivation theory** (Maddux & Rogers, 1983; Rogers, 1975, 1983) proposes that motivations to protect oneself factor into decisions to engage in healthy behaviors. According to the model, individuals assess their self-efficacy (an individual's perceived ability to take action) and response efficacy (the perceived effectiveness of the action) in an effort to determine the extent to which they can cope with a health threat. Self- and response-efficacy are both components of perceived control, and as such, the model has a perceived control component. As perceptions of self- and response efficacy increase, the likelihood of engaging in healthy behaviors also increases (Rogers, 1983).

*Self-Control Theory*

In **self-control theory** (Rosenbaum, 1983), control refers to the ability to monitor and inhibit one's own emotions, thoughts, and behaviors. Examples of efforts to exert self-control

include working to improve one's posture, maintaining a low-fat diet, and suppressing specific thoughts.

## *Measurement of Control Constructs*

### *Measures of Perceived Control, Mastery, and Empowerment*

*Mastery.* Pearlin and Schooler (1978) developed a **general perceived control (mastery) scale** consisting of seven items rated on a 7-point Likert scale from "strongly agree" to "strongly disagree." Sample items include, "I often feel helpless in dealing with the problems of life," and "I have control over the things that happen to me." As an example of research using this scale, new mothers with higher levels of mastery were more likely to engage in responsible maternal behavior two years later and less likely to have further pregnancies in that period (DeSocio, Kitzman, & Cole, 2003).

*Internality, powerful others, and chance.* Levenson's (1981) scale consists of 24 items measured on a 6-point response scale ranging from –3 (strongly disagree) to +3 (strongly agree). The scale includes separate measures of **internality** (general perceived control; 8 items), **control by others** (8 items), and the **effects of chance** (8 items). Sample items include: "When I make plans, I am almost certain to make them work" (internality); "I feel like what happens in my life is mostly determined by powerful people" (control by others); and "To a great extent my life is controlled by accidental happenings" (effects of chance**).** General perceived control, as assessed with Levenson's (1981) scale, has been found to predict amplification-seeking among hearing-impaired individuals (Cox, Alexander, & Gray, 2005).

*Spheres of control.* Paulus' (1983) **Spheres of Control Scale** (for more recent versions Spittal, Siegart, McClure, & Walkey, 2002) consists of 30 items rated on a 7-point Likert scale from "strongly agree" to "strongly disagree." The scale includes separate measures of personal

efficacy (10 items), interpersonal control (10 items), and sociopolitical control (10 items). Sample items include: “When I make plans I am almost certain to make them work” (personal efficacy); “I have no trouble making and keeping friends” (interpersonal control); and “One of the major reasons we have wars is because people don’t take enough interest in politics” (sociopolitical control). To date, no health behavior studies have been conducted using this scale.

*Multidimensional health locus of control.* Wallston, Wallston, and DeVellis’ (1978) **Multidimensional Health Locus of Control** scale is an 18-item measure of perceived control over health outcomes measured on a 6-point Likert scale ranging from “strongly disagree” to “strongly agree.” The scale includes separate measures of health-specific perceived control: internal, chance, and powerful others; each assessed with 6 items. Sample items include: “If I take the right actions, I can stay healthy” (internal); “No matter what I do, if I am going to get sick, I will get sick” (chance), and “My family has a lot to do with my becoming sick or staying healthy” (powerful others). This scale has been frequently used to assess health locus of control. For instance, research with the scale has found that Mexican American women who received a health self-care manual coupled with seminars training them on how to use the manual significantly increased in self-care behavior and internal and powerful other health locus of control (Kennedy, DeVoe, Ramer-Henry, & West-Kowalski, 1999).

*Family empowerment.* The Koren, Dechillo, and Friesen (1992) **Family Empowerment Scale** consists of 34 items with a 5-point response scale “not at all true” to “very true.” A sample item is, “I feel I can have a part in improving services for children in my community.” As an example of this scale’s use, the diabetic children of women with a stronger sense of empowerment have better adherence to treatment (Florian & Elad, 1998).

*Perceived Behavioral Control*

Measures of **perceived behavioral control** are usually devised by the researchers for a particular study, though many studies use items similar to the ones developed by Armitage and Connor (1990). Examples of items from Armitage and Connor (1999) are ”Whether or not I eat a low fat diet is entirely up to me,” and “How much personal control do you feel you have over eating a low-fat diet?” In one longitudinal study, perceived behavioral control predicted engagement in physical exercise (Armitage, 2005).

*Self-Efficacy*

Self-efficacy, as originally conceived by Bandura (1977), is specific to a particular outcome. A large number of self-efficacy scales that are specific to a particular health behavior have been developed. Many studies have also used items developed just for that particular study. See: (link to entry for self-efficacy from other authors.)

*Locus of Control*

***General locus of control***. Rotter’s (1966) **I/E Scale** is a 29-item scale that assesses internal locus of control with a forced-choice format pairing external and internal control alternatives. A sample item pairing is, “I have often found that what is going to happen will happen” vs. “Trusting fate has never turned out as well for me as making a decision to take a definite course of action.” Smokers who were more internal in LOC were more successful in their efforts to stop smoking (Rosenbaum & Argon, 1979). Interestingly, it was difficult to locate recent (published in the past 20 years) health behavior studies that used general LOC. Almost all studies used a general perceived control or health-related LOC. measure. Rotter’s scale is available in Robinson, Shaver, and Wrightsman (1991).

*Specific locus of control.* There are several examples of specific locus of control scales. Donovan and O'Leary (1978) have created a 25-item **Drinking Locus of Control** scale rated on a forced-choice format pairing internal and external control alternatives. A sample pairing is, "I feel so helpless in some situations that I need a drink" vs. "Abstinence is just a matter of deciding that I no longer want to drink." Among a sample of women who were recovering alcoholics, internal drinking locus of control predicted abstinence from drinking, waiting a longer period of time before starting to drink, drinking less on the first occasion of drinking, and drinking for fewer consecutive days (Koski-Jannes, 1994).

The four-item **Weight Locus of Control scale**, developed by Saltzer (1982), assesses how one's weight is determined, ranging from internal to external determinants. The scale is rated on a 6-point Likert scale (strongly disagree to strongly agree**).** A sample item is, "Being the right weight is largely a matter of good fortune." Among those with an internal sense of weight locus of control, personal attitudes towards weight loss predict weight loss intentions. However, among those with an external sense of weight locus of control, normative beliefs predict weight loss intentions (Saltzer, 1981).

*Self-Control/Self-Regulation*

**Rosenbaum** (1980) developed a 36-item **scale of self-control**, rated on a 6-point Likert scale ranging from +3 (very characteristic of me; extremely descriptive) to –3 (very uncharacteristic of me; extremely nondescriptive). The scale measures four components of self-control: (1) cognitive control of emotional and physiological responses (12 items); (2) application of problem-solving strategies (11 items); (3) ability to delay gratification (4 items); and (4) self-efficacy (9 items). Examples of sample items are, "When I do a boring job, I think about the less boring parts of the job and the reward I will receive when I finish," and "When I

am feeling depressed, I try to think about pleasant events." Diabetic women with greater self-control engaged in a greater number of general health practices (e.g., exercise, nutrition). Self-control mediated the effect of depression on health practices (Zauszniewski & Chung, 2001).

*Realistic/Unrealistic Control*

*Realistic and unrealistic control.* Zuckerman, Knee, Kieffer, Rawsthorne, and Bruce's (1996) **Realistic and Unrealistic Control Scales** consist of 33 items measured on a 7-point Likert scale ranging from "strongly agree" to "strongly disagree." Separate measures of realistic (18 items) and unrealistic control (15 items) are obtained. An example of a realistic control item is: "Success in life depends mostly on how hard you study or work." An example of an item measuring unrealistic control is: "There is no such thing as misfortune; everything that happens is the result of our own doing." A stronger sense of realistic control was associated with less risky sexual behavior while unrealistic control was associated with more risky sexual behavior (Zuckerman et al., 1996).

*Illusory control.* **The Illusory Control Scale** by Friedland, Kienan, and Regev (1992) assesses control over uncontrollable events via hypothetical situations; for instance, by asking the respondent to indicate whether they would rather choose their own lottery ticket numbers or rely on the machine to choose. The scale consists of 5 items assessed on a 10-point Likert scale (e.g., "let the machine choose for me" to "choose the ticket myself"). The Illusory Control Scale was associated with greater use of illusory (i.e., ineffective) HIV-protection strategies among college students and gay men in the community (Thompson, Kent, Thomas, & Vrungos, 1999).

*Desire for Control/Preferences for Involvement*

*Desire for control.* The **Desire for Control Scale** (Burger & Cooper, 1979) consists of 20 items rated on a 7-point response scale from "Does not apply to me at all" to "Always applies

to me." Sample items are, "I enjoy having control over my own destiny," and "I enjoy being able to influence the actions of others." Higher desire for control is positively related to engagement in more health protective behaviors (as cited in Burger, 1992).

*Desired control.* Reid and Zeigler's (1981) **Desired Control Scale** contains 70 items rated on a 5-point response scale from "strongly agree" to "strongly disagree." The scale consists of two subscales: desire of outcomes (desired control; 35 items), and beliefs and attitudes (which assesses control expectancy of outcomes; 35 items). Sample items are: "How important is it to you that you maintain your health?" (desired control) and "I can rarely get out to do things I want" (beliefs and attitudes). To date, no health behavior studies have been conducted using this scale.

*Decision involvement questionnaire.* Thompson, Pitts, and Schwankovsky (1993) have developed a measure of **decision involvement**. Respondents read four vignettes describing various medical problems and rate who should make the treatment decision on a 5-point scale from "the doctor alone" to "you alone." A sample vignette is, "Suppose you fall and seriously injure your knee. There are two treatment programs that are medically appropriate for your condition. You can either have surgery that will be painful and require bed rest for a month OR you can enter a twice-a-week rehabilitation program for a year. Both have a 90% chance of success." Participants had a stronger preference to be involved in medical decisions that did not require medical expertise than those that did require expertise (Thompson et al., 1993).

*Control Strategies*

The **Health Engagement Control Strategies** (HECS; Wrosch, Schulz, & Heckhausen, 2002) is a nine-item measure rated on a 5-point scale: "almost never true" to "almost always true." Sample items include, "I invest as much time and energy as possible to improve my

health," and "I do whatever is necessary to be as healthy as I possibly can be." To date, no health behavior studies have been conducted using this scale.

References

Armitage, C. F. (2005). Can the theory of planned behavior predict the maintenance of physical activity? *Health Psychology, 24,* 235-245.

Armitage, C. F., & Conner, M. (1999). Distinguishing perceptions of control from self-efficacy: Predicting consumption of a low fat diet using the theory of planned behavior. *Journal of Applied Social Psychology, 29,* 72-90.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84,* 191-215.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory.* Englewood Cliffs, NJ: Prentice Hall.

Burger, J. M. (1992). *Desire for control: Personality, social, and clinical perspectives.* New York: Plenum Press.

Burger, J. M., & Cooper, H. M. (1979). The desirability of control. *Motivation and Emotion, 3,* 381-393.

Cox, R. M., Alexander, G. C., & Gray, G. A. (2005). Who wants a hearing aid? Personality profiles of hearing aid seekers. *Ear and Hearing, 26,* 12-26.

deCharms, R. (1968). *Personal causation: The internal affective determinants of behavior.* New York: Academic Press.

DeSocio, J., Kitzman, H., & Cole, R. (2003). Testing the relationship between self-agency and enactment of health behaviors. *Research in Nursing and Health, 26,* 20-29.

Donovan, D. M., & O'Leary, M. R. (1978). The drinking-related locus of control scale: Reliability, factor structure and validity. *Journal of Studies on Alcohol, 39,* 759-784.

Florian, V., & Elad, D. (1998). The impact of mothers' sense of empowerment on the metabolic control of their children with juvenile diabetes. *Journal of Pediatric Psychology, 23,* 239-247.

Friedland, N., Kienan, G., & Regev, Y. (1992). Controlling the uncontrollable: Effects of stress on the illusory perceptions of controllability. *Journal of Personality and Social Psychology, 63,* 923-931.

Godin, G., & Kok, G. (1996). The theory of planned behavior: A review of its applications to health-related behaviors. *American Journal of Health Promotion, 11,* 87-98.

Haaga, D. A. F., & Stewart, B. L. (1992). Self-efficacy for recovery from a lapse after smoking cessation. *Journal of Consulting and Clinical Psychology, 60,* 24-28.

Kennedy, C. A., DeVoe, D., Ramer-Henry, K., & West-Kowalski, J. (1999). Influence of self-care education on illness behaviors and health locus of control of Mexican American women. *Women and Health, 28,* 1-13.

Koren, P. E., Dechillo, N., & Friesen, B. (1992). Measuring empowerment in families whose children have emotional disabilities: A brief questionnaire. *Rehabilitation Psychology, 37,* 305-321.

Koski-Jannes, A. (1994). Drinking-related locus of control as a predictor of drinking after treatment. *Addictive Behaviors, 19,* 491-495.

Levenson, H. (1981). Differentiating among internality, powerful others, and chance. In H. M. Lefcourt (Ed.), *Research with the locus of control construct* (Vol. 1, pp. 15-63). New York: Academic Press.

Maddux, J. E., & Rogers, R. W. (1983). Protection motivation and self-efficacy: A revised theory of fear appeals and attitude change. *Journal of Experimental Social Psychology, 19,* 469-479.

Paulhus, D. L. (1983). Sphere-specific measures of perceived control. *Journal of Personality and Social Psychology, 44,*1253-1265.

Pearlin, L.I., and Schooler, C., (1978). The structure of coping. *Journal of Health and Social Behavior, 19,* 2-21.

Reid, D. W., & Ziegler, M. (1981). The Desired Control Measure and adjustment among the elderly. In H. M. Lefcourt (Ed.), *Research with the locus of control construct* (Vol. 1, pp. 127-157). New York: Academic Press.

Robinson, J. P., Shaver, P. R., & Wrightsman, L. S. (1991). Measures of personality and social psychological attitudes. San Diego: Academic Press.

Rogers, R. W. (1975). A protection motivation theory of fear appeals and attitude change. *Journal of Psychology, 91,* 93-114.

Rogers, R. W. (1983). Cognitive and psychological processes in fear appeals and attitude change: A revised theory of protection motivation. In J. T. Caccioppo & R. E. Petty (Eds.), *Social psychophysiology* (pp. 153-176). New York, NY: Guilford.

Rosenbaum, M. (1980). A schedule for assessing self-control behaviors: Primary findings. *Behavior Therapy, 11,* 109-121.

Rosenbaum, M. (1983). Learned resourcefulness as a behavioral repertoire for the self-regulation of internal events: Issues and speculations. In M. Rosenbaum, Franks, C. M., & Jaffe, Y. (Eds.). *Perspectives on behavior therapy in the eighties* (pp. 54-73). New York: Springer.

Rosenbaum, M., & Argon, S. (1979). Locus of control and success in self-initiated attempts to stop smoking. *Journal of Clinical Psychology, 35,* 870-872.

Rothbaum, F., Weisz, J. R., & Snyder, S. S. (1982). Changing the world and changing the self: A two process model of perceived control. *Journal of Personality and Social Psychology Bulletin, 42,* 5-37.

Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs, 80* (1, Whole No. 609).

Saltzer, E. B. (1981). Cognitive moderators of the relationship between behavioral intentions and behavior. *Journal of Personality and Social Psychology, 41,* 260-271.

Saltzer, E. B. (1982). The Weight Locus of Control (WLOC) Scale: A specific measure for obesity research. *Journal of Personality Assessment, 46,* 620-628.

Sherer, M., & Adams, C. H. (1983). Construct validation of the self-efficacy Scale. *Psychological Reports, 53,* 899-902.

Schifter, D. E., & Ajzen, I. (1985). Intention, perceived control, and weight loss: An application of the theory of planned behavior. *Journal of Personality and Social Psychology, 49* (3), 843-851.

Seligman, M. E. P. (1975). *Helplessness: On depression, development, and death*. San Francisco: Freeman.

Spittal, M. J, Siegart, R. J., McClure, J. L., & Walkey, F. H. (2002). The Spheres of Control scale: The identification of a clear replicable three-factor structure. *Personality and Individual Differences, 32,* 121-131.

Terry, D. J., & O'Leary, J. E. (1995). The theory of planned behavior: The effects of perceived behavioral control and self-efficacy. *British Journal of Social Psychology, 34,* 199-220.

Thompson, S. C. (1981). A complex answer to a simple question: Will it hurt less if I can control it? *Psychological Bulletin, 90,* 89-101.

Thompson, S. C., Kent, D. R., Thomas, Cr., & Vrungos, S. (1999). Real and illusory control over exposure to HIV in college students and gay men. *Journal of Applied Social Psychology, 29,* 1128-1150.

Thompson, S. C., Pitts, J. S., & Schwankovsky, L. (1993). Preferences for involvement in medical decision-making: Situational and demographic influences. *Patient Education and Counseling, 22,* 133-140.

Thompson, S. C. & Spacapan, S. (1991). Perceptions of control in vulnerable populations. *Journal of Social Issues, 47,* 1-21.

Tiffany, D. W., & Tiffany, P. G. (1996). Control across the life span: A model for understanding self-direction. *Journal of Adult Development, 3,* 93 –108.

Wallston, K. A., Wallston, B. S., & DeVellis, R. (1978). Development of the multidimensional Health Locus of Control Scales. *Health Education Monographs, 6,* 161-170.

White, R. W. (1959). Motivation reconsidered: The concept of competence. *Psychological Review, 66,* 297-330.

Wrosch, C., Schulz, R., & Heckhausen, J. (2002). Health stresses and depressive symptomatology in the elderly: The importance of health engagement control strategies. *Health Psychology, 21,* 340-348.

Zauszniewski, J. A., & Chung, C. W. (2001). Resourcefulness and health practices of diabetic women. *Research in Nursing and Health, 24,* 113-121.

Zuckerman, M., Knee, C. R., Kieffer, S. C., Rawsthorne, L., & Bruce, L. M. (1996). Beliefs in realistic and unrealistic control: Assessment and implications. *Journal of Personality, 64,* 435-464.