

Marquette University

e-Publications@Marquette

College of Nursing Faculty Research and
Publications

Nursing, College of

2008

Theoretical Substruction Illustrated by the Theory of Learned Resourcefulness (article)

Abir K. Bekhet

Marquette University, abir.bekhet@marquette.edu

Jaclene A. Zauszniewski

Case Western Reserve University

Follow this and additional works at: https://epublications.marquette.edu/nursing_fac



Part of the [Nursing Commons](#)

Recommended Citation

Bekhet, Abir K. and Zauszniewski, Jaclene A., "Theoretical Substruction Illustrated by the Theory of Learned Resourcefulness (article)" (2008). *College of Nursing Faculty Research and Publications*. 334.
https://epublications.marquette.edu/nursing_fac/334

Marquette University

e-Publications@Marquette

Nursing Faculty Research and Publications/College of Nursing

This paper is NOT THE PUBLISHED VERSION; but the author's final, peer-reviewed manuscript. The published version may be accessed by following the link in the citation below.

Research and Theory for Nursing Practice, Vol. 22, No. 3 (2008): 205-214. [DOI](#). This article is © Springer Publishing Company and permission has been granted for this version to appear in [e-Publications@Marquette](#). Springer Publishing Company does not grant permission for this article to be further copied/distributed or hosted elsewhere without the express permission from Springer Publishing Company.

Theoretical Substruction Illustrated by the Theory of Learned Resourcefulness

Abir K. Bekhet

Alexandria University, Egypt

Jaclene A. Zauszniewski

Case Western Reserve University, Cleveland, OH

Abstract

This article describes the process of theoretical substruction and uses this process to examine the significance of Rosenbaum's resourcefulness theory for nursing research and practice. The article discusses relocation as a phenomenon of interest to geropsychiatric nurses working with elders who have relocated to retirement communities, illustrated by the theory of learned resourcefulness. The literature was reviewed to assess the congruence between the theoretical and operational systems suggested by Rosenbaum's resourcefulness theory. A model of learned resourcefulness is presented that includes middle-range concepts, relational statements, and propositions derived from the research literature. Theoretical substruction provides a mechanism for testing middle-range theories that may contribute to nursing knowledge development.

Keywords

theory; substruction; learned resourcefulness; relocation

Science, as a body of knowledge, refers to "cumulative theory and research findings that are generic, re-researchable, valid, and generalizable" (Hardy & Conway, 1988, p. 3). Nursing theories and conceptual frameworks are thus essential to advance nursing science (Frederickson, 1992; Schoenhofer, 1993; Zauszniewski, 1995a). However, they reflect highly abstract constructs (Hodnicki, Horner, & Simmons, 1993; Zauszniewski, 1995a). Theoretical substruction provides a logical picture that can clarify models, guide research, and allow theory testing (McQuiston & Campbell, 1997); it is a hierarchical model that progresses from the abstract to the concrete, relating key concepts, propositions, and operationalization (McQuiston & Campbell, 1997). In theoretical substruction the researcher identifies the major variables in a study, analyzes the level of abstraction of the variables, and identifies hypothesized relationships among variables, thus connecting the theory to the methodology (Beattie & Algase, 2002; Dulock & Holzemer, 1991; Dunn, 2004). It is a dynamic thinking process (Wolf & Heinzer, 1999) that enhances the researchers' ability to assess the congruence between theoretical and operational systems in a research design (Dulock & Holzemer, 1991).

Substruction is the opposite of construction; therefore it can be used to reevaluate models and make the results of theory testing explicit (McQuiston & Campbell, 1997). It is especially important for graduate students and new researchers because it helps them rely on their knowledge of infrastructure and reconstruct details when needed (Bruner, 1963). When Wolf and Heinzer (1999) surveyed students about their experiences with a substruction assignment, the students indicated that the assignment was difficult, challenging, confusing, and even frustrating; however, they finally "got it." They called for more friendly literature on the phases and elements of substruction but admitted that although challenging, the substruction process stimulated their critical thinking (Wolf & Heinzer, 1999).

Doctoral students have shared the same experience in terms of the challenges of theoretical substruction. However, they would also agree that theoretical substruction stimulates critical thinking and helps them formulate, clarify, and better understand their research. The process is particularly challenging where research is scarce or completely absent. This article examines the process of theoretical substruction and illustrates use of the process to examine the significance of Rosenbaum's resourcefulness theory for nursing research and practice.

THE RESEARCH EXAMPLE

The process of theoretical substruction isolates concepts, relational statements, and propositions from an existing theory and arranges them into a diagram that has vertical and horizontal configurations representing theoretical and operational systems (see Figure 1) (Dunn, 2004) to assess the congruence between the theoretical and operational definition in a research design and to identify the theoretical relationships among the variables of interest (Zauszniewski, 1995a). In this article, theoretical substruction is used to examine the significance of Rosenbaum's (1980) theory of learned resourcefulness for nursing theory and practice. The adapted theoretical substruction process outlined by Zauszniewski (1995a) provided the framework for the analysis (Figure 1).

Certain variables were derived and operationalized from Rosenbaum's theory of learned resourcefulness. Table 1 summarizes the theoretical and operational definitions of the phenomenon of interest to gero-psychiatric nurses working with elders who have relocated to retirement communities. The derivation of the study variables from learned resourcefulness theory is discussed below under the definition of the model components. The operational system includes measurement of the study variables.

DEFINITION OF THE MODEL COMPONENTS

The theoretical system comprises the theoretical construct, concepts, and subconcepts identified as the phenomenon of interest (Zauszniewski, 1995a).

Constructs are highly abstract notions that can be partially defined (Dulock & Holzemer, 1991; Gibbs, 1972; Zauszniewski, 1995a). Four constructs comprise the model used here: situational factors, process regulating cognitions (PRC), selfcontrol behaviors, and the target behavior (Figure 1). Situational factors are the combination of circumstances that occur at a given moment (The American Heritage dictionary of the English language , 2000). According to Rosenbaum (1990), situational variables determine how much pressure will be put on a person at a given time. Process regulating cognitions (PRC) are defined as cognitive processes that provide reference mechanisms for perception, evaluation, and self-control behaviors (Rosenbaum, 1990). Self-control behaviors are internal cognitive and behavioral efforts that enable individuals to cope with adverse life experiences (Rosenbaum, 1990). Target behaviors are the consequences of the self-control process and are referred to as health-related behaviors (Rosenbaum, 1990). The relational statements, or horizontal axis, describe the relationships between the constructs and are called axioms (Dulock & Holzemer, 1991; Dunn, 2004; Zauszniewski, 1995a) (see Figure 1).

Concepts are words that express a mental image of the phenomenon of interest (Dulock & Holzemer, 1991; Fawcett & Downs, 1986; Zauszniewski, 1995a). Linkages between concepts and theoretical constructs are described in relational statements called postulates (Dulock & Holzemer, 1991; Zauszniewski, 1995a) (Figure 1). Each vertical configuration represents a descending level of abstraction of each concept from the theory (Dunn, 2004). Four concepts were derived from four constructs in the proposed model of Rosenbaum's theory of learned resourcefulness. The construct situational factors include relocation as a concept, which is defined as "a change in environment when one moves from one location to another, experiences a change in life situation, and adjusts to new surroundings; it is a disruptive emotional experience that can cause anxiety, loss, pain, anger, and isolation" (Gaylord & Symons, 1986, p. 32; Remer & Buckwalter, 1990). More recently, Lutgendorf et al. defined relocation as "a stressful life event in the life of older adults because it is frequently accompanied by major losses such as changes in possessions, social support systems, self-perception and mobility " (Lutgendorf et al., 1999 , p. 553).

Cognitive appraisal represents an aspect of the larger construct, process-regulating cognition. Cognitive appraisal is defined as the cognitive process by which people evaluate things or events subjectively with regard to their worth or significance (Lazarus & Folkman, 1984).

The construct of self-control behavior includes learned resourcefulness, a concept that represents a dimension of the larger construct. Learned resourcefulness has been defined as an intraindividual

coping resource (White, Tata, & Burns, 1996) and as a personal characteristic acquired through interactions with others and demonstrated in the ability to independently manage daily activities (Zauszniewski, 1995a).

Finally, the concept adaptive behavior is derived from the construct of target behaviors that are health-related; it represents many dimensions of daily living and refers to the ability of the individual to behave in an appropriate manner within the person's social roles and to carry on self-care activities in a psychologically stable manner (Zauszniewski, 1997a, 1997b).

Propositions make up the horizontal axis that represents relational statements between concepts (Figure 1) (Dunn, 2004; Zauszniewski, 1995a). The model of Rosenbaum's theory identifies the following propositions: Humans use cognitive appraisal and learned resourcefulness in achieving adaptive behaviors, and the effects of relocation on adaptive behavior can be modified by cognitive appraisal and learned resourcefulness. Cognitive appraisal and learned resourcefulness thus affect the attainment of adaptive behaviors.

Variables refer to dimensions of phenomena (Hage, 1972) and are used to order phenomena according to some property (Zauszniewski, 1995a). Variables are, in fact, subconcepts derived from more global concepts (Fawcett & Downs, 1986; Zauszniewski, 1995a). Four variables were derived from Rosenbaum's theory of learned resourcefulness: relocation controllability, positive cognitions, resourcefulness skills, and relocation adjustment (Table 1). Bekhet and colleagues have investigated the relationships among these four variables in 104 elders who relocated to retirement communities (Bekhet, Zauszniewski, & Wykle, 2008)

Relocation controllability is the extent to which elders decide to move while they are still in control of the move and the extent to which they participate in choosing to move (Lutgendorf, Vitaliano, Reimer, Harvey, & Lubaroff, 1999).

Positive cognitions are defined as "a collection of specific positive thinking patterns that are thought to enhance one's ability to effectively manage daily activities and promote mental health" (Zauszniewski, McDonald, Krafcik, & Chung, 2002, p. 733).

Resourcefulness skills constitute a behavioral repertoire of cognitive skills that minimize the potentially disturbing effects of thoughts and feelings on daily activities and adjustment. These skills include self-control, problem-solving skills, and a belief in one's ability to cope effectively with adverse situations (Zauszniewski, 1995a).

Relocation adjustment is adaptation to a particular condition that is the movement from one location to another. Relocation adjustment includes two integrally related dimensions of adjustment: congruence and continuity. The congruence of adjustment includes the physical integration of the self, the experience of psychosocial and cultural belonging, and the maintenance and maximization of control and independence in interactions with situational stimuli. Continuity reflects the need of the individual undergoing relocation to maintain a sense of connection with his or her past (Prager, 1986).

As shown in the diagram (horizontal arrows), the relationships among the variables are premises (Figure 1) (Jacox, 1974; Zauszniewski, 1995a). However, in the vertical configuration, the relationships

between concepts and variables are described as epistemic assumptions (Northrop, 1947; Zauszniewski, 1995a) (Figure 1).

Our study in progress, "Milieu change and relocation adjustment in elders" (Bekhet et al., 2008), has several premises that reflect the relationships among study variables. These premises, supported by theoretical writings from nursing and other related disciplines, are discussed below.

The relationship between voluntary/involuntary relocation and adjustment is supported by the premise that those who moved voluntarily had better adjustment than those who moved involuntarily (Schultz & Brenner, 1977). The relationship between resourcefulness skills and positive cognitions is supported by Rosenbaum's (1983) theory of learned resourcefulness, which posits that those with high resourcefulness will not be affected by disturbing thoughts and feelings. Furthermore, highly resourceful individuals will use positive cognitive skills to function independently and continue daily activities with better adjustment.

Lewinsohn and Alexander (1990) found that resourcefulness skills were significantly related to satisfaction with social relationships. More specifically, greater resourcefulness skills were related to greater satisfaction with social relationships, suggesting that resourcefulness skills may also be related to adjustment to new situations involving changes in social relationships, such as relocation to retirement communities.

OPERATIONAL SYSTEM

Empirical Indicators. The operational system includes empirical indicators, scores, values, and measures of study variables (Zauszniewski, 1995a). Empirical indicators are actual instruments or experimental conditions (Dulock & Holzemer, 1991; Zauszniewski, 1995a). Scores and values are units of measurements (Dulock & Holzemer, 1991), and measurements are the means of assigning units (Dulock & Holzemer, 1991). Transformational statements represent the relationships between variables and empirical indicators, which are logically derived (see Figure 1) (Dulock & Holzemer, 1991; Zauszniewski, 1995a). In our study of the adjustment of elders relocating to retirement communities, empirical indicators were identified from reliable and valid measures. The scores derived from these four instruments represent the operationalization of study variables.

The empirical indicator for relocation controllability is the Pressure to Move Scale (PMS) developed by Smider, Essex, and Ryff (1996). This scale consists of nine items that reflect the extent to which the respondent feels that he or she was pressured or pushed to relocate by others or by circumstances. The response options are set up as a 6-point continuum, with anchors of "1" "not at all" and "6" "very much." There are no specific descriptors associated with the numbers 2 to 5. Subjects are asked to select a number that best describes where they put themselves on the continuum.

The empirical indicator for positive cognitions is the Depressive Cognition Scale (DCS), developed by Zauszniewski (1995b). When DCS measures depressive cognitions, scoring is reversed because the items are phrased in a positive direction (Zauszniewski, Chung, Krafcik, & Sousa, 2001). However, in this study, scores are not reversed and therefore measure positive cognitions. The scale has also been used in this way in previous research (Zauszniewski, McDonald, Krafcik, & Chung, 2002). The 6-point Likert scale ranges from 0 "strongly disagree" to 5 "strongly agree" to indicate the degree to which a

particular statement describes the respondent's current thoughts. Strong agreement with a specific item indicates presence of a positive cognition.

The empirical indicator of resourcefulness skills is the Self-Control Schedule (SCS; Rosenbaum, 1980). The SCS is a well-known and accepted self-report measure that assesses individual tendencies to apply resourcefulness skills to solve behavioral problems (Rosenbaum, 1990). The SCS consists of 36 Likert-type items answered using a 6-point scale. Respondents indicate the degree to which each item describes their behavior, ranging from "0" (very characteristic of me) to "5" (very uncharacteristic of me).

The empirical indicator for relocation adjustment is the Index of Relocation Adjustment Scale (IRA; Prager, 1986), a six-item, 4-point Likert-type scale with item responses ranging from completely agree to completely disagree. The six items reflect two related dimensions of adjustment: congruence and continuity. The physical integration of the self, the experience of psychosocial and cultural belonging, and the maintenance and maximization of control and independence in interaction with one's situational stimuli are suggested by the first three items. The last three items reflect the need to relocate individuals to maintain a sense of continuity with their past.

Hypotheses are relational statements between empirical indicators (Dunn, 2004; Zauszniewski, 1995a) (Figure 1). In the current study, several research hypotheses were tested. Measures of relocation controllability (PMS), positive cognitions (DCS), and resourcefulness skills (SCS) were expected to positively affect the measure of relocation adjustment (IRA). In addition, the measure of relocation controllability (PMS) was expected to affect the measure of relocation adjustment (IRA) through the measures of positive cognition (DCS) and resourcefulness skills (SCS).

Scores Obtained. To calculate the score for the Pressure to Move Scale, four items are reverse coded. The scores on individual items are then summed. Scores may range from 9 to 54. Higher scores reflect greater pressure to move. On the Depressive Cognition Scale, scores on individual items are summed; the scores may range from 0 to 40, and the higher the score, the greater the number of positive cognitions. On the Self-Control Scale, items are scored from 0 to 5 (Zauszniewski, 1994, 1995a; Zauszniewski & Wykle, 1994) and scores range from 0 to 180, with higher scores (after reverse scoring 11 negatively worded items) indicating greater use of resourcefulness skills (Rosenbaum, 1990; Zauszniewski, 1997a). Finally, on the Index of Relocation Adjustment Scale, the score for each item ranges from 0 to 3, and scale scores range from 0 to 18, with higher scores (after reverse scoring three items phrased negatively) indicating better relocation adjustment.

Descriptive and inferential statistics were used to examine the relationships between the scores on measures of the study variables (see Figure 1) (Dulock & Holzemer, 1991; Zauszniewski, 1995a). Analytical strategies included descriptive statistics (i.e., means, standard deviations), correlational analyses, and hierarchical multiple regression.

CONCLUSION

Theoretical substruction addresses consistency between the theoretical and the operational aspects of a study design (Beattie & Algase, 2002; Dulock & Holzemer, 1991) and facilitates determination of testable research hypotheses that are consistent with the study's theoretical underpinnings

(Zauszniewski, 1995a). Substruction, then, can be used to examine theoretical models and plan a study in such a way to ensure that the theoretical and empirical systems are linked (Dulock & Holzemer, 1991). Theoretical substruction thus provides an invaluable guide for theory testing research in nursing (McQuiston & Campbell, 1997), which, in turn, contributes to nursing science and knowledge development (Hardy & Conway, 1988). This article has used Rosenbaum's (1980, 1990) theory of learned resourcefulness to illustrate the articulation and consistency between the theoretical and empirical dimensions of research.

In summary, the theoretical substruction includes highly abstract concepts, relational statements, and propositions from theory. It also includes new middle-range concepts, relational statements, and propositions derived from the research literature. Then, configurations are completed with the integration of empirical indicators (Dunn, 2004). The testing of hypothesized relationships among measures of the study variables following theoretical substruction provides a mechanism for testing middle-range theories that may contribute to nursing knowledge development (Zauszniewski, 1995a).

REFERENCES

- The American Heritage dictionary of the English language (4th ed.). (2000). Boston: Houghton Mifflin.
- Beattie, E. R., & Algase, D. L. (2002). Improving table-sitting behavior of wanderers via theoretic substruction. *Journal of Gerontological Nursing*, 28 (10), 6-11.
- Bekhet, A., Zauszniewski, J. A., & Wykle, M. (2008). Midwest nursing research society sage best paper award: Milieu change and relocation adjustment in elders. *Western Journal of Nursing Research*, 30(1), 113-129.
- Bruner, J. S. (1963). *The process of education*. New York: Vintage.
- Dulock, H. L., & Holzemer, W. L. (1991). Substruction: Improving the linkage from theory to method. *Nursing Science Quarterly*, 4 (2), 83-87.
- Dunn, K. S. (2004). Toward a middle range theory of adaptation to chronic pain. *Nursing Science Quarterly*, 17 (1), 78-84.
- Fawcett, J., & Downs, F. (1986). Analysis of theory. In J. Fawcett & F. Downs (Eds.), *The relationship of theory and research* (pp. 13-52). Norwalk, CT: Appleton-Century-Crofts.
- Frederickson, K. (1992). Research methodology and nursing research. *Nursing Science Quarterly*, 5 (4), 150-151.
- Gaylord, M., & Symons, E. (1986). Relocation stress: A definition and a need for services. *Employee Assistance Quarterly*, 2 (1), 31-36.
- Gibbs, J. (1972). *Sociological theory construction*. Hinsdale, IL: Dryden.
- Hage, J. (1972). *Techniques and problems of theory construction in sociology*. New York: Wiley.
- Hardy, M. E., & Conway, M. E. (1988). *Role theory: Perspectives for health professionals* (4th ed.). California : Appleton & Lange.
- Hodnicki, D., Horner, S., & Simmons, S. (1993). The sea of life: A metaphorical vehicle for theory explication. *Nursing Science Quarterly*, 6 (1), 25-27.
- Jacox, A. K. (1974). Theory construction in nursing: An overview. *Nursing Research*, 23 (1), 4 -13.
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York: Springer Publishing.
- Lewinsohn, P. M., & Alexander, C. (1990). Learned resourcefulness and depression. In M. Rosenbaum (Ed.), *Learned resourcefulness: On coping skills, self-control, and adaptive behavior* (pp. 203-217). New York: Springer Publishing.

- Lutgendorf, S. K., Vitaliano, P. P., Reimer, T. T., Harvey, J. H., & Lubaroff, D. M. (1999). Sense of coherence moderates the relationship between life stress and natural killer cell activity in healthy older adults. *Psychology and Aging, 14* (4), 552-563.
- McQuiston, C. M., & Campbell, J. C. (1997). Theoretical substruction: A guide for theory testing research. *Nursing Science Quarterly, 10* (3), 117-123.
- Northrop, F. (1947). *The logic of the sciences and humanities*. New York: Macmillan.
- Prager, E. (1986). Components of personal adjustment of long distance elderly movers. *The Gerontologist, 26* (6), 676-680.
- Remer, D., & Buckwalter, K. (1990). Decreasing relocation stress. *Continuing Care, 26*, 42-50.
- Rosenbaum, M. (1980). A schedule for assessing self-control behaviors: Preliminary findings. *Behavior Therapy, 11*, 109-121.
- Rosenbaum, M. (1983). Learned resourcefulness as a behavior repertoire for the self- regulation of internal events: Issues and speculations. In M. Rosenbaum, C. M. Franks, & Y. Jaffe (Eds.), *Perspectives on behavior therapy in the eighties* (pp. 54-73). New York: Springer Publishing.
- Rosenbaum, M. (1990). *Learned resourcefulness on coping skills, self-control, and adaptive behavior*. New York: Springer Publishing.
- Schoenhofer, S. O. (1993). What constitutes nursing research? *Nursing Science Quarterly, 6* (2), 59-60.
- Schultz, R., & Brenner, G. (1977). Relocation of the aged: A review and theoretical analysis. *Journal of Gerontological Nursing, 32* (3), 323-333.
- Smider, N. A., Essex, M. J., & Ryff, C. D. (1996). Adaptation to community relocation: The interactive influence of psychological resources and contextual factors. *Psychology and Aging, 11* (2), 362-372.
- White, R., Tata, P., & Burns, T. (1996). Mood, learned resourcefulness, and perceptions of control in type I diabetes mellitus. *Journal of Psychosomatic Research, 40* (2), 205-212.
- Wolf, Z. R., & Heinzer, M. M. (1999). Substruction: Illustrating the connections from research question to analysis. *Journal of Professional Nursing, 15* (1), 33-37.
- Zauszniewski, J. A. (1994). Health seeking resources and adaptive functioning in depressed and non-depressed adults. *Archives of Psychiatric Nursing, 8* (3), 159-168.
- Zauszniewski, J. A. (1995a). Operationalization of a nursing model for psychiatric nursing research. *Western Journal of Nursing Research, 17* (4), 435-447.
- Zauszniewski, J. A. (1995b). Development and testing of a measure of depressive cognition in older adults. *Journal of Nursing Measurement, 3* (1), 31-41.
- Zauszniewski, J. A. (1997a). Evaluation of measure of learned resourcefulness for elders. *Journal of Nursing Measurement, 5* (1), 71-86.
- Zauszniewski, J. A. (1997b). Teaching resourcefulness skills to older adults. *Journal of Gerontological Nursing, 23* (2), 14-20.
- Zauszniewski, J. A., Chung, C. W., Krafcik, K., & Sousa, V. D. (2001). Psychometric testing of the Depressive Cognition Scale in women with type 2 diabetes. *Journal of Nursing Measurement, 9* (1), 61-72.
- Zauszniewski, J. A., McDonald, P. E., Krafcik, K., & Chung, C. W. (2002). Acceptance, cognitions, and resourcefulness in women with diabetes. *Western Journal of Nursing Research, 24* (7), 728-741.
- Zauszniewski, J. A., & Wykle, M. L. (1994). Racial differences in self-assessed health problems, depressive cognitions, and learned resourcefulness. *Journal of National Black Nurses Association, 7* (1), 3-14.