

# Schema Model of the Self-Concept

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*The centrality of the self-concept in maintaining physical and psychosocial well-being is widely recognized in nursing. Despite its importance, progress in the development of an empirically-supported and clinically-relevant theoretical framework has been limited by difficulties in defining and measuring the construct. The schema model of the self-concept is presented as a theoretical framework that has the potential for explaining how the self-concept functions to influence emotional and behavioral responses to events relevant to health and well-being.*

[Keywords: self-concepts; self-schemas; self-esteem]

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**C**entrality of the self-concept in maintaining physical and psychosocial well-being has been broadly recognized by nurses in practice. For more than three decades nurses have argued that a person's beliefs, feelings, and expectations about the self play a fundamental role in shaping health outcomes and, therefore, should be a primary focus of nursing intervention (Beland, 1970; Burgess, 1978; Compton, 1973; Lehberger, 1973; Mitchell, 1973). Yet, despite this long-standing recognition of the importance of the self-concept in regulating health behaviors, it has been difficult to translate the rich intuitive understanding of clinicians into an empirically supported theoretical framework that can be used to guide nursing practice.

The difficulty in establishing a foundation of knowledge about the role of the self-concept in health can be attributed to the fact that the self-concept is a highly abstract construct that has been difficult to define (Bonham & Cheney, 1983). Historically, theories of the self were too general, providing little direction for the development of valid measures (Marsh & Richards, 1988; Wylie, 1979). As a result, the majority of nursing research about the self-concept has focused narrowly on the single more measurable aspect of the construct: global self-esteem. Other dimensions of self-concept that are thought to be powerful determinants of behavior—such as one's belief's about who one is today and expectations, fears, and wishes about what one will become in the future (Cantor, 1990; Markus & Wurf, 1987), remain largely unexplored in nursing.

The schema model of the self-concept, a middle-range theory developed by Markus and colleagues (Markus, 1977; Markus & Wurf, 1987), may be a useful alternative for guiding nursing research. Unlike earlier theories of the self, this model offers a more delimited definition of the construct while preserving its complex, multidimensional nature. Because the model addresses

both structural and functional properties of self-concept, it provides a means for looking at how properties of current and future-oriented conceptions of the self affect behavior.

The schema model of self-concept is based on the cognitive approach to social psychology which over the last 20 years has become the prevailing paradigm in that discipline (Markus & Zajonc, 1985). According to the cognitive perspective, human responses to social stimuli are mediated through an internal system of knowledge structures referred to as schemas. Schemas are content-specific organizations of knowledge that are stored in long-term memory (Cantor, 1990). Generally, they are viewed as hierarchically organized knowledge structures with generalizations or abstractions about the domain at the highest level, categories of more specific information nested within the generalizations, and specific examples of the category at the lowest level of the hierarchy (Taylor & Crocker, 1978). Schemas are derived from experience and reflect a person's construal of an object or event (Hastie, 1981). Once established in memory, they function as organizing frameworks that enable a person to: (a) selectively focus on a single stimulus; (b) draw inferences and attribute meaning to the stimulus; (c) store in memory relevant information for later use; and, (d) plan and execute a coherent, purposeful response. In other words, schemas are the cognitive foundation of purposive thought and action (Cantor, 1990).

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## A Definition of Self-Schemas

Markus (1977) extended the idea of cognitive schemas to the social domain. She argued that to process the vast array of self-relevant stimuli routinely encountered, people construct knowledge structures about the self, referred to as self-schemas. Self-schemas, like other schemas, are stable organizations of knowledge that integrate and summarize an array of information and experience (Markus & Sentsis, 1982). However, self-schemas are unique in that they integrate and summarize a person's thoughts, feelings, and experiences about the self in a specific behavioral domain.

Self-schemas can be developed about any aspect of a person including physical characteristics, social roles, personality traits, and areas of particular interest and skill. They are established in domains that the person values (Markus, 1977). To date, studies have documented availability of self-schemas in a variety of behavioral domains including body weight (Markus, Hamill, & Smith, 1987), exercise (Kendzierski, 1988), sex roles (Markus, Crane, Bernstein, & Siladi, 1982), independence (Markus, 1977; Stein & Markus, 1990) and academic performance (Garcia & Pintrich, 1994; Stein, 1994).

Self-schemas are considered the cognitive residual of a person in interaction with the social environment (Cantor & Kihlstrom, 1987; Markus, 1977). Categorizations and evaluations of one's physical and behavioral characteristics made both by the self and others are the means by which schemas are established. In addition, internalized cultural values and norms serve as the foundation upon which a self-schema can be formed (Josephs, Markus, & Tafarodi, 1992). For example, the current emphasis in our culture on thinness has led to a large number of normal-weight women defining themselves as "overweight" (Rodin, Silberstein, & Striegel-Moore, 1985).

One important advantage of the schema model is that self-schemas are considered active, working structures that shape perceptions, memories, emotional and behavioral responses (Greenwald & Pratkanis, 1984; Markus & Wurf, 1987). Studies have shown that people are more likely to direct their attention to information that is consistent with an established self-schema, and to process information more quickly, and have greater recall for schema-consistent versus schema-irrelevant information (Bargh, 1982; Kuiper & Rogers, 1979; Markus, 1977; Rogers, Kuiper, & Kirker, 1977). They are also more likely to predict future behaviors in the domain. Furthermore, because self-schemas include procedural knowledge such as rules, strategies, and routines, they give organization and form to behavior in the domain (Cantor, 1990; Markus, Cross, & Wurf, 1990).

In a study that examined the behavioral consequences of a "self as exerciser" schema, Kendzierski (1988) found that young adults with an exercise self-schema not only exercised more frequently than those with no self-schema in the domain but, also, reported more strategies used to help them exercise regularly. From this perspective, self-schemas cannot simply be considered outcome variables that are shaped by a life event. Rather self-schemas are the organizing framework that give meaning, form, and direction to the event (Cantor & Zirkel, 1990).

## Possible Selves

Another advantage of the schema model is that it acknowledges the temporal nature of information about the self. People not only have available in memory conceptions of who they are in the present but also images of who they were in the past and visions of who they might be in the future. These future-oriented representations, referred to as possible selves, are conceptions of the self one expects, fears, wishes, and ought to be in the future (Markus & Nurius, 1986; Ogilvie, 1987). Rather than thinking of the future in terms of broad generalized and nonpersonalized goals (i.e., achieve intimacy) or threats (avoid illness), people form highly specific desired (i.e., me happily married and enthusiastically mothering three daughters) or feared (i.e., me the victim of breast cancer) possible selves. They are personalized, detailed, and enduring imaginal, semantic, enactive conceptions of the self "one is striving to become" or "hoping to avoid becoming" (Markus & Nurius, 1986).

Possible selves have been shown to play a powerful role in motivating and regulating goal-directed behavior. Studies have shown that discrepancies between peoples' current conceptions of themselves and their desired or hoped-for selves are reliably linked to specific affective states (Higgins, 1987). Although affective states associated with current-possible self discrepancies may at times interfere with goal-directed behavior, under certain conditions, these states lead to higher levels of activity (Higgins, Bond, Klein, & Strauman, 1986), and positive behavioral outcomes (Cantor, Norem, Niedenthal, Langston, & Brower, 1987).

Highly detailed images of the self at various stages in pursuit of a desired goal shape and organize the enacted behaviors (Inglehart, Markus, & Brown, 1989). Ruvalo and Markus (1992) showed that in a college-student sample, persistence and effort expended on a tedious cognitive task were influenced by the possible selves activated in memory. People who imagined themselves as successful in the future out-performed those who imagined negative outcomes.

Possible selves are considered the most effective guides for behavior when they are linked to an existing self-schema (Markus, Cross, & Wurf, 1990). Because self-schemas include procedural knowledge, when the possible self is linked to that domain the individual has available a repertoire of skills, strategies, and routines that can be employed to achieve the desired future-oriented state. In cases in which the possible self is less firmly rooted in the domains of current self-expertise, a person will have fewer skills available to organize behavior toward achievement of the goal.

Studies of developmental differences in possible selves revealed that older adults when compared to younger adults were more likely to report possible selves that were linked to their current self-schemas, had more detailed and specific conceptions of themselves in the future, and engaged in more activities to bring about hoped-for and avoid feared possible selves (Cross & Markus, 1991). Older adults were significantly more likely to report health-related possible selves than younger cohorts and, regardless of age, those with a hoped-for health-related possible self engaged in more health-protecting behaviors (Hooker, 1992; Hooker & Kaus, 1992).

## The Total Self-Concept

The schema model leads to a distinctly different definition of the self-concept than is commonly encountered in the nursing literature. Rather than defining self-concept as a single average view of the self (i.e., global self-esteem), it is defined as a rich, multifaceted cognitive structure (Cantor & Kihlstrom, 1987; Greenwald & Pratkanis, 1984; Markus & Wurf, 1987). In this model, the self-concept refers to a person's total collection of cognitions about the self including self-schemas, possible selves, and other less fully elaborated self-images.

Markus and Kunda (1986) coined the term, "working self-concept" to convey the idea that only a portion of the self-cognitions are active in working memory at any point in time. Although the self-schemas are probably chronically activated in work memory, other less fully elaborated self-conceptions may fluctuate in their accessibility in response to the current social context. This conceptualization of the working self-concept as a context-dependent configuration of self-conceptions has important implications for considering the role of the self-concept in behavioral regulation (Stein & Markus, in press). While a newly formulated feared possible self as a "pregnant teen" or "victim of AIDS" and the associated safe sex strategies may be salient in memory during a health education visit with a nurse, a totally different array of possible selves may be activated during an after-prom party with one's boyfriend (Norris, 1988).

Conceptualizing the self-concept as a collection of cognitive structures has led to the identification of several new sources of individual variation that should be taken into account when considering emotional and behavioral differences among people. Studies have shown that differences in the amount and organization of information within the self-concept also impact behavior. Linville (1985) found that people vary according to the number of schemas included in the self-concept and the amount of interdependence among those self-schemas. Some people have many independent self-schemas articulated in memory (i.e., high complexity of the self-concept) whereas others have relatively fewer and more interdependent schemas of the self (i.e., low complexity). Furthermore, Linville found that the level of complexity of the self-concept influences responses to stressors. People with high complexity of the self-concept experienced less change in mood and self-esteem in response to a stressor, were less prone to depression, perceived less stress, and experienced fewer physical symptoms after stressful life events than subjects with low complexity (Linville, 1985; 1987).

### Self-Esteem

In nursing, the terms self-concept and self-esteem have been used interchangeably suggesting that the self-concept is the person's feelings of self-worth. As described above, the schema model offers a much richer view of self-concept. In this model, self-esteem is viewed as one of many components of the self-concept. It is the generalized or global evaluation of the self that is derived from the array of cognitions included in the self-concept. Both the current self-schemas and future-oriented

possible selves play a role in determining the person's level of self-satisfaction (Josephs, Markus, & Tafarodi, 1992). Those aspects of the self-concept that are centrally self-defining (i.e., self-schemas) are more important in determining the level of global self-esteem than other less central self-conceptions (Pelham & Swann, 1989). Individuals who have positive conceptions of themselves in behavioral domains that they value are more likely to have high self-esteem than those who have positive self-conceptions in domains of little personal significance. In addition, the possible selves serve as the criteria against which the current conceptions of the self are evaluated and, therefore, may be considered part of the cognitive foundation that gives rise to feelings of self-worth (Markus & Nurius, 1986).

Recently, Showers (1992) showed that characteristics of the way information about the self is organized in memory also plays an important role in shaping self-esteem. In a normal college-student sample, she found that people who compartmentalize information about the self in memory—that is, organize positive and negative conceptions of the self in separate, like-valenced categories—have higher self-esteem than those who include both positive and negative self-conceptions within the same category. However, among people who view negative aspects of themselves as highly important, she found that a mixed style of organization—including both positive and negative self-conceptions within the same category—was associated with higher self-esteem. Focusing on properties of the way information about the self is organized in memory offers new possibilities for the developing intervention strategies designed to increase self-esteem (Stein & Markus, 1994).

### Self-Schema Model: Methods of Measurement

The utility of the self-schema model as a theoretical foundation for nursing research is, of course, dependent on the extent to which the concepts included in the model can be operationalized. A number of self-report questionnaires and card-sorting procedures have been developed to measure components of the self-concept. A paper-and-pencil questionnaire with closed-ended questions is the most commonly used measure of self-schemas. One important feature of this measure is that the collection of self-descriptors included in the questionnaire is determined by the focus of the particular investigation. Open-ended questions have also been used to examine the total collection of self-schemas available in memory (Stein, 1994). In addition, two questionnaires have been developed to examine the array of possible selves articulated in memory. The first questionnaire is a closed-ended measure in which subjects are asked to rate self-descriptors according to whether they describe them now and whether they expect the descriptors to describe them in the future (Markus & Nurius, 1986). The second questionnaire uses an open-ended format. Subjects are asked to list expected, desired, and feared selves for the next year. Data to support the validity and reliability of both the current self-schema and possible selves measures have been reported (Markus, 1977; Markus et. al., 1982; Markus et. al., 1987; Oyserman & Markus, 1990).

A number of card-sorting procedures have been developed to examine the organizational properties of the self-concept. For most of the card-sorting procedures, subjects are given a predetermined collection of self-descriptors printed on cards and asked to sort the cards into meaningful groupings (Linville, 1987; Showers, 1992). Stein (1994) has developed a procedure based on Zajonc's (1960) card-sorting task in which subjects are first asked to generate self-descriptors and then indicate the patterns of interdependence among them. The advantage of this procedure is that it provides a measure of the number and content of the self-conceptions included in the self-concept as well as a measure of the degree of unity of the structure.

The study focus, characteristics of the sample, and features of the data collection situation should be used to determine the appropriate measure for a study. For example, the open-ended possible selves questionnaire works well with individual or small group administration of the questionnaire but for large groups, the closed-ended possible selves measure is preferred.

### Applications of the Schema Model in Nursing

The schema model of the self-concept may be useful as a theoretical foundation to advance development of the construct within existing nursing models. A number of the conceptual models in nursing describe the centrality of the self-concept in regulating behavior (King, 1981; Watson, 1985). Yet because of the broad focus of these theories, they do not provide a sufficiently detailed and comprehensive definition of the construct necessary to explain the linkage between the self-concept and behavior. In cases in which the theoretical assumptions underlying the two models are compatible, an integration of components of the self-schema model may be a highly effective means to further elaborate the construct and refine theoretical linkages within existing nursing models.

The Roy Adaptation Model provides one example of how the self-schema model could be used to clarify the self-concept construct within existing nursing models. In the adaptation model, a person is conceptualized as a system in which internal and external stimuli act as inputs that are processed through the regulator and cognator systems and result in a constellation of behaviors that represent the person's level of adaptation (Roy & Andrews, 1991). The output or level of adaptation is expressed in one of four modes of behavior. The self-concept is identified as one of the four output modes, and therefore, is conceptualized as a medium through which responses to stimuli are expressed. According to this model, behavioral responses in the self-concept mode are expressed through: (a) the physical self which includes body sensations and body image; and (b) the personal self which includes feelings of self-consistency, self-ideal, and moral-ethical-spiritual behaviors.

One concern raised about the adaptation model is that the concepts within the three psychosocial adaptive modes are highly abstract and often overlapping with unclear conceptual boundaries (Meleis, 1991). One example of this conceptual confusion can be seen in the relationship between the self-concept mode and the cognator. Although the self-concept is

defined in the model as an output in the system, it is also described as an important determinant of behavior (Roy & Andrews, 1991). Another point of confusion within the model is that the components of the physical and personal selves reflect a mixture of cognitive structures and behavioral processes. For example, body image and self-ideal are cognitions about the self whereas feelings of consistency and moral-ethical-spiritual behaviors reflect emotional and behavioral responses. This inconsistency in the nature of the concepts at a single level within the model makes specification of linkages among concepts difficult.

The schema model provides insights into the nature of the self-concept that can be used to clarify relationships among the cognator subsystem and aspects of the self-concept mode. Based on the schema model, the self-concept could be defined as a person's total collection of cognitions about the self including current self-schemas that focus on body image and future-oriented possible selves including the desired or ideal selves. Given that self-schemas and possible selves are functional information processors and regulators of behavior, these components of the self-concept could be reasonably conceptualized as part of the cognator subsystem. Rather than viewing the current and future-oriented self-conceptions as expressions of the cognator and regulator processing, they would be considered a functional part of the cognator subsystem. They would be defined as the structural foundation of the information processing sequence that direct the focus of attention and serve as the internal framework shaping interpretation and response to incoming stimuli. The self-concept mode would then refer to the emotional and behavioral outcomes of the self-concept information processing sequence and would include phenomena such as feelings of self-consistency, self-worth or self-esteem, moral-ethical-spiritual behaviors, and affective states such as anxiety or sadness. One advantage of this change is that there would be a clear delineation between the structural components of the self-concept and their behavioral consequences. Furthermore, because the schema model specifies mechanisms that link the self-concept to emotional and behavioral responses, it would allow a more detailed specification of how components of the cognator subsystem function to impact the self-concept mode.

### Nursing Research

In addition to improving the conceptual clarity and testability of the self-concept construct within nursing models, the schema model may be a useful theoretical framework to guide nursing research about the role of the self-concept in health and illness phenomena. The schema model can help advance the bounds of nursing research beyond global self-esteem by drawing attention to the multiple components of the self-concept that impact emotional and behavioral outcomes. In a recent article Pridham (1993) suggested that the schema model may be useful in advancing knowledge about the anticipatory guidance technique. Although the article focused more broadly on a person's total internal working model or array of cognitive representations, she did highlight the usefulness of the self-schema and possible selves constructs in understanding the mechanisms underlying

the intervention. She suggested that the current self-schemas play an important role in shaping a person's construal of the targeted event and, therefore, must be understood before effective guidance strategies can be developed.

In addition to extending our thinking to various temporal dimensions of the self-concept, the schema model also points to the organizational properties of the self-concept as an important source of individual difference. Stein (in press) examined the relationship between organizational properties of the self-concept and instability of mood in adults with a major mental illness. Instability of mood refers to rapid and extreme shifts in mood associated with a number of mental illnesses including borderline personality disorder, eating disorders, and atypical depression. In this study, the clinical sample differed from adults with no history of psychiatric illness both in the number of self-conceptions included in the self-concept and the degree of interdependence among the self-conceptions. Adults in the clinical sample had significantly fewer self-conceptions articulated in memory and higher interdependence among the self-conceptions. Furthermore, the degree of interdependence among the self-conceptions was a reliable predictor of instability of mood with high levels of interdependence leading to higher levels of instability. These findings led the author to conclude that intervention strategies designed to stabilize mood may profitably focus on organizational properties of the total self-concept.

The self-schema model may be a particularly useful organizing framework for investigators interested in exploring how various components of self-concept function together to affect health and well-being. Recently Mock (1993) reported the results of a study about consequences of breast cancer treatment on the self-concept. In this study, the effects of four different types of breast cancer treatment on body-image, body-satisfaction, and global self-esteem were examined. Body image was defined as, "a mental picture of the self that includes attitudes and perceptions regarding one's physical appearance, state of health, skills and feelings, and attitudes toward the physical self" (Mock, 1993, p. 154). It was measured by the Physical Scale of the Tennessee Self-Concept Scale. Although differences were found among all women who had experienced breast cancer treatment and normative samples on the self-concept measures, no differences were found among the treatment groups. Mock concluded that a more refined examination of specific components of body image was necessary before subtle differences among groups could be detected.

The schema model could be used to effectively guide a detailed and systematic exploration of how self-concept is affected by breast cancer treatment. Using this framework a variety of research questions emerge: Are the current self-schemas or possible selves most profoundly impacted by the procedures? What domains of self-knowledge are affected? Do women with a fully elaborated self-schema in the relevant domain experience greater changes in self-esteem in response to the procedures than women who do not view the domain as self-definitional? Do different treatments lead to the formation of different self-schemas and possible selves and do these differences allow predictions of emotional outcomes?

In addition to considering how the self-concept changes in response to breast cancer treatment, research could explore how individual differences in current self-schemas and possible selves affect treatment choice. Although treatment choice is often dictated by characteristics of the tumor, Mock (1993) suggests that in 20% to 30% of the cases, women are involved in the selection of treatment choice. Given that self-schemas function as active information processors, it can be hypothesized that the self-schemas play a role in determining what information is attended to, how it is interpreted, and ultimately, in selecting the treatment choice.


Another example of the usefulness of the schema model as a comprehensive organizing framework is in the consideration of the role of the self-concept in eating disorders. Historically, research on the self-concept in anorexia nervosa and bulimia nervosa has focused on three types of self-concept defects: deficits in identity formation, distortions in body image, and body dissatisfaction and low self-esteem. These three lines of research have been pursued independently and how the various components of the self-concept function together to cause the eating disorders has not been considered. Currently, I am conducting a study to examine how components of the self-concept function together to contribute to the disordered eating behaviors. The study is based on the idea that eating disorders are the result of a unique combination of self-concept deviations including: (a) availability in memory of an overweight body self-schema that serves as the cognitive foundation giving rise to feelings of fatness and disordered eating behaviors (i.e., body image distortions); (b) an impoverished collection of positive self-schemas that provides the context within which the overweight self-schema becomes the primary source of self-definition (identity and self-esteem); and, (c) chronic accessibility of the overweight self-schema caused by changes in attentional processes associated with starvation. In this case, the schema model not only leads to a more comprehensive model of the self-concept in eating disorders but also enables specification of the mechanisms that link the cognitions to the behavioral outcomes.

### Nursing Practice

Ultimately, the value of the self-schema model as a theoretical framework for nursing rests on the extent to which it can be used to generate effective intervention strategies. Although more empirical work is needed to establish a foundation of knowledge linking components of the self-concept to specific health and illness phenomena, the usefulness of the schema model in generating specific treatment interventions is promising. Once sufficient empirical evidence supporting the linkage between a component of the self-concept and the health behavior is accrued, theoretically based interventions can be developed and tested.

The schema model is particularly well-suited as a framework to guide nursing practice because the concepts in the model are easy to understand, intuitively appealing, and consistent with existing models of treatment. The idea of constructing, modifying, or deconstructing cognitions is widely accepted in a variety of cognitive approaches to behavioral change (Beck & Freeman, 1990; Pridham, 1993). Even interventions aimed at altering the organizational properties of the self-concept, such

as decreasing the unity of the self-concept by the construction of a self-schema in a new and unrelated behavioral domain or facilitating compartmentalization of existing knowledge about the self, are consistent with nursing's commitment to working with the person's strengths. Rather than striving to change an existing negative aspect of the self, an important means to bring about change may be to help a person elaborate an unacknowledged strength and diminish the importance of one's vulnerabilities. Finally, the construct of the working self-concept emphasizes the importance of the environment on a person's emotional and behavioral responses and provides a theoretical framework for the development of environmentally focused intervention strategies.

Nursing is unique in its broad and sustained interest in the role of the self-concept in regulating health and illness behaviors. However, advances in our understanding of the linkage depend on our ability to integrate the rapidly growing body of knowledge about the self-concept into our work. The schema model is a promising approach that can be useful in advancing nursing's theoretical, empirical, and clinical knowledge of the role of the self-concept in health. 

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