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Reviewers
We have many things to celebrate this issue! Our original manuscripts are excellent. The Review Board is outstanding. And, we are announcing Dr. Mary L. White as Co-Editor Elect to replace Dr. Violeta Berbiglia as she retires. Dr. Virginia Keatley continues as Co-Editor. Vi will remain as a consulting editor for 1 year after this issue. Mary’s creativity and energy are already being felt. She is on sabbatical preparing for her co-editor position. Dr. White, Associate Professor, University Detroit Mercy holds appointments to McAuley School of Nursing and the College of Health Professions. In addition, she works as a certified nurse practitioner at the University Health Clinic and Birmingham Family Practice. Dr. White is known for her published research on spirituality and heart failure, women and cardiovascular disease, and evidence-based practice in pediatrics.

Thank you, Mary, for joining us.

Our goals for this transition are to:

- Maintain the journal’s high standards
- Support the scholarly endeavors of the International Orem Society for Scholarship and Nursing Science
- Increase our readership
- Provide an effective venue for connecting nursing theory with education, practice and research.

Violeta Berbiglia, Co-Editor
Virginia Keatley, Co-Editor
Mary White, Co-Editor Elect

I have several items I would like to share with you about the IOS Board activities during the past year:

Under the leadership of Dr. Donna Hartweg, the IOS is working with the Alan Mason Chesney Medical Archivists of Johns Hopkins Medical Institutions to ensure appropriate preservation of Dorothea Orem and IOS historical materials. The Orem Collection was one of the top ten collections accessed at the library this past year. Copyrighted materials from the estate of Walene Shields, including documents from Orem, will be added to the collection at Alan Mason Chesney. A deeded gift established by Dorothea entrusted these materials to Johns Hopkins. Funds are needed to digitalize the collection to facilitate easy electronic access. The IOS Board will move forward with plans to maintain our documents as a separate entity but linked to the Orem Collection at Johns Hopkins.

The IOS Board’s goal to establish working groups for the development of the Self-Care Deficit Nursing Theory (SCDNT) came to fruition through Board efforts. During the summer of 2013, a group of six experienced Orem scholars spent two days reviewing and discussing the recent self-care literature via video conferencing. The group began the process of explicating the universal self-care requisite of normalcy within the SCDNT. Individual work continued and evolved with several members meeting face to face during the winter months. I am pleased to tell you that at least one scholarly paper that explores normalcy will be forthcoming as a product their work. Those interested in the SCDNT, particularly new scholars, are encouraged to contact me if you are interested in joining a workgroup.

As highlighted in this issue, Dr. Vi Berbiglia, long time editor and co-editor of the IOS journal, Self-Care, Dependent Care & Nursing, is leaving her position this year. Dr. Berbiglia’s enthusiasm and her dedication to the IOS should be an inspiration to all of us. We thank Dr. Berbiglia for her service and welcome Dr. Mary White who is the new co-editor of the Journal.

As I leave the office of President, I remind you that the IOS is a voluntary organization sustained by the commitment of members. We need the efforts and creative ideas of each person to develop a long-range plan to maintain the visibility of the SCDNT. In addition, I continue to urge members to search for opportunities to
connect with all those interested in development and use of nursing theory, SCDNT as well as other theories. These mutually beneficial relationships are a significant way to reestablish the relevance of nursing theory in future nursing environments.

Thank you for the opportunity to serve the IOS as President.

Sharie Metcalfe
The Role of Executive Function Between Severity of Type 2 Diabetes and Self-Care
Patricia K. Gatlin, PhD, RN, CNE

Abstract
Orem’s Self-Care Deficit Theory was used to inform hypotheses of associations between perceived severity of illness, executive function and self-care among adults (> 45 years of age) with Type 2 Diabetes Mellitus (T2DM). Executive function (EF) was examined as a foundational capability using Orem’s theory. Measures include the modified Diabetes Care Profile section on Health Status Composite (HSC) providing information on severity of illness, the EXIT 25, the Self-Care Inventory Revised (SCI-R) and hemoglobin A1c. Sixty-seven adults with a mean age of 62.9 years who were primarily Caucasian (92.5%) were involved. There were 30 men and 37 women. Mean body mass index was 35.11 reflecting the majority of participants were obese. Findings indicate that EF is significantly associated with HSC ($r = -.504, p < .01$) and associated with both indicators of self-care, the SCI-R and HgA1c ($r = -.313, p < .01, r = -.510, p < .01$). Executive function was examined as a mediator between severity of illness and the indicators of self-care (SCI-R and HgA1c) with evidence for full mediation. Findings are discussed in relationship to Orem’s Self-Care Deficit Nursing Theory.

Keywords: Self-care, diabetes, self-care agency, working Memory

Introduction
Diabetes Mellitus is a chronic illness affecting approximately 26 million people in the U.S., with Type 2 Diabetes Mellitus (T2DM) accounting for 90 to 95% of all the diagnosed cases (Center for Disease Control, 2011). This chronic disease requires specific self-care activities in order to manage the deleterious effects of hyperglycemia. Current standards set by the American Diabetes Association (ADA) (2013) specify that self-care consists of monitoring blood glucose through testing and monitoring, regulating nutrition, engaging in aerobic and weight resistance physical activities, and monitoring/regulating complicated medication regimens, such as insulin, oral hypoglycemia agents, anti-hypertension medications and lipid lowering agents.

The cognitive processes necessary for individuals to plan a diet, monitor and treat blood glucose levels and regulate physical activity involve executive function (EF). Executive function (EF) is the cognitive process needed for planning, organizing, problem solving, reasoning, inhibition, mental flexibility, attention and task switching (Monsell, 2003). Individuals with T2DM who are on specialized diets must keep in mind how many calories, carbohydrates and fats are ingested with a meal while adding that information to their ongoing knowledge of other foods consumed that day, daily activity demands, and antihyperglycemic agents taken—all while ignoring irrelevant competing information. An individual with T2DM must also keep in mind his or her current blood glucose levels while planning a meal, and must decide whether or not more medication is needed before or after the meal to control blood glucose levels. Hence, diabetes self-care involves the cognitive processes of EF.

It has consistently been shown in both longitudinal and cross-sectional studies that individuals with T2DM have lower performance levels in certain measures of cognitive functions when compared to individuals without diabetes (Allen, Frier, & Strachan, 2004; Arvanitakis, Wilson, Bienias, & Bennett, 2006; Cukierman, Gerstein, & Williamson, 2005; Nooyens, Bann, Spijkerman & Verschuren, 2010; Roriz-Filho et al., 2009; Spauwen et al., 2013). However, despite the empirical evidence suggesting an association between T2DM and lower cognitive function when compared to those without diabetes, little is known about the relationship between cognitive function, specifically EF, and self-care (SC) among individuals with T2DM.

Orem’s (2001) general nursing theory, Self-Care Deficit Nursing Theory (SCDNT) provided the theoretical framework to explore the relationships between severity of T2DM, EF, and SC in this study. The overall purpose of this study was to explore relationships between severity of T2DM, EF, and diabetes SC, as well as to test a portion of Orem’s SCDNT among middle and older aged individuals with T2DM. Specifically the following hypotheses were proposed: (1) Increased severity of T2DM will be associated with decreased performance of EF; (2) Decreased performance on measures of EF will be associated with lower
The foundational capabilities can directly affect the effects of severity of T2DM on SC.

Theoretical Framework

The study was guided by the SCDNT, which proposes that certain factors (basic conditioning factors) such as T2DM, can, at points in time, condition or affect an individual’s ability (self-care agency) to engage in self-care (Orem, 2001). The theory conceptually defines self-care as deliberate action one initiates to maintain life, health and well-being. Individuals with chronic illness, specifically T2DM must engage in specific self-care actions to maintain life, health and well-being (e.g. nutritional and medication regimens). Research has shown that individuals with T2DM have poor self-care in the areas of managing their medication regimen, monitoring blood glucose levels, following a prescribed diet, and executing exercise treatment plans (Peyrot, Rubin, Lauritzen, Snoek, Matthews, & Skovlund, 2005). Understanding why individuals with T2DM may have poor self-care is important to help reduce co-morbid conditions associated with T2DM and improve the quality of life of individuals with T2DM. While reasons for poor self-care have been related to multiple factors such as low socioeconomic status, health beliefs, inadequate family support, and lack of health care provider support, little is known about the effects of particular cognitive processes on self-care in this population.

The ability to engage in self-care is called self-care agency. To be more specific, Orem (2001) defines self-care agency as the “complex acquired capability to meet one’s continuing requirements for care of self that regulates life processes, maintains or promotes integrity of human structure and functioning and human development, and promotes well-being” (p. 254). The development of the concept of self-care agency was based on the assumption that self-care agency is the power or ability of an individual to engage in estimative, transitional and productive operations of self-care (NDCG, 1979). Orem and the NDCG (1979) further determined that in order for one to engage in these types of self-care operations or any type of deliberate action, one must have general or foundational capabilities; such as physical, mental, motivational, and emotional capabilities. Thus, self-care agency encompasses three types of complex abilities necessary for self-care. These hierarchical abilities are foundational capabilities, enabling capabilities, and operational capabilities for self-care operations (Orem, 2001).

Foundational capabilities of self-care agency are general abilities regarding sensation, attention, memory, perception and orientation. Alterations in the foundational capabilities can directly affect the higher order capabilities of self-care agency, such as sensation, ability to learn, attention, perception, and memory that are necessary for one to have the ability to know and reason, and make judgments and decisions for any deliberate action. The concept of EF, while not specifically described in Orem’s theory, could be classified as elements of select foundational capabilities of self-care, such as attention, perception, memory, and reasoning (Orem, 2001)

Basic conditioning factors are elements internal or external to the individual that can, at points in time, affect the individual’s ability to engage in self-care or affect the kind and amount of self-care required. Orem (2001) listed ten basic conditioning factors: Age, Gender, Developmental State, Health State, Sociocultural Orientation, Health Care System Factors, Family System Factors, Patterns of Living, Environmental Factors, and Resource Availability. These basic conditioning factors can be categorized according to how they describe/characterize an individual, such as age, gender, health state and developmental state; or how they relate an individual to their family, such as family systems and sociocultural origins, or how the individual is located in their world, such as health care system factors, patterns of living, environmental factors and resource availability (Orem).

Orem (2001) has continually stressed that not all basic conditioning factors are operable at all times. Some basic conditioning factors can remain stable, such as developmental state in mature adults; whereas other basic conditioning factors can fluctuate and change, such as health state. Basic conditioning factors may also interact with one another to condition self-care agency. An example offered by Orem is the relationship between aging and health state in persons with advanced age.

The basic conditioning factor of specific interest in this study is health state. Health as a state refers to a personal basic conditioning factor that describes the compound entity of an individual’s structural, physical, functional and mental integrity at a particular time (Orem, 2001).

Type 2 Diabetes Mellitus is a chronic illness defined as a metabolic disorder in which the body either cannot produce enough insulin or cannot properly use the insulin it does produce. The resulting consequence is hyperglycemia that leads to structural and functional damage to both micro and macro vascular tissue. Damage to micro and macro vascular tissue can result in multiple co-morbid conditions, such as atherosclerosis, coronary artery disease, diabetic nephropathy, retinopathy, macular edema, cataract formation, glaucoma, and peripheral, autonomic, focal and proximal neuropathies (CDC, 2011).
Support for Hypothesis

The relationship between basic conditioning factors and self-care agency is stated in a proposition by Orem (2001), which states, “individuals’ abilities to engage in self-care are conditioned by age, developmental state, life experience, sociocultural orientation, health state, and available resources” (p. 147). The relationship between basic conditioning factors and self-care agency is further supported by the definition of basic conditioning factors, as factors internal or external to the individual that can, at points in time, affect the individual’s ability to engage in self-care. The proposition and definition offered by Orem defines a relationship between the two concepts. Therefore, a relationship between health state (severity of T2DM), and foundational capabilities (EF) could be hypothesized, as health state is a basic conditioning factor within Orem’s theory and foundational capabilities are the foundational base for the hierarchical structure of self-care agency.

Orem (2001) explicitly states a relationship between self-care agency and self-care in a proposition, “persons who take action to provide their own self-care have specialized capabilities for action” (p. 147). The specialized capabilities for action referred to by Orem are consistent with her definition of self-care agency, as “the complex acquired capability to meet one’s continuing requirements for care of self” (p. 254). Thus, the proposition offered by Orem asserts a relationship between self-care agency and self-care. Therefore, it could be hypothesized that a relationship exists between foundational capabilities (EF) and health deviation self-care (diabetes self-care) since foundational capabilities are the foundational component of the hierarchical structure of self-care agency and health deviation self-care is a type of self-care specific to a state of health.

Significance

Currently, there is little research regarding the foundational capabilities of self-care agency and lack of published research regarding EF as a foundational capability using Orem’s theory. Thus, the relevance of examining the relationship between and among severity of T2DM, EF and SC can be considered from both a clinical and a theoretical perspective. From a clinical perspective, little is known regarding how EF affects the ability to engage in SC among individuals with T2DM. Most research has focused on the relationship of decline in types of cognitive processes associated with T2DM. There has been a paucity of research investigating the relationship between the cognitive processes and SC among individuals with T2DM that includes the concept of severity of T2DM. Understanding the relationship among these concepts is foundational to future research studies, as intervention studies may be premature without a clear understanding of how the individual’s ability to engage in SC is affected.

From a theoretical perspective, this research will contribute to nursing knowledge via theory testing. Theory testing will offer empirical validity to selected relationships stated as propositions within Orem’s (2001) SCDNT. The theoretical model tested (Figure 1) in this study articulates the nature of relationships between basic conditioning factors (severity of T2DM), self-care agency (executive function) and self-care (diabetes self-care) beyond the propositions stated by Orem. Thus, the results of this inquiry provide new insight regarding the ability for engagement in self-care among individuals with T2DM, while expanding the current state of Orem’s theory.

Materials and Methods

Study Design and Sample

This work is a cross-sectional, non-experimental study, and was conducted at a private university in the Northwest region of the United States. A convenience sample of 67 middle-aged and older individuals with T2DM was used, and individuals were collected from areas surrounding the university. Recruiting efforts included advertising in local newspapers, posting a recruitment flyer at multiple churches and by sending a recruitment letter explaining the purpose of the study to potential subjects who had expressed interest in studies conducted at the university. The exclusion criteria included self-reports of a history of stroke or head injury, diagnosis of Parkinson’s disease, and history of alcohol or drug abuse. Exclusion criteria included a score less than 24 on the Mini Mental State Examination (Folstein, Folstein, & McHugh, 1975) or a score greater than 16 on the Center for Epidemiologic Studies Depression Scale (Radloff, 1977), as dementia and depression are known predictors of decreased cognitive function (Huang, Wang, Li, Xie, & Liu, 2011; McDermott & Ebmeier, 2009). Exclusion criteria also included a random blood glucose of less than 70 mg/dl or greater than 250 mg/dl on the day of data collection, as blood glucose levels below 70 or greater than 250 can affect cognitive testing, especially in the areas of working memory (Bruce, Harrington, Foster, & Westervelt, 2009; Cox et al., 2005).

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Measures

Screening measures. The Center for Epidemiologic Studies Depression Scale (CES-D) (Radloff, 1977) was used to assess the presence of symptoms of depression. The CES-D scale is a valid and reliable scale for screening for depression in the general population, as well as for screening for depressive symptoms in individuals with T2DM (Stahl et al., 2008). Scores ranged from 0-60, with higher scores (> than 16) indicating more symptoms of depression (Radloff). The Mini-Mental State Examination (MMSE) (Foistin et al., 1975) was used to screen for signs of dementia. The MMSE has been shown to be a reliable and valid tool for screening individuals for dementia (Tombaugh & McIntyre, 1992). Scores on the MMSE can range from 0-30; a score less than 24 is considered indicative of dementia.

A blood glucose finger stick was used to assess for the presence of hypo or hyperglycemia on the day of cognitive testing. The OneTouch UltraSmart Blood Glucose Monitoring System and a Surgilance Safety Lancet were used to complete the random blood glucose finger stick.

Demographic and Severity of Type 2 Diabetes. Demographic data and data to assess severity of T2DM were gathered using a modified questionnaire derived from the Diabetes Care Profile and Diabetes History Form (Fitzgerald et al., 1996). The original Diabetes Care Profile is a reliable and valid survey tool with internal consistency ranging from 0.66 to 0.97, having been used with elderly, minority (Hispanic and African Americans), insulin dependent, and non-insulin dependent subjects (Cunningham et al., 2005; Fitzgerald et al., 1996; Fitzgerald et al., 1998). To reduce participant burden, the lengthy Diabetes Care Profile and Diabetes History Form was modified to include only questions that addressed the research variable severity of T2DM. Three measures from the Modified Diabetes Care Profile (mDCP) were used to assess the severity of T2DM, including: (1) Health status composite (HSC); (2) number of prescription medications; and (3) number of comorbidities. The HSC was derived from the quality of life questions (related to physical function, role function, pain and general health) on the mDCP. A z-score was computed for each quality of life indicator and then summed together for a composite score. The higher the score on HSC indicated less severity of T2DM. Severity of T2DM was also assessed by the number of prescription medications and number of comorbidities listed on the mDCP. The number for prescription medications and comorbidities was continuous; a lower number of prescription medications and lower number of comorbidities indicated less severe T2DM, while higher numbers indicated more severe T2DM.

Executive Function. The measure of EF used in the study was the Executive Interview 25 (EXIT 25) (Royall, Mahurin, & Gray, 1992). The EXIT 25 is a bedside tool that consists of 25 items measuring symptoms of executive function failure such as motor sequencing, spoken alternate sequencing, verbal fluency, design fluency, and persistence and resistance to interference. These skills relate to attention, perception, memory, and reasoning, elements of the basic foundational capabilities and dispositions of self care agency. (Orem, 2001).

The maximum score on the EXIT 25 is 30, with a cut off of 23, the higher indicating impairment in executive function. The EXIT 25 has been used with subjects with mild dementia, bipolar disorders, Alzheimer’s disease, frontal-temporal dementia, and individuals with T2DM (1 Royall, Mahurin, & Gray, 1994; Stokholm, Vogel, Gade, & Waldemar, 2005; Thabit et al., 2009). In past studies, the EXIT 25 has had good interrater reliability (r = .90) and has proven to discriminate among different types of executive function disorders (Royall, Mahurin, & Gray, 1992).

Self-care: Diabetes Self-care Actions. Diabetes self-care was measured using the Self-Care Inventory-Revised (SCI-R) questionnaire (Weinger, Butler, Welch & LaGreca, 2005) and Hemoglobin A1c. The 25-item self-report SCI-R tool asked subjects to rate how well they followed recommendations for self-care during the past month on a 5-point Likert scale (i.e., 1 = “never do it,” to 5 = “always do this as recommended”). The items on the SCI-R address diet, glucose monitoring, medication administration, exercise, low glucose levels, and preventative/routine aspects of self-care. Scores on the SCI-R range from 15 to 75. The higher the score on the SCI-R, the more self-care actions performed. Weinger and colleagues (2005) found that the SCI-R tool is a reliable (internal consistency α = .87) and valid tool for measuring self-care behaviors in adults with type 2 diabetes.

Another measure of diabetes self-care used in the study was Hemoglobin A1c (HgbA1c) blood test (Sacks et al., 2002). The HgbA1c measures plasma glucose levels over the previous 90 days and is a good indicator regarding the degree of glycemic control via self-care actions (ADA, 2013). HgbA1c levels less than 7% are considered good glycemic control, indicating good self-care, according to the ADA (2013); whereas HgbA1c levels greater than 7% are considered poor glycemic control, indicating lack of self-care.
Procedures

Prior to initiating the study, the research protocol was approved by the Institutional Review Board for Human Subjects. After obtaining informed consent, participants’ eligibility was confirmed by completing the CES-D (Radloff, 1977), the MMSE (Folstein et al., 1975) and random blood glucose finger stick samples.

Each participant met with the researcher for a one-time visit during an agreed upon appointment. After confirming eligibility, one milliliter of venous blood via venipuncture was collected to test for HgbA1c. All HgbA1c laboratory tests were conducted at Quest Diagnostic Laboratory. Then, with the help of the investigator, participants completed the self-report mDCP and the SCI-R. Next, the investigator administered the EXIT 25. After data collection was complete, participants were asked if they had questions and were given a $10.00 Visa Gift Card for taking the time to participate in the study.

Results

Predictive Analytics Software (SPSS, 2009) was used to analyze the data. The study sample was described using univariate summary statistics (Table 1). Correlation and regression statistics were used to examine the direction, strength and significance of the relationships among the variables of severity of T2DM and EF and diabetes self-care.

There were 30 males and 37 females between the ages of 45-89 years, with the duration of T2DM ranging from 2-33 years (mean 10.61, SD 6.13). Overall, the study sample was mostly Caucasian (n = 62, 92.5%), married (n = 47, 70.1%), and educated with a college degree or higher (n = 40, 59.7%). Despite the majority of the subjects falling in the obese category (n = 44, 65.7%), according to the CDC (2011), the sample had evidence of good self-care with a mean score of 62.66 (SD = 12.25) on the SCI-R and mean HgbA1c of 6.89%. The mean number of comorbidities self-reported was 5.54 (SD = 3.36), with 83.6% (n = 56) having high cholesterol, 82.1% (n = 55) being treated for hypertension, and 50.7% (n = 34) having peripheral neuropathy. On average, participants had 7.46 (SD = 3.83) prescription medications with 34.3% (n = 23) taking insulin to control their blood glucose.

Correlational Analysis of Major Study Variables

The extent to which the major study variables related to each other was examined (Table 2). All three measures of severity of T2DM (total number of medications, total number of comorbidities, and HSC) were significantly correlated with one another. However, the two measures of diabetes self-care (SCI-R and HgbA1c) were not significantly correlated.

Hypotheses

Hypothesis 1. Increased severity of T2DM is associated with lower performance measures of EF. The relationship between all measures of severity of T2DM (HSC, number of comorbidities, and number of prescription medications) and the EXIT 25 were significantly correlated (r = -.504, p < .01, r = .492, p < .01, r = .326, p < .01). Overall, Hypothesis 1 was supported: the more severe the T2DM—as measured by self-report of health status, number of comorbidities, and number of prescription medication—the poorer the scores on the EXIT 25, indicating worse performance on measures of EF.

Hypothesis 2. Lower performance measures of EF are associated with lower indicators of self-care. There were significant correlations between the EXIT 25 with HgbA1c (r = .510, p < .01) and a significant correlation between the EXIT 25 and SCI-R (r = -.313, p < .01), indicating that the poorer the scores the EXIT 25, the poorer the overall level of SC. Thus, Hypothesis 2 is fully supported.

Because age is known to be associated with cognitive measure performance, the significant relationships in this hypothesis were analyzed controlling for the variable of age. In order to control for age two multiple regression analyses investigating the effects of age on the relationship between (1) EXIT 25 and HgbA1c, and (2) EXIT 25 and SCI-R was conducted.

In the first multiple regression analysis, to control for the effects of age, age was entered first and then the EXIT 25 was added. With age as the only independent variable, the R² was 0.002, F = 0.133, n.s. After the EXIT 25 was entered as an additional independent variable, the R² increased to 0.297, F 26.86, p < 0.001, and the β = 0.564, p < 0.001 (i.e., the EXIT 25 explained 29.5% of the variance of HgbA1c after taking age into account).

The second multiple regression analysis entered age in first and then added the EXIT 25 into the model. With age as the only independent variable, the R² was 0.015, F = 0.992, n.s. After the EXIT 25 was entered as an additional independent variable, the R² increased to 0.307, F 26.86, p < 0.001, and the β = -0.302, p < 0.05 (i.e., the EXIT 25 explained 8.5% of the variance of SCI-R after taking age into account).

Hypothesis 3. Executive function mediates the effects of severity of T2DM on diabetes self-care. This hypothesis was examined using the Barron and Kenny’s (1986) method for testing
mediation. Due to the presence of multiple independent and multiple dependent variables, selection of variables for the mediation analysis was chosen based on the following decisions: HgbA1c was chosen as the dependent variable for self-care as it is a biomarker that provides evidence of self-care via glycemic control over the previous 90 to 120 days. Health State Composite (HSC) was chosen as the independent variable for severity of T2DM because it encompasses data related to physical function, role function, pain and general health, which are more inclusive regarding the severity of a disease as opposed to the number of mediations or number of comorbid conditions and more closely mirrors the concept of health state as defined by Orem (2001).

Using the Baron and Kenny (1986) method to test for the mediating effects of EF, two simple linear regressions and a multiple regression were conducted. In the first step of mediation analysis, the mediator, EXIT 25, was regressed on the independent variable, HSC. Health State Composite is a significant predictor of the mediator EXIT 25, $\beta = -0.504$, $p < 0.001$, with 24.3% of the variance in the EXIT 25 accounted for by HSC. The second step of mediation analysis regressed the dependent variable, HgbA1c, on the independent variable HSC. Health State Composite is a significant predictor of HgbA1c, $\beta = -0.375$, $p < 0.01$, with a total of 12.8% of the variance in HgbA1c accounted for by HSC. The third and final step of mediation analysis regressed the dependent variable, HgbA1c, on both the independent variable, HSC, and the mediator variable, EXIT 25. The EXIT 25 is a significant predictor of the dependent variable HgbA1c $\beta = 0.431$, $p < 0.001$, with 25.7% of the variance in HgbA1c accounted for by the EXIT 25 and HSC. Severity of T2DM (HSC) was no longer significant when controlling for the mediator variable (EXIT 25) ($\beta = -0.158$, $p = 0.202$). Since the effect of HSC on HgbA1c becomes non-significant during the final step in the analysis, full mediation is demonstrated. Thus, Hypothesis 3 is fully supported in that EF, as measured by the EXIT 25, mediates the effect of severity of T2DM (HSC) on diabetes self-care (HgbA1c) in this study.

**Discussion**

One of the purposes of the study was to test selected relationships within Orem’s (2001) SCDNT. Specifically, the relationships proposed by Orem between basic conditioning factors (severity of T2DM), self-care agency (EF) and SC were analyzed in this study using bivariate correlation. Findings from this study suggest that a significant relationship does exist between severity of T2DM and EF and a significant relationship does exist between EF and SC. Therefore, from a theoretical perspective, the proposition asserted by Orem: that certain factors (basic conditioning factors) can at points in time condition or affect an individual’s ability (self-care agency) to engage in self-care is supported.

The findings from this study regarding the proposed relationships of the major concepts are consistent with several research studies investigating the proposition asserted by Orem (Anderson, 2001; Horsburg et al., 2000; Sousa et al., 2004; Wang & Laffrey, 2001). However, what is unique to this study is the concept of EF as a type of foundational capability within the theoretical concept of self-care agency.

The results of this study demonstrate that severity of T2DM is significantly associated with EF and SC. This study is the first to explore the relationship between the severity of T2DM, EF and SC, and to test the mediating effects of EF between the severity of T2DM and SC. While the results of this study provide support that EF is a predictor of SC when measured using HgbA1c, and that EF is important to consider when assessing SC activities of individuals with T2DM, additional studies are warranted. In future studies, it would be beneficial to utilize a tool that would differentiate between the aspects of executive functioning. While the Exit 25 is a useful bedside measure of overall executive function, it does not lend itself to specific aspects of EF that could be useful in planning intervention studies.

**Study Limitations**

The findings of this study are important as they give support to Orem’s theory and provide more information regarding the relationship between severity of T2DM, EF and SC. However, the research presented has several limitations. First, the majority of the participants in the study were Caucasian. While it is true that the majority of the individuals who have diabetes are Caucasian, it is well known that non-Hispanic blacks and Hispanics have poorer outcomes and more comorbid conditions than Caucasians (CDC, 2011). Therefore, future studies investigating the relationship between severity of T2DM and EF should consider recruiting minority groups such as non-Hispanic blacks and/or Hispanics.

Second, the theoretical model guiding this study had multiple independent and multiple outcome variables. Future research using the multiple independent variables and multiple outcome variables as in this study should opt for an alternative method for analyzing mediation
effects such as structural equation modeling or path analysis.

Finally, a limitation to this study could be the effects of social desirability on the self-report scale to measure SC activities. While strength of this study was to measure SC using both a self-report scale and a biologic marker, there was not a significant correlation between the two measures. Future studies investigating SC should critically evaluate a self-report scale to determine if the questions posed give the researcher the data needed to fully analyze the participant’s SC or determine if a social desirability scale should also be employed.

Summary

This study provides evidence that the severity of T2DM is associated with EF in turn, EF is associated with overall SC. Thus, individuals with more severe T2DM may be at greater risk for poor EF, which can impact diabetes SC. Additional research is needed to gain a better understanding of how EF is associated with SC.

References


The Effect of Family Relationships and Family Support on Diabetes Self-Care Activities of Older Adults: A Pilot Study

Joanne M. Dalton, PhD, RN, PHCNS, BC
Margherite Matteis, PhD, RN, PMHCNS-BC

Abstract:
Orem’s Self-Care Deficit Theory of Nursing was used to guide a pilot study of the effect of family relationships and family support on older adults’ diabetes self-care activities. A correlational design was used. Data from a convenience sample of 16 adults (65 years of age and older) with diabetes were collected. The Family Relationships Index was used to measure perceptions of family relationships. The Diabetes Family Behavior Checklist II was used to measure perceptions of diabetes family support. The Diabetes Self-Care Activities Measure was used to measure ability to manage their diabetes health care.

Study results revealed medium effect sizes between family relationships and diabetes self-care activities (general diet and foot care). Medium to large effect sizes were found between diabetes family support and diabetes self-care activities (blood sugar testing and foot care). Family nonsupport was negatively related to exercise self-care activity with a large effect size \( r = .554 \). Perceptions of family diabetes supportive and non-supportive behaviors were found to have a statistically significantly positive relationship with a large effect size \( r = .556 \).

This study’s findings supported the effect of family relationships, diabetes family support, and older adults’ diabetes self-care management. Findings raised conceptual issues related to the measurement of perceptions of family supportive and non-supportive behaviors. The knowledge obtained from this pilot study will be utilized to develop a larger scale study.

Keywords: Diabetes mellitus, family support, family relationship, Orem self-care model

Introduction
The purpose of this pilot study was to examine the effect of family relationships and family support on diabetes self-care activities in older adults. Orem’s Self Care Deficit Theory of Nursing (2001) provided the theoretical foundation for the study.

The total estimated cost of healthcare for patients with diabetes in 2007 was $174 billion (American Diabetes Association [ADA], 2008) and has increased to $245 billion in 2012 (Centers for Disease Control, 2014). Among people 65 or older living in the United States in 2012, 11.2 million (25.9%) had diabetes (Centers for Disease Control, 2014). Hypoglycemia, eye complications, and foot ulcers have been identified as frequent problems with older adults (Forth & Jude, 2011). In a systematic review of the literature, (Denham, 2009; Rintala, Jaatinen, Paavilainen, & Astedt-Kurki, 2013) provided evidence that persons, who have diabetes, provide 90% of the diabetes daily care (self-care management) of diabetes which is critical for glucose control and prevention of complications. The authors also provided evidence that supported the relationship between self-care management and control of diabetes.

Diabetes is a family affair (Rintala et al., 2013). Individual diabetes outcomes need to be addressed, but family support and interaction are also important factors to consider in the care of the patient (Denham & Looman, 2010).

Background
Orem’s Theory and Diabetes
Orem’s (2001) Self Care Deficit Nursing Theory proposes that the health deviation self-care requisites of diabetes, including knowledge and skill to control blood sugar, require adjustments to self-care agency (SCA) for continuing and therapeutic care of self. Basic conditioning factors are “factors internal or external to individuals that affect their abilities to engage in self-care or affect the kind and amount of self-care required” (Orem, 2001, p. 245). Two basic external conditioning factors were included in this pilot study–family: relationships and family support.

Basic Conditioning Factors and SCA in Diabetes Patients
Older Adults with Type 2 Diabetes and Family Support

Researchers studying family support, an external basic conditioning factor, and management of type 2 diabetes have used samples of younger and older adults from different cultures (Barrera, Toobert, & Strycker, 2014; Choi, 2009; Denham, Manoogian, & Schuster, 2007; Samuel-Hodge, Skelly, Headen, & Carter-Edwards, 2005; Wen, Sheppard & Parchman, 2004). For example, Choi (2009) reported that a higher level of dietary family support was associated with a lower A1C in a sample of 143 Korean immigrants ranging in age from 50 to 80 years. Moreover, Denham, Manoogian, and Schuster (2007) found that family contextual factors, such as culture, influenced eating patterns in a sample of Appalachian families who had a member with type 2 diabetes. In addition, family support was shown to be a motivating factor for exercise for 125 Latino women (ages 32-75, M = 55.6) with type 2 diabetes who participated in a 6 month intervention program that emphasized healthy lifestyle and family involvement (Barrera, Toobert, & Strycker, 2014). However, family support did not influence physical activity or A1C in 129 primarily European women with type 2 diabetes (ages 42-75, M = 61) (Barrera, Toobert, & Strycker).

Focus group research findings (Gallant, Spitze, & Prohaska, 2007; Song, Lee, & Shin, 2010) also revealed the positive aspects of family involvement in 65 and older adults’ diabetes care. Gallant et al., (2007) found conflicting results in African American (32 women and 5 men) and White (28 women and 19 men) adults’ perceptions of family support of diabetes self-care management in primarily medication and dietary management, which was usually done by spouses. Most participants thought that their family member’s behavior was essential to their well-being, whereas others viewed their involvement as infringing on their independence. Song, Lee, and Shim (2010) found different perceptions based on gender among 24 Korean older adults with diabetes. Women reported husbands’ reminders to adhere to their diabetes regimen most helpful. In contrast, men stated their wives’ meal preparation and diet monitoring was most beneficial.

The findings of Mayberry and Osborn’s (2012) mixed method (focus groups and survey) study of middle age and older adults with type 2 diabetes (N = 75) revealed that participants who thought their family members were non-supportive toward their diabetes were less compliant with their diabetes medication and had higher A1C values than those who thought their family members were supportive. The researchers also found that instrumental support (assistance with diet, exercise, and medications) was reported as the most common type of family support, and that this type of support facilitated performance of self-care behaviors. Non-supportive behaviors described by participants included family members not helping with the diabetes regimen even though they were knowledgeable about diabetes care, as well as “miscarried helping,” which referred to a family member’s attempts to assist in diabetes self-care management that caused conflict (Mayberry & Osborn, 2012, p. 1242).

In summary, although the association between social support and diabetes self-care behaviors has been supported by the findings of recent studies, further investigation of external basic conditioning factors such as diabetes family support and family relationships is necessary to enhance understanding of factors that may explain older adults’ diabetes self-care activities.

Older Adults with Type 2 Diabetes and Family Relationships

Family relationships, another external basic conditioning factor, is associated with health and illness of families (Orem, 2001; Denham, Manoogian, & Schuster, 2007). Most researchers who have studied family relationships and diabetes focus on adolescents and children with type 1 diabetes (Jacobson et al., 1994; McKelvey...
Few researchers have included older adults with type 2 diabetes. However, research was found that focused on adult marital and couple relationships and the management of type 2 diabetes (Chesla et al., 2003; Fisher, 2006; Trief, Wade, Britton, & Weinstock, 2002; Trief et al., 2003).

A review of research from 1998 to 2004 revealed that couple and family risk factors (marital dissatisfaction, high level of criticism, conflict, and hostility) were negatively associated with adult diabetes care maintenance (Fisher, 2006). Chesla and colleagues (2003) found differences in 104 European Americans and 57 Latino type 2 diabetes patients who were between 25 and 62 years of age. For European Americans, high unresolved couple conflict (emotional management) predicted poorer quality of food intake than those without this conflict. However, family structure (organized-cohesiveness) was not associated with changes in diabetes management. For Latinos patients, high coherence (viewing the world as meaningful) predicted calorie over-consumption and poorer diabetes management. Higher couple conflict related to decreased diabetes quality of life one year later. The researchers recommended that findings related to the Latino sample must be viewed with caution due to their small sample size and high attrition rate (23%).

The influence of the marital relationship on quality of life in adults with type 2 diabetes was the focus of Trief, Wade, Britton, and Weinstock’s (2002) research. These authors studied insulin dependent adults at time 1 (n = 78) and 2 years later (time 2, n = 61). Subjects were between 18-55 years of age, with a mean age of 47.1. Findings revealed that greater marital quality and partner intimacy scale scores at time 1 predicted less diabetes related distress and greater satisfaction with aspects of life related to diabetes. Neither marital scale predicted general health-related quality of life or glycemic control.

Healthy marital communication was an important theme in Trief and associates (2003) later qualitative study of couples’ support in families with diabetes. Forty individuals with diabetes and 32 spouses (average age 49) were asked to define support. Couples described that being generally supportive was important, in actions and communication. However, maintaining a balance between aiding their partner with diabetes and honoring their partner’s independence could cause tension.

Only one study focused on family relationships and older adults with diabetes. Wen, Parchman, and Shepherd (2004) conducted research with 136 Mexican Americans 55 years of age and older with type 2 diabetes. The researchers found that subjects who thought their families were functional perceived themselves as having higher family support for diabetes care as compared with subjects who thought their families were mildly dysfunctional or dysfunctional.

In summary, positive family relationships were found to be helpful for older adults with type 2 diabetes. Further research may provide additional understanding of unexpected findings such as what was uncovered with Latino families. In addition, a limited amount of research on family relationships exists for older adults with type 2 diabetes.

Methodology

Design, Sampling Method, and Sample

This pilot study used a correlational design with convenience sampling. Data were collected from 16 diabetic older adults: 5 (31.2 %) home care patients and 11 (68.8%) participants of a diabetes support group. Sample demographics are displayed in Table 1. The mean age were 74.69 years (SD = 6.9 years). The majority were female (81.2 %), all were White. Six (37.5 %) were married, and 4 (25 %) were divorced. Fourteen (87.5 %) had type 2 diabetes (Table 1).

Many received assistance in managing their diabetes; six (37.5 %) received assistance in managing their diabetes from a spouse or significant other; 4 (25%) received assistance from a daughter or son, and 2 (12.5%) received assistance from a neighbor or friend. Most were independent in obtaining their medications, taking medications, foot care, and glucose monitoring. However, 6 (37.5%) required assistance with exercise, 6 (37.5%) required assistance with their diet, and 8 (50 %) required assistance with physician appointments; assistance typically was received less than once each week.

Human Subjects and Procedure for Data Collection

Approval of the study was granted by three home health agencies. Prior to data collection, the instruments were given to 4 females and 1 male ranging in age from 68 to 78 to evaluate readability and length of time to answer the questions. They reported that 15-30 minutes were required to answer the questionnaire, one had a few questions regarding the questionnaire; and none found answering the questionnaire tiring. Data were collected between fall 2010 and fall 2011 from patients (5 home care patients and 11 participants in a monthly diabetes support group).
Table 1: Sample Demographics and Characteristics (N = 16)

<table>
<thead>
<tr>
<th>Demographic/Characteristic</th>
<th>Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of Patient</td>
<td></td>
</tr>
<tr>
<td>Home Care</td>
<td>5 (31.2 %)</td>
</tr>
<tr>
<td>Diabetes Support Group Participant</td>
<td>11 (68.8 %)</td>
</tr>
<tr>
<td>Age</td>
<td>M = 74.69 (SD 6.9)</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>3 (18.8 %)</td>
</tr>
<tr>
<td>Female</td>
<td>13 (81.2 %)</td>
</tr>
<tr>
<td>Race</td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>16 (100 %)</td>
</tr>
<tr>
<td>Marital Status</td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>6 (37.5 %)</td>
</tr>
<tr>
<td>Divorced</td>
<td>4 (25 %)</td>
</tr>
<tr>
<td>Widowed</td>
<td>5 (31.2 %)</td>
</tr>
<tr>
<td>Separated</td>
<td>0</td>
</tr>
<tr>
<td>Never Married</td>
<td>1 (6.2%)</td>
</tr>
<tr>
<td>Type of Diabetes</td>
<td></td>
</tr>
<tr>
<td>Type 1</td>
<td>1 (6.2 %)</td>
</tr>
<tr>
<td>Type 2</td>
<td>14 (87.5 %)</td>
</tr>
<tr>
<td>Auto Immune</td>
<td>1 (6.2%)</td>
</tr>
<tr>
<td>Co-morbidities</td>
<td></td>
</tr>
<tr>
<td>Cardiovascular</td>
<td>11</td>
</tr>
<tr>
<td>Respiratory</td>
<td>5</td>
</tr>
<tr>
<td>Arthritis</td>
<td>3</td>
</tr>
<tr>
<td>Gastro-intestinal</td>
<td>2</td>
</tr>
<tr>
<td>Other</td>
<td>14</td>
</tr>
<tr>
<td>Mean Number of Co-Morbidities</td>
<td>M = 2.44 (SD, 2.3)</td>
</tr>
<tr>
<td>Employment Status</td>
<td></td>
</tr>
<tr>
<td>Employed</td>
<td>1 (6.2%)</td>
</tr>
<tr>
<td>Not employed</td>
<td>1 (6.2%)</td>
</tr>
<tr>
<td>Retired</td>
<td>14 (87.5%)</td>
</tr>
<tr>
<td>Number of Children</td>
<td>M =3.12 (SD, 2.8)</td>
</tr>
<tr>
<td>Number of Children Living with</td>
<td>M = .2 (SD, .775) Range 0-3</td>
</tr>
<tr>
<td>Living Status</td>
<td></td>
</tr>
<tr>
<td>Alone</td>
<td>7 (43.8%)</td>
</tr>
<tr>
<td>Spouse</td>
<td>6 (37.5%)</td>
</tr>
<tr>
<td>Family Member</td>
<td>1 (6.2%)</td>
</tr>
<tr>
<td>Friend</td>
<td>0</td>
</tr>
<tr>
<td>Paid Help</td>
<td>1 (6.2%)</td>
</tr>
<tr>
<td>Other</td>
<td>1 (6.2%)</td>
</tr>
<tr>
<td>Assistance in Managing Diabetes Spouse/Sig Other</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>6 (37.5%)</td>
</tr>
<tr>
<td>Yes</td>
<td>4 (25%)</td>
</tr>
<tr>
<td>Missing</td>
<td>4 (25 %)</td>
</tr>
<tr>
<td>NA</td>
<td>2 (12.5%)</td>
</tr>
<tr>
<td>Demographic/Characteristic</td>
<td>Sample</td>
</tr>
<tr>
<td>-------------------------------------------------</td>
<td>------------</td>
</tr>
<tr>
<td>Assistance in Managing Diabetes Daughter/son</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>5 (31.2%)</td>
</tr>
<tr>
<td>Yes</td>
<td>4 (25%)</td>
</tr>
<tr>
<td>Missing</td>
<td>5 (31.2%)</td>
</tr>
<tr>
<td>NA</td>
<td>2 (12.5%)</td>
</tr>
<tr>
<td>Assistance in Managing Diabetes Family Member</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>9 (56.2%)</td>
</tr>
<tr>
<td>Yes</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Missing</td>
<td>5 (31.2%)</td>
</tr>
<tr>
<td>NA</td>
<td>2 (12.5%)</td>
</tr>
<tr>
<td>Assistance in Managing Diabetes Friend/Neighbor</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>8 (50%)</td>
</tr>
<tr>
<td>Yes</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Missing</td>
<td>4 (25%)</td>
</tr>
<tr>
<td>NA</td>
<td>2 (12.5%)</td>
</tr>
<tr>
<td>Assistance in Managing Diabetes Support Group</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>8 (50%)</td>
</tr>
<tr>
<td>Yes</td>
<td>1 (6.2%)</td>
</tr>
<tr>
<td>Missing</td>
<td>3 (18.8%)</td>
</tr>
<tr>
<td>NA</td>
<td>4 (25%)</td>
</tr>
<tr>
<td>Assist Obtaining Medications</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>10 (62.5%)</td>
</tr>
<tr>
<td>Yes</td>
<td>4 (25%)</td>
</tr>
<tr>
<td>Missing</td>
<td>1 (6.2%)</td>
</tr>
<tr>
<td>NA</td>
<td>1 (6.2%)</td>
</tr>
<tr>
<td>Assist Taking Medications</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>12 (75%)</td>
</tr>
<tr>
<td>Yes</td>
<td>2 (12.5%)</td>
</tr>
<tr>
<td>Missing</td>
<td>1 (6.2%)</td>
</tr>
<tr>
<td>NA</td>
<td>1 (6.2%)</td>
</tr>
<tr>
<td>Assist Foot Care</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>10 (62.5%)</td>
</tr>
<tr>
<td>Yes</td>
<td>4 (25%)</td>
</tr>
<tr>
<td>Missing</td>
<td>1 (6.2%)</td>
</tr>
<tr>
<td>NA</td>
<td>1 (6.2%)</td>
</tr>
<tr>
<td>Assist Glucose Monitoring</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>11 (68.8%)</td>
</tr>
<tr>
<td>Yes</td>
<td>3 (18.8%)</td>
</tr>
<tr>
<td>Missing</td>
<td>1 (6.2%)</td>
</tr>
<tr>
<td>NA</td>
<td>1 (6.2%)</td>
</tr>
<tr>
<td>Assist Exercise</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>7 (43.8%)</td>
</tr>
<tr>
<td>Yes</td>
<td>6 (37.5%)</td>
</tr>
<tr>
<td>Missing</td>
<td>2 (12.5%)</td>
</tr>
<tr>
<td>NA</td>
<td>1 (6.2%)</td>
</tr>
<tr>
<td>Assist Diet</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>7 (43.8%)</td>
</tr>
<tr>
<td>Yes</td>
<td>6 (37.5%)</td>
</tr>
<tr>
<td>Missing</td>
<td>2 (12.5%)</td>
</tr>
<tr>
<td>NA</td>
<td>1 (6.2%)</td>
</tr>
</tbody>
</table>
The Family Relationships Index (FRI). Family relationships were measured by the self-report Real Form of Family Relationships Index (FRI) developed by Rudolf Moos (2009 ©). The FRI is composed of three, 9-item dichotomous subscales, Cohesion, Expressiveness, and Conflict. Participants are asked about their current appraisals of their family environment (Hoge, Andrews, Faulkner, & Robertson, 1989). Scoring entails adding the totals of Cohesion and Expressiveness and Conflict subscales (Conflict subscale is reverse scored, indicating less conflict). The range of scores on the FRI is 0 to 27, the higher the score the more indicative of positive family relationships.

The Family Relationships Index has evidence of reliability and validity. Internal consistency of the FRI has been good, with Cronbach’s α ranging from 0.69 to 0.78. Similarly, the FRI 2 and 4 month test-retest reliability was strong (0.73 to 0.86) and (0.66 to 0.72), respectively (Moos, 2009 ©). Research using the FRI with families with cancer patients (Edwards & Clarke, 2005), and those undergoing hemodialysis (Christensen, Wiebe, Smith, & Turner, 1994) support construct validity. In both studies, the FRI identified family functioning and family support.

The Diabetes Family Behavior Checklist II (DFBC-II). Family diabetes support was measured by the Diabetes Family Behavior Checklist II (DFBC-II) (Glasgow & Toobert, 1988). The DFBC-II measures supportive and non-supportive behaviors a family takes toward their family member’s management of his/her diabetes type II regimen, medications, glucose testing, diet and exercise (Glasgow & Toobert). The original DFBC was refined and piloted with adolescents (Schafer, Glasgow, & McCaul, 1982) and adults to become the DFBC-II, a 20-item instrument (Schafer, McCaul, & Glasgow, 1986). Cronbach’s α for DFBC-II was .71 for supportive summary scores and 0.64 for non-supportive summary scores in a sample of 127 outpatients with type 2 diabetes (Glasgow & Toobert, 1988, p. 380). The diabetes regimen specific measures (e.g. exercise level and exercise adherence) of the DFBC-II were better predictors of patient’s adherence to self-care than the supportive summary and non-supportive summary scores (Glasgow & Toobert, 1988, p. 381).

In the first part of the DFBC-II, the subject identifies a significant other, the frequency of contact, and how much this person knows about diabetes (using a 7 point Likert Scale from 1 = hardly anything to 7 = a great deal). The second part of the DFBC-II pertains to the subject’s

<table>
<thead>
<tr>
<th>Demographic/Characteristic</th>
<th>Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assist Physician Appointment</td>
<td>5 (31.2%)</td>
</tr>
<tr>
<td>No</td>
<td>5 (31.2%)</td>
</tr>
<tr>
<td>Yes</td>
<td>8 (50%)</td>
</tr>
<tr>
<td>Missing</td>
<td>2 (12.5%)</td>
</tr>
<tr>
<td>NA</td>
<td>1 (6.2%)</td>
</tr>
<tr>
<td>Type of Caregiver</td>
<td>1 (6.2%)</td>
</tr>
<tr>
<td>None</td>
<td>1 (6.2%)</td>
</tr>
<tr>
<td>Spouse</td>
<td>3 (18.8%)</td>
</tr>
<tr>
<td>Daughter or Son</td>
<td>3 (18.8%)</td>
</tr>
<tr>
<td>Other Family Member</td>
<td>0</td>
</tr>
<tr>
<td>Friend or Neighbor</td>
<td>0</td>
</tr>
<tr>
<td>NA</td>
<td>7</td>
</tr>
<tr>
<td>Missing</td>
<td>2</td>
</tr>
<tr>
<td>Frequency of Assistance</td>
<td>1 (6.2%)</td>
</tr>
<tr>
<td>0</td>
<td>1 (6.2%)</td>
</tr>
<tr>
<td>Several times day and night</td>
<td>1 (6.2%)</td>
</tr>
<tr>
<td>Several times during day</td>
<td>1 (6.2%)</td>
</tr>
<tr>
<td>Once daily</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Three times or more/wk</td>
<td>1 (6.2%)</td>
</tr>
<tr>
<td>1 or 2 times/wk</td>
<td>2 (12.5%)</td>
</tr>
<tr>
<td>Less often than weekly</td>
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<tr>
<td>NA</td>
<td>7 (43.8%)</td>
</tr>
<tr>
<td>missing</td>
<td>2 (12.5%)</td>
</tr>
</tbody>
</table>
perception of whether the significant other engages in supportive and non-supportive actions in the management of the subject’s regime for type 2 diabetes management. Nine supportive family actions and 7 non-supportive family actions are scored on a 5 point Likert scale based on their frequency of occurrence, from 1 = never to 5 = at least once a day. Scoring of the supportive and non-supportive actions is computed by totaling each separately (Oregon Research Institute [ORI] Diabetes Self-Care Project, Diabetes Family Behavior Checklist, n.d.). The range of possible scores for supportive behaviors is 9-45 and the range of possible scores for non-supportive behaviors is 7-35. There is an open-ended item where the participant can add other supportive or non-supportive actions (Schafer, McCaul, & Glasgow, 1986, p.180).

An example of a patient perception of a family supportive behavior is: “How often does he/she (significant other) praise you for following your diet?” and an example of a non-supportive behavior is: “How often does he/she (significant other) criticize you for not exercising regularly? (Schafer, McCaul, & Glasgow, 1986, p. 180; Oregon Research Institute [ORI] Diabetes Self-Care Project Diabetes Family Behavior Checklist, n.d.). The DFBC-II has been used with adults (Glasgow & Toobert, 1988) and varying ethnicities: Korean (Choi 2009; Choi & Rankin, 2009), Chinese (Wang, & Abbott, 1998); Hispanic (Wen, Parchman & Shepherd, 2004; Wen, Shepherd, & Parchman, 2004).

Summary of Diabetes Self-Care Activities Measure (SDSCA). Participants’ health care deviation self-care requisites were measured by the Summary of Diabetes Self-Care Activities measure (SDSCA). The SDSCA measure is an 11-item self-report instrument, consisting of 6 areas for assessing a participant’s perception of level of diabetes self-care for the past 7 days (general diet, specific diet, exercise, blood sugar testing, foot care, and smoking) (Toobert, Hampson, & Glasgow, 2000, p. 943). General diet, exercise, blood sugar testing, and foot care scales have 2 items and are scored on an 8 point Likert scale: 0 (no days per week) to 7 (7 days per week). Means are calculated for each of these scales and possible range of scores is 0-7. Two specific diet items (eating fruits/vegetables and high fat foods) are scored individually using the above 8 point scale. The possible range of scores for these items is 0-7. However, the second item pertaining to eating high fat foods is reversed scored. The authors of the measurement tool recommended that these two items should not be averaged because these items had a low internal consistency (Toobert, Hampson, & Glasgow, 2000, p. 944). The smoking section is composed of one item asking if the participant has smoked over the past 7 days and if so, the exact number of cigarettes (Toobert, Hampson, & Glasgow, 2000, p. 948).

In assessing SDSCA psychometric properties, Toobert, Hampson, and Glasgow (2000) reviewed seven studies that used the SDSCA measure with adults (Feil, Glasgow, Boles, & McKay, 2000; Glasgow & Toobert, 1988; Glasgow & Toobert, 2000; Glasgow et al., 1992; Glasgow et al., 1999; Glasgow, Stryker, Toobert & Eakin, 2000; Wagner et al., 2001). They found the internal consistency of the SDSCA measure to be acceptable except for the previously mentioned specific diet scale. The instrument generally showed adequate test-retest reliability and evidence of validity (pp. 944, 946).

An investigator-developed Demographic Data Form was used to collect self-reported data. The form included age, gender, race, diabetes diagnosis, co-morbidities, and employment status, number of children, living status, and assistance in managing diabetes.

Results

Table 2 presents the sample means and standard deviations for diabetes family support, family relationships, and diabetes self-care activities. Supportive and non-supportive behaviors were scored on the low end of possible scores by the participants. Participants perceived family relationships in a relatively positive manner (17.5 out of a possible score of 27). Two diabetes self-care activities (general diet and glucose monitoring) were scored the highest by the participants.

Given the small sample size, effect sizes for correlations, rather than tests of statistical significance, are reported. According to Cohen (1988), a correlation coefficient of $r = .1$ is considered a small effect size, a coefficient of $r = .3$ is a medium effect size, and a coefficient of $r = .5$ is a large effect size. Small to medium effect sizes were found for the relationships between family relationships (FRI) and diabetes self-care activities: exercise, $r = .012$; blood sugar testing, $r = .258$ general diet= $r = .347$; and foot care, $r = -.415$.

Variability (small to large) in effect sizes were revealed for the relationships between diabetes family support and diabetes self-care activities: exercise, $r = -.206$; general diet, $r = .294$; blood sugar testing, $r = .426$; and foot care, $r = .519$. Variability in effect sizes (small to large) also was found for family non-support and diabetes self-care activities: general diet, $r = -.233$; blood
sugar testing, $r = .462$; and foot care, $r = .527$ and exercise, $r = -.554$. In addition, a large effect size was found for the relationship between family support and non-support ($r = .556$).

**Discussion**

Some interesting findings emerged from this study. The finding that family non-supportive behaviors, such as nagging, increased the likelihood of older adults not engaging in exercise self-care management is consistent with the findings of other studies. Wen, Shepherd, and Parchman (2004) found that family exercise support facilitated physical activity of Mexican American older adults with type-two diabetes. Interestingly, focus group research (Beverly & Wray, 2010), demonstrated that when spouses expressed a “can do” attitude toward their partners’ exercise regimen, the partners were more likely to exercise.

Although exercise is an important self-care activity, particularly for those with diabetes, positive change in exercise patterns can be challenging (CDC, 2008, p. 486; Krug, Haire-Joshu & Heady, 1991). This situation is wrought with potential conflict, particularly if the family caregiver negatively pursues (i.e., nags) the family member with diabetes toward behavior change. Family interactional patterns have been explicated in Fogarty’s (1976) seminal work on pursuer and distancer. With a potentially conflictual issue or concern, if a person pursues someone toward change, the other person is more likely to distance away from the change. Wright and Leahey (2013) have integrated this idea into their Calgary Family Assessment Model in their explanation of a circular communication pattern of interaction of “demand and withdraw” such that if the husband demands his wife to change, she will tend to withdraw from his demands and the change (p. 128).

This present study yielded the unexpected finding of a large effect size between supportive and non-supportive diabetes family support. Older adults perceived diabetes supportive and non-supportive behaviors to be related. Perhaps they perceived the attention by family members, whether, negative or positive, as caring behavior. This may point to the multi-dimensionality of family support where such family behaviors as “nagging” and “praising” are interconnected (ORI Diabetes Self-Care Project, n.d.). This finding warrants further study.
**Limitations**

The small sample size of this pilot study limits generalization to the population of older adults with diabetes. Findings might have been influenced by the inclusion of both home care patients (less ambulatory and possibly less healthy) with support group members (more ambulatory and healthier); the small size of the sample prohibited group comparisons.

**Implications for Theory, Research, and Methodology**

Orem’s theory served as a foundation for this study. Self-care of patients with diabetes is a critical concept in the successful management of the disease. In addition, the concepts of internal and external basic conditioning factors assisted in differentiating and organizing the many factors that may affect diabetes self-care behaviors.

The relationships between diabetes family support, family relationships, and diabetes self-care management require further study, particularly with a larger, more diverse sample recruited from outpatient settings where less ill patients typically are found than among homecare agency patients. Efforts should focus on investigating the meaning of family support to older adults and their families using mixed methods designs that include both quantitative and qualitative data. Future research is planned to include a larger sample and objective health outcomes, such as Hemoglobin AIC. In addition, an open ended question to obtain qualitative data will be included in the next study to explore the possible conceptual overlap of perceived diabetes supportive and non-supportive family behaviors.

Many decisions and behavioral changes are made by patients with diabetes that may affect not only the patient but their family members emotionally and behaviorally (Rintala, Paavilainen, & Asted-Kurki, 2013). Rintala and colleagues (2013, p. 20) have made several recommendations for nurses in planning diabetes education interventions for patients and their families. Spouses and families should be encouraged to participate in the patient’s diabetes education. The authors recommend that nurses plan education sessions in the evenings and create online diabetes education and chat rooms. In addition, nurses need to provide opportunities for families and patients to discuss feelings and thoughts about living with diabetes. Issues regarding family support and relationships can then be identified so that patients and families can be assisted to cope more effectively. “More research is needed about the family experience of diabetes and more knowledge about best practices for family-centered interventions is desperately required.” (p. 20).

**References**


Wen, L. K., Parchman, M. L., & Shepherd, M. D. (2004). Family support and diet barriers among older Hispanic adults with Type 2 Diabetes. *Family Medicine, 36*(6), 423-430. doi: 10.2337/dc11-2103


Introduction

In the last co-editors’ column, we reminded readers that Orem’s concept, health deviation self-care requisites (HDSCRs), were emphasized less than the other self-care requisites. Orem recognized that of the three types of self-care requisites, HDSCRs had the least organized development. When we reviewed *Concepts of Practice* (2001), we found that the Orem Study Group collaborated in 2000 to provide a basis for further explication of the HDSCRs: The Science of Human Assistance for Persons with Health-Associated Self-care Deficits. Table 1 shows the organized development of the three types of self-care requisites over two time periods.

Table 1 shows that for some time only three of the eight factors explicated in universal and developmental self-care requisites were explained in the health-deviation self-care requisites. Just prior to the issue of the last edition of *Nursing Concepts of Practice*, the Orem Study Group completed a review of the work done to explicate self-care and self-care requisites further. Based on that review, the group committed to development of the self-care requisites. Subsequently, the Orem Study Group identified and named the nursing sciences: as Nursing Practice Sciences and Foundational Nursing Sciences. One of the three Foundational Nursing Sciences is The Science of Human Assistance for Persons with Health-Associated Self-care Deficits. We contend that this science encompasses the three categories of self-care requisites and enhances the clarification of HDSCRs. The five major content areas of this science are:

1. Nature, causes and durations of self-care deficits
2. Types and degrees of dependence resultant from the self-care deficits; types of and variations in interdependence and interaction, basic conditioning factors that condition interpersonal relating and interacting.
3. Modalities of human assistance/helping methods; conditions that ensure validity of selection and use; and results sought
4. Roles and role sets associated with #3; helping systems generated from use of #3; physical and psychological effects of assisting modalities on clients’ role fulfillment
5. Care and caring dimensions of human assistance for clients with health-associated self-care deficits (HDSCRs)

This meaningful contribution to the understanding of the concept of HDSCRs appears in Orem’s last edition.

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<th>Organizing Factor</th>
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<th>HDSCRs</th>
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<td>General actions for meeting requisites</td>
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Table 1: The Explication of the Three Types of Self-Care Requisites over Two Time Periods

Prior to 2001

Beginning 2001
In our last issue, we invited our readers to submit short vignettes of how they have applied Orem’s concept of HDSCRs in their practice. Those contributions appear here:

**Practice Vignette 1**

The key to effective use of Orem’s self-care deficit nursing theory (SCDNT) is the co-endeavor of the nurse and the client. SCDNT-based practice cannot evolve without the input of both parties. In my family practice as an ARNP, on a daily basis Orem’s theory of Self-Care Deficit is challenged and modified. Patients are very computer savvy and often make appointments because of an identified threat to wellness. The beginning of this relationship is at the first new patient appointment. After careful consideration and history taking, the actual and potential threats to self-care are identified. When the patient and I come together to establish a plan of care, HDSCDs, temporary or chronic, are diagnosed and HDSCRs are identified. This process guides me to provide appropriate assistance to achieve the desired healthcare goals.

Advance practice nurses in primary care are charged with identifying, planning, implementing, and evaluating healthcare goals. Chronic illness, such as obesity, diabetes, hypertension and asthma, require the patient to live using an ongoing healthcare continuum. Identification of HDSCDs can start the continuous relationship between the nurse and patient and the patient’s dependent self-care agents.

I will present the patient that entered my office for discussion of obesity: Susan S. is a 56-year old White female complaining of mood swings and weight gain over a one year period. Her vital statistics are: height-5’5”, weight-220 pounds, temperature-98.4F), pulse-80 beats/minute, and respiration-14/min. Hormone levels were a concern as Susan was menopausal by 2 years. She is alert, attentive, and weepy with a chief complaint of fatigue. After discussing past medical history, no life-threatening health deviations were identified. She is concerned about her weight. Her recent weight gain of 30 pounds was of sudden onset and troublesome to Susan. The identified self-care requisites were discussed considering the healthcare disease state. The goal of weight loss would be achieved after careful identification of nutritional status. This goal falls under the HDSCRs, “carrying out diagnostic, therapeutic, and rehabilitative measures.” The plan for continued weight loss would include small reachable goals to support Susan in an ongoing consistent weight loss pattern. A suggested weight loss of approximately 10% total body weight each 3 months was agreed on by the patient and myself and would be evaluated at each follow up visit.

Susan’s basic conditioning factors (BCFs) were initially identified and were useful in development of the individualized nutrition plan. An overweight, menopausal female, 56 years old, in no acute physical distress, living and working in a family-centered community setting allowed the formulation of therapeutic lifestyle changes appropriate to: age, sex, health state patterns of living and lifestyle while using appropriate resources. The BCFs are all significant and easily assist the nurse in the organization of the suggested plan.

The use of individual guidance and support was important in this situation. After careful review of her lab work, it was clear Susan would benefit from individualized meal planning. Her triglycerides were abnormal (325 mg/dl) suggesting a lower carbohydrate meal plan could help. Susan’s favorite foods were reviewed and a lower carbohydrate meal plan (45 gram/meal) was developed. This individualized plan included ongoing education and support at subsequent visits. At the 3-month follow up, Susan had lost 15 pounds, on her way to the 20-pound weight loss goal established by both Susan and myself.

The use of Self Care Deficit Nursing Theory has a place in all avenues of nursing practice. In primary care, the advanced practice nurse bases her plan on a set of factors and devises the plan to address the self-care deviations for the patient. The sense of normalcy and the weight gain of menopause must be addressed so this patient understands the expected outcomes. Maintaining a realistic self-concept will be necessary to the success of the plan and ongoing weight management. The use of theory in clinical nursing practice is recognized, not as a lost art and science, but as a necessary component of nursing practice.

**Practice Vignette 2**

Compliance. What does it mean to the healthcare profession? Why is it so often the goal in health education programs? What would Orem think about this?

Compliance means that patients do what the health care workers (e.g., nurses) think is best for them. Is this why the results are so often disappointing?

**Case Study** The following case study presents a typical patient scenario. It will be explored from two perspectives. One nurse will conduct patient teaching with a goal of patient compliance. The other nurse will approach the situation using
Orem’s theory to help a patient meet his health deviation self-care deficit.

**Situation:**
Mr. Smith comes to the clinic for his semi-annual checkup. He was diagnosed 5 years ago with hypertension. He reported that he had no major issues. However, upon examination, the nurse practitioner finds that he is 20 pounds overweight and his blood pressure is 190/96. His cholesterol remained slightly elevated in spite of medication.

**Nursing approach 1:**
Miss Smith, the clinic nurse, reviewed Mr. Smith’s chart and finds that he frequently presents with elevated blood pressure. The nurse shares Mr. Smith’s weight and blood pressure with him. She also showed him the laboratory results of the cholesterol level. The nurse practitioner reiterated the need to maintain the regimen discussed in the previous visit. She asked him about his salt intake, diet, and current medication. She gave him some diet suggestions to address his weight and cholesterol and stressed the absolute necessity of taking his medications as prescribed. She asked him if he understood the instructions. He nods in the affirmative and leaves with some pamphlets reinforcing diet control.

**Nursing Assessment:** Non-compliance: Patient is not following prescribed treatment plan.

**Teaching Plan:** Reinforce typical treatment plan for the patient. Written instructions given.

**Nursing approach 2:**
Mrs. Jones, the clinic nurse, reviewed Mr. Smith’s chart and found that he frequently presents with elevated blood pressure. Using an Orem philosophy, the nurse shared the weight, blood pressure, and laboratory findings with the patient. She asked him to describe his understanding of hypertension and his ability to recognize when he needs to seek help with his symptoms or side effects of his treatment plan. She inquired about his hypertension, and explored the significance of this condition to him. She asked him how his symptoms have affected his daily life. She asked him to tell her about his typical day including what foods he likes and what foods he dislikes. Together, they plan some menus he believes he can follow. She asks him to share what exercises he thinks would fit into his daily activities and helps him to set small goals for exercising. She asks him about side effects he may be experiencing with his antihypertensive medications and find he is embarrassed about sexual effects he is experiencing. The nurse suggested adjusting his medications and he says he will certainly try a new medication regimen. The nurse promises to reschedule him in one month to see how things are working out.

**Nursing Assessment:** Patient is having difficulty meeting health deviation self care requisites.

**Teaching Plan:** Focus on patient’s awareness of his medical condition and the effects and results of it on his quality of life. Explore the effects of the treatment plan with patient, particularly the unpleasant side effects of some medications. Help the patient develop a plan for diet and exercise that least alters his lifestyle and food preferences, thus helping him to learn to live successfully with his chronic illness.

The nurse in the first example quickly labels the patient as noncompliant. She feels limited to continuing to convince the patient to do what has been previously prescribed. The nurse may find that she is either angry or frustrated with the patient for not following previous instructions. She may view his lifestyle choices as discouraging behaviors. The nurse using an Orem framework to guide practice is able to work in the supportive/educative nursing system easily. She is able to help the patient meet health deviation self care requisites that are both acceptable and doable. As a result, the patient and nurse practitioner become partners in helping him to control his hypertension and maintain a healthy life.

We thank our readers for their contributions and invite you to continue this discussion with us in future issues. One question comes to mind: how can we contribute to the continued explanation of the concept of HDSCRs? Another: is this concept the same as the Orem Study Group’s *health-associated self-care requisites*? If so, should Orem’s theory be adapted to show this concept?

Co-Editors: Virginia Keatley, Violeta Berbiglia
Co-Editor-Elect: Mary L. White
Please meet Professor, Hiroko Tadaura, PhD, RN, PHN, CDEJ, recipient of the 2014 IOS New Scholar Award. Dr. Tadaura was recommended for this award by several educators. She was recently appointed to Professor, International University Health and Welfare Graduate School, Japan. Germany has the good fortune to host Dr. Tadaura as Senior Guest Researcher, School of Nursing Science, University of Witten/Herdecke, Germany. Dr. Tadaura often presents at IOS world congresses. She holds these certifications: Registered Nurse, Public Health Nurse and Certified Diabetes Educator of Japan.

In Japan, Hiroko is known for her utilization of the SCDNT in clinical settings and for her international research. Dr. Tadaura’s abstract represents her skill in applying the SCDNT in nursing education and practice. Her most recent book is Hiroko Tadaura: Maren Assmusen: Guide of Kinaesthetics, Elsevier Germany, P-Press, 2014 (Japanese). The IOS is fortunate to have this international scholar in our membership.

The IOS New Scholar letter of recommendation

School of Nursing Science
Faculty of Health
Stockumer Str. 12
D-58453 Witten
Germany
May 17, 2013

Dear Dr Berbiglia,

I highly recommend Dr. Hiroko Tadaura from Miyagi University in Japan as IOS New Scholar. She has been working as a Guest Researcher in 2008 to 2010 in Germany at my university chair investigating the effect of Kinaesthetics on the health of elderly in nursing homes and geriatric hospitals. In 2012 she started with a new international study in Kinaesthetics including Germany, now as a Senior Guest Researcher at the Witten/Herdecke University.

Dr. Tadaura had worked as a nurse applying Orem’s Self-Care-Deficit-Theory and is teaching it now. She also fits in the principles of Kinaesthetics into Orem’s theory. Orem’s theory is also very popular in Germany as you probably know.

Dr. Tadaura is very ambitious, she always pursued her own path working on her research with excellent methodological knowledge. She presented her results at international conferences. Therefore I have no hesitation in recommending her for IOS New Scholar. If you need further information, please let me know.

Sincerely yours
Prof. Dr. Sabine Bartholomeyczik
Dear Dr. Violeta A. Berbiglia,

Hiroko Tadaura, who will be nominated for IOS New Scholar, has asked me to provide you with a letter of recommendation. I am greatly pleased to comply with her request.

Dr. Tadaura, Associate Professor at Miyagi University, was a Nurse at Tohoku Kosai Hospital organized by Federation of National Public Service Personnel Mutual Aid Associations, Miyagi prefecture, in Japan, when I was a Director of Nursing Department, at the hospital until 2003. I found her to be very capable. She has done a great nursing scientific research related to Self Care Deficit Nursing Theory while she worked there. She has pursued a research study on SCDNT. Actually the hospital is one of the most famous hospital for Nurses to learn and apply for Self Care Deficit Nursing Theory in clinical practice more than 25 years in Japan. The hospital has special lectures of the theory and special training for all nurses to apply for Self Care Deficit Nursing Theory in clinical settings. Every education and research training programs are combined in their Career ladder system at the hospital. She was educated very well about Self Care Deficit Nursing Theory in the clinical practice at the hospital.

Therefore I have no hesitation in recommending her for IOS New Scholar as a great professional and practical educator and researcher of the Self Care Deficit Nursing Theory based on her real clinical application and research experiences using the theory.

Ms. Tadaura is a self-starter, a capable and efficient supervisor, and an exceptional worker. I give Ms. Tadaura my highest recommendation. She would be a valuable New Scholor and valuable member of your society.

Sincerely,

President Emiko Ueda
Public interest incorporated association
Miyagi Nursing Association

Connecting Nursing Theory with Practice through Education Based on Self-Care Deficit Nursing Theory (SCDNT) and Utilization of Nursing Practice

Abstract

Hiroko Tadaura, RN, PHN, PhD
Ayaka Sato, RN, PHN, BSN
Emiko Ueda, RN
Hide Ishigaki, RN
Tokiko Saita, RN, PHN
Tokiko Kikuchi, RN, MSN

BACKGROUND

In recent years, Orem’s Self-Care Deficit Nursing Theory (SCDNT) has become more popular in Japan in regards to not only nursing practice, but also nursing education. Nursing students can learn about SCDNT in any Japanese nursing textbook. Despite the popularity of the SCDNT, few studies have been conducted on the content and style of nursing records, the relation of nursing practice to theory, and whether nursing education is effective in regards to nurses acquiring a good understanding of theory and applying it in practice in Japan. The gap between theory and clinical practice is a topic often discussed worldwide but the lack of nursing research demonstrates the need to further examine this area.

Tohoku Kosai Hospital in Japan has been running an integrated nursing education and nursing records system using SCDNT for more than 20 years. The hospital nursing career ladder system is interfaced with the SCDNT learning system. The SCDNT-based nursing education began in 1990. In 2006, we investigated the nursing education system, its history and its outcomes. Original SCDNT-based nursing records have been integrated step by step. The hospital incorporated a SCDNT-based nursing research training system in the career ladder system (see Figure 1). The expected outcomes of the research training are: (1) improved nurses’ satisfaction as a professional advances on the
career ladder, (2) improved nurses’ ability to perform holistic assessments of patients, (3) the increased development of patients’ self-care capabilities, (4) increased patient satisfaction with nursing care, and (5) improved collaboration among medical staff. However, outcomes in the nursing process using the hospital’s original nursing records and education system remained unclear.

**PURPOSE**

This study (a) investigated outcomes of the nursing process (using the original nursing records) and (b) asked if nursing education effectively bridged the gap between theory and practice in the hospital.

**METHODS**

Semi-structured interviews were conducted with three nurses working in a hospital that has applied SCDNT in its nursing practice for 20 years. The subjects were either chairpersons or key members of the committee that plays a role in developing nursing records within the hospital. Interviews were focused on outcomes in the nursing process. Three types of original nursing records at the hospital were reviewed: (1) basic patient information including a basic conditioning factors and assessment of self-care abilities; (2) progress records according to nursing diagnosis; and (3) nursing diagnosis based on medical diagnosis, patient needs, self-care level, and nursing plan. The goal was to determine if nursing education effectively bridged the gap between theory and practice in the hospital. Data from the three nurses’ records were collected, and qualitative and inductive analyses (a method of content analysis that researchers use to develop theory and identify themes by studying documents, recordings) were performed.

**RESULTS**

*Outcomes in the nursing process using the original nursing records*

During the inductive content analysis of nurses’ records, five categories of outcomes were extracted: (1) rational and efficient joint description of patients and nurses; (2) agreement between process of thinking and the record paper; (3) theoretical recognition by term mention of the SCDNT; (4) basis of the individual nursing process; and (5) reflection of the urgent overt self-care demand.

*Outcomes related to nursing education effectively bridging the gap between theory and practice*

The incorporation of nursing educational support effectively bridges the gap between theory and practice. Two categories of nursing education outcomes were extracted during the inductive content analysis of nurses’ records: (1) composite learning by the development of case reports and nursing process following theory and (2) effective knowledge sharing between nurses who have completed SCDNT training and those who are in progress.

**CONCLUSIONS**

With regard to the characteristics of nursing records in connecting SCDNT with nursing practice, the following observations were noted:

- Were based on the role and function of the hospital, and patient characteristics.
- Presented patients’ information agreeing with their health progress.
- Showed evidence of a change toward remedial self-care demands.
- Were representative of a specific process of SCDNT guided thinking.
- Showed promotion of theoretical understanding of SCDNT.
- Showed that nursing education effectively bridged the gap between theory and practice.

![Incorporation of educational support in practice](figure1.png)
In addition, it became clear that the building process of thinking through practical tasks is important for nurses to connect nursing theory with practice as well as in learning in an environment conducive to knowledge sharing. The SCDNT education system was formulated under the Career Ladder System, step by step.

Recommendations for Future Research

The sample size was small due to there being an insufficient number of nurses who had worked more than 20 years in the hospital and who were familiar with all aspects of the hospital’s history. A follow up study should be conducted in the future. A guideline for designing and implementing a SCDNT-based hospital educational program should be developed.

Keywords: Self-Care Deficit Nursing Theory, practice, education, Orem

In Memoriam

Walene Shields

June 16, 1920 – November 24, 2012

If you knew Dorothea Orem, you knew Walene Shields. They met in Indianapolis, Indiana where she was a court reporter and Dorothea was working for the Indiana Department of Health. Together, they moved to Washington, D.C. There Walene worked as a free-lance court reporter, reporting on many Congressional sessions and even becoming involved in the many court cases stemming from the Watergate scandals, including cases before Federal District Judge Sirica. She took drawing and painting classes at the Corcoran Gallery. The frontispiece illustration in the 1st edition of *Nursing: Concepts of Practice* is her work. As her contribution to the development of Self-Care theory, she typed all of Dorothea’s papers and manuscripts from hand-written notes and was conversant in self-care theory. They retired to Savannah, GA in 1985. They shared interests in antiques, art, mysteries and politics.

Susan G. Taylor
Tribute to Violeta Berbiglia: Teacher, Scholar, Mentor

Virginia Keatley

Violeta Berbiglia has announced that she will be retiring as co-editor of Self-Care, Dependent Care, and Nursing effective with the publication of this issue. Vi has been instrumental in the growth of the journal and in attaining and maintaining its high standards.

I first met Vi at the International Conference in Vancouver. Shortly afterwards, she contacted me and asked me to co-edit the journal with her. I have enjoyed my relationship with Vi. She is a mentor and friend. Although I mourn her decision, I know she deserves her well earned retirement.

Over the years, Vi has served as a teacher, scholar, and mentor to many Orem enthusiasts. Four of her colleagues offer insight into her impact on them and on the advancement of Orem’s theory:

Susan Taylor, Founder and Board Member, International Orem Society

What began as a newsletter produced in-house at the University of Missouri-Columbia School of Nursing has evolved into a full-fledged journal. Much of that evolution can be credited to Dr. Violeta Berbiglia. Vi has worked tirelessly to make this journal a recognized, peer-reviewed and well-edited forum for literature advancing our understanding of self-care nursing. As she retires from her position as co-editor, I wish her well and expect that she will remain active in the pursuit of knowledge. I hope she can take some time to think and write about her insights and experiences with SCDNT. Good luck, Vi and thank you.

Donna Hartweg, PhD, RN

Farewell and thank you to Violeta Berbiglia: As a member of the IOS Board of Directors, I am grateful for the years of commitment and achievement of Dr. Violeta Berbiglia as editor and co-editor of Self-Care, Dependent Care, and Nursing. During these years, Vi was creative, energetic, and passionate about producing journal issues of high quality. She used her expertise on nursing education as well as her domestic and international connections to ensure regular publication. She maintained these connections through dedicated attendance and presentations at international conferences.

Beginning as guest editor on nursing education in 2006, Vi created a teaching strategy column and encouraged other faculty to submit manuscripts. With her movement to editor, she used her connection with international nursing programs to promote nursing theory in emerging programs and to enrich the publication. In Viet Nam, Vi taught students nursing theory in the BSN post grad and MSN programs and served as thesis advisor for the first nursing graduate students in that country who conducted Self-Care Deficit Nursing Theory guided research. As an ardent proponent of theory-based research, she regularly encouraged her students to publish their work and provided significant guidance with translation. Vi’s editor’s column introduced us to the work of these new scholars. Vi also shared her creative ideas on use of theoretical constructs in undergraduate nursing programs and updated readers on the contemporary use of conceptual frameworks in baccalaureate nursing education.

For decades, Dr. Berbiglia has been a stalwart supporter of the development and application of SCDNT not only by her students but also as a supporter to SCDNT colleagues. On a personal note, Vi and her husband, Jim, shared their home with me during my sabbatical at the University of Texas Health Science Center San Antonio. Their support provided me with the opportunity to conduct early research on Mexican American women. Vi provided connections to the University as well as to key informants that led to success with the research conducted in the barrios of Brownsville and San Antonio, Texas. I am very grateful for her enthusiastic support and know I am but one of many whom she encouraged and supported in their careers.

As a member of the IOS Board of Directors and as a colleague, I say, “thank you, Vi,” for your commitment as editor to Self-Care, Dependent Care, and Nursing, your passion and years of service to the International Orem Society of Nursing Science and Scholarship and for supporting me as a professional colleague and friend.

Kathy Whitney, Coordinator, Friendship Bridge Nurses Group

Vi Berbiglia has been a long time contributor to the Friendship Bridge Nurses Group (FBNG) which is a volunteer nursing organization that supports the progression of nursing in
Vietnam. The primary focus of the FBNG is to improve Vietnamese nursing education. This has entailed the coordination and teaching of post-baccalaureate nursing courses to enhance the knowledge of Vietnamese baccalaureate nurses and then the collaborative development and teaching of the first graduate nursing program in Vietnam.

Vi Berbiglia initially came to the FBNG as a volunteer educator and faculty member for the Vietnamese post-baccalaureate nursing courses. From the series of courses with this project, she taught Professional Roles and Perspectives at two different university sites in Vietnam. The course content included core elements of professional nursing which included nursing theory. She was able to share her expertise on nursing theorists, including Orem content, with the baccalaureate nurses with the goal of increasing their knowledge for practice, teaching, and preparation for graduate studies.

Vi then volunteered to teach the Nursing Theory Course for the first two student MSN classes at the University of Medicine and Pharmacy in Ho Chi Minh City. She was integral in developing the teaching plan for this theory course. She relied on her knowledge of nursing theorists and expertise on Orem to bring theory content to this pilot graduate nursing program in Vietnam. In addition, for several student classes, Vi has served as a thesis advisor for students in preparation for their thesis defense. She was always conscientious and offered supportive feedback to them throughout the process.

Beyond her teaching activities with the FBNG, Vi has continued to be an advocate for her Vietnamese students’ development beyond their graduate studies. She has facilitated sponsorship for students to attend international Orem conferences and for them to disseminate their thesis content through presentations and publishing. She has also written recommendations for her former students to be accepted into graduate Ph.D. programs.

Vi is energetic, warm and encouraging with students. Her commitment to and professional support for the FBNG projects, her Vietnamese students, and the progression of nursing education in Vietnam has been outstanding. We have appreciated her fine work as one of our faculty. The FBNG projects have provided a strong support toward development of graduate nursing education in Vietnam and Vi has been a part of this process.

The International Orem Society owes Vi a debt of gratitude. We all wish you well in your future endeavors.

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**The Connection between me and The Orem’s Theory, My Great Teacher**

Luu Thi Thuy, MSN
Deputy-Dean of Nursing Faculty
Da Nang University of Medical Technology and Pharmacy

“I do not understand anything.” That was just my thought at the first class with Dr. Violeta A. Berbiglia who taught nursing theory in the program of Master of Science in Nursing 7 years ago. At that time my English ability was quite bad. Nursing theory is a subject that I had never heard of before in Vietnam. I did not know what effects nursing theory might have on nurses in Vietnam. I felt pretty tired studying this subject. I believe that the fatigue was frequently evident on my face. I am sure it was not difficult for Dr. Vi to recognize this. However, I found that her attitude remained unchanged as the course went on. She was still friendly and patiently and clearly explained what we had not understood. When she introduced Orem’s theory, I recognized that her eyes were shining and her voice became more excited. I noticed her special passion for Orem’s theory in her lectures and I began to wonder whether this theory had something interesting that made it her favorite. Then I started to spend more time studying Orem’s theory. And I suddenly realized that this was the most appropriate theory for me to apply in my thesis which studied self-care knowledge of hepatitis B patients in Vietnam. Actually, the most difficult stage was the time I built the framework for my thesis. Luckily, Dr. Vi always helped me by providing documents, explaining difficult concepts and reviewing my thesis. She also was the person who introduced me to the International Orem Society and encouraged me to become a member.

After graduating from the master’s program, I went back to work as a nursing lecturer at Da Nang University of Medical Technology and Pharmacy. I thought that it would be very difficult to have a chance to see Dr. Vi again. However, on a fine day in 2010, she sent an email and told me that she wanted me to present my thesis at The 11th World Congress of Self-Care Deficit Nursing Theory. She would help me by finding funding to Thailand and reviewing my article. Do you know what I thought at that moment? I was excited but also nervous because I had never been abroad before. But then my worries disappeared because of Dr. Vi’s encouragement and thoughtful arrangement for my first foreign trip. I attended the conference with a lot of surprise and excitement. Indeed, it was a great experience, one that I will never forget. I had the

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Returning from the conference, I began to implement plans that I had made during my time at the conference. I participated in more workshops and conferences. I also put Orem’s theory and other nursing theories into the training program for my nursing students. In 2012, with the help from Dr. Vi, I again had the opportunity to attend The 12th IOS World Congress that took place in Luxembourg. This trip to Europe was also wonderful. I met more new friends and we discussed and made plans to conduct research applying Orem’s theory together.

When I received a request to write a short article about Dr. Vi’s working with me, I agreed immediately. I also want to write about Dr. Vi and her family because they are special people to me. They gave me wonderful opportunities to realize my own abilities. With their encouragement, I am more and more confident with my abilities. I am trying my best to contribute to the development of nursing in Vietnam. I would like to express my sincere thanks to Dr. Vi and her family. Thank you so much, my second family.
CALL FOR PAPERS

Self-care, Dependent-Care, & Nursing (SCDCN) is the official journal of the International Orem Society for Nursing Science and Scholarship. The editor welcomes manuscripts that address the mission of the Journal.

Mission:
To disseminate information related to the development of nursing science and its articulation with the science of self-care.

Vision:
To be the venue of choice for interdisciplinary scholarship regarding self-care.

Values:
We value scholarly debate, the exchange of ideas, knowledge utilization and development of health policy that supports self-care and dependent-care.

Author Guidelines

Manuscript Preparation
Use Standard English. The cover page must include the author’s full name, title, mailing address, telephone number, and eMail address. So that we may use masked peer review, no identifying information is to be found on subsequent pages. Include a brief abstract (purpose, methods, results, discussion) followed by MeSH key words to facilitate indexing. The use of metric and international units is encouraged. Titles should be descriptive but short. Full-length articles should not exceed 15 double-spaced pages. Use of the Publication Manual of the American Psychological Association (6th ed.) is strongly encouraged but not mandatory. When required by national legal or ethical regulations, research-based manuscripts should contain a statement regarding protection of human subjects.

Review Process
Manuscripts are reviewed anonymously. One author must be clearly identified as the lead, or contact author, who must have email access. The lead author will be notified by email of the editor’s decision regarding publication.

Intellectual Property
Authors submit manuscripts for consideration solely by SCDCN. Accepted manuscripts become the property of SCDCN, which retains exclusive rights to articles, their reproduction, and sale. It is the intention of the editor to facilitate the flow of information and ideas. Authors are responsible for checking the accuracy of the final draft.

Submission
Manuscripts are to be submitted in MS Word format as an eMail attachment to the co-editor, Dr. Mary L. White at whiteml@udmercy.edu. Submissions will be immediately acknowledged. It is assumed that a manuscript is sent for consideration solely by SCDCN until the editor sends a decision to the lead author. ■
Call For New Scholar Papers

The purpose of the New Scholar Papers feature is to foster the advancement of nursing science and scholarship in the area of Orem’s Self-Care Deficit Nursing Theory through the recognition of developing scholars.

New Scholar Qualifications

- Member of the International Orem Society (Apply for membership at: http://www.orem-society.com/index.php/membership)
- Enrollment in or completion of nursing graduate studies
- Scholarly productivity related to the advancement of nursing science and scholarship in the area of Orem’s Self-Care Deficit Nursing
- Submission of letters of support

Recognition of New Scholars

- Each New Scholar will be featured in an issue of Self-Care, Dependent-Care & Nursing, the official online journal of the International Orem Society for Nursing Science and Scholarship. The IOS will award the scholar a complimentary membership.

Submission of Papers

Papers will be submitted using the Author Guidelines.

Orem Collection in the Alan Mason Chesney Medical Archives at Johns Hopkins University Medical Institutions

Below are the links for The Dorothea Orem Collection, which is now live on the Alan Mason Chesney Medical Archives at Johns Hopkins University Medical Institutions website: http://www.medicalarchives.jhmi.edu/papers/orem.html

Complete Finding Aid: http://www.medicalarchives.jhmi.edu/finding_aids/dorothea_orem/dorothea_oremd.html

The related Joan Backscheider Collection description is also available. http://www.medicalarchives.jhmi.edu/papers/backscheider.html

Complete Finding Aid: http://www.medicalarchives.jhmi.edu/finding_aids/joan_backscheider/joan_backscheiderd.html
The 3rd International Conference on Prevention and Management of Chronic Conditions

This is the 3rd international conference on prevention and management of chronic conditions. This scientific meeting is designed to expand and exchange knowledge & practice on prevention and management of chronic conditions in the national and international level in terms of improving outcome, quality and patient safety, role of family and community, evidence based practice and success models, palliative care, and future direction for prevention and management of chronic conditions. The audience will include a wide range of national and international experts and participants who interested in the area of chronic care.

Highlights of this international conference compose of keynote and panel discussions in global perspective in prevention and management of chronic conditions and global responses to new science in quality and safety from the experts in these fields.

Preliminary Program

February 25, 2015.
Theme: Global Perspective of Prevention & Management of Chronic Conditions
9:00 - 9:15 am.
Roles of university on prevention and management of chronic conditions
11:15 - 12:00 pm.
Role of WHO for preventing and management of chronic condition: Global health care of chronic illness
1:00 - 2:00 pm.
Success Model for Prevention & Management of Chronic Conditions

February 26, 2015.
Theme: System: International Perspective for Prevention & Management of Chronic Conditions
9:00 - 9:45 am.
Sustainability for Prevention & Management of Chronic Condition system in Thailand
9:45 - 10:30 am.
Improving outcomes: global responses to new science in quality and safety
10:45 am. - 5:00 pm.
Concurrent session
February 27, 2015.
Theme: Evidence Based Practice for Prevention & Management of Chronic Conditions
8:30 - 9:15 am.
Essential care for older adults - Developing transcultural competence to prevent discrimination in elderly care
Program promoting physical activity in older adults
9:15 - 10:30 am.
From chronic to palliative care
10:45 - 12:00 pm.
Innovation & Technology in Chronic & Palliative care
1:00 - 2:30 pm.
Future direction for prevention and management of chronic conditions

Using the internet to improve self-management in youth with Type 1 diabetes
- Living well with stroke model for managing distressing symptoms following stroke
- Self and family management of obesity and type 2 diabetes and gestational diabetes
New Publications

Evidence-Based Practice for Nurses
Appraisal and Application of Research

Nola A. Schmidt and Janet M. Brown

THIRD EDITION
Review Panel

Martha Alligood PhD, RN
Connie Brooks, PhD, RN
Linda Burdette, PhD, RN
Susan Davidson, EdD, APRN, NP-C
Victoria T. Grando, PhD, APRN, BC
Donna Hartweg, PhD, RN
Somchit Hanucharurnkul PhD, RN
Judith Pickens, PhD, RN
Katherine Renpenning, MScN
Susan G. Taylor, PhD, FAAN