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The Relationship Between Self-Care Agency, Self-Efficacy, and Medication Management Behaviors in Chronically Ill Elderly Home-Bound Individuals

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THE RELATIONSHIP BETWEEN SELF-CARE AGENCY, SELF-EFFICACY, AND
MEDICATION MANAGEMENT BEHAVIORS IN CHRONICALLY ILL
ELDERLY HOMEBOUND INDIVIDUALS

By

Elaine J. Lince

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ABSTRACT

THE RELATIONSHIP BETWEEN SELF-CARE AGENCY, SELF-EFFICACY, AND MEDICATION MANAGEMENT BEHAVIORS IN CHRONICALLY ILL ELDERLY HOMEBOUND INDIVIDUALS

by

Elaine J. Lince

The purpose of this study was to examine the relationship between the exercise of self-care agency, long-term medication self-efficacy and medication management in elderly, chronically ill homebound individuals. The study seeks to answer the following hypotheses: (1) There is a positive relationship between level of self-care agency and level of medication management in elderly, chronically ill homebound individuals; (2) Level of long-term medication behavior self-efficacy is a predictor of level of medication management in chronically ill, elderly, homebound individuals. The study sought to answer the following question: What is the degree of variability in level of medication management that is attributable to self-care agency and long-term medication behavior self-efficacy in chronically ill, elderly, homebound individuals? A descriptive, correlational design was used with a sample of homebound individuals receiving home care nursing services and interventions toward medication management goal achievement. Revised forms of Kearney and Fleischer's Exercise of Self Care Agency Scale; De Geest, Abraham, Gomoets, and Ever's Long-Term Medication Behavior Self-Efficacy Scale, and a demographic data collection tool was used to collect data from home care clients. A tool designed to collect nursing data about goal achievement was also used. Statistical analysis included correlational statistics and regression analysis. Demographic data was also analyzed.

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CHAPTER I

INTRODUCTION

As the population in the United States ages, more and more persons are living years with chronic illnesses. By the year 2050, the number of people expected to be over 65 years of age will be more than 67 million and those 85 years and older are projected to be the most rapidly growing population through the year 2030 (Andreopoulos & Hogness, 1989). Although most of the elderly population is healthy, 80 percent have at least one chronic illness, causing nearly one half of the elderly population to have some limitation in activity (Mundinger, 1983). The management of chronic illness is causing increasing drain upon health care resources. Reimbursable care for the chronically ill is largely unavailable in our society. Federally mandated insurance programs, such as Medicare and Medicaid, as well as some independent insurance carriers, provide a limited benefit for the chronically ill to receive nursing care in their homes for a newly diagnosed illness or for an exacerbation of a chronic illness under certain criteria. After a limited number of visits for such services, Medicare will no longer pay and individuals are left to pay for their home care services out of pocket, or receive no services at all (Harrington, 1988). While home care benefits have been a significant part of any health reform proposal, the utilization of such services has been under close scrutiny, with an eye to decrease costs.

Some home care clients seem to do well and move quickly toward self care, while others seem to become more dependent upon the home care agency and its staff, causing

ethical, financial, and legal dilemmas for agencies and staff. The home care benefit will no longer reimburse care once it is determined that the client's condition has stabilized or there appears to be no potential for progress, leaving many with ongoing unmet needs. To continue to bill for care to such clients is considered by the federal government to be fraud, yet to abandon such clients creates ethical dilemmas for nurses and the ongoing provision of unreimbursable care is financially draining to home care agencies.

Because nurses are the primary providers of home health care services, nursing must take a leadership role in defining and assuring quality of care, appropriateness of services, and access to those services, and in promoting cost-effective delivery systems (Harrington, 1988). Nurses will need to have at their disposal interventions that increase self care in elderly, chronically ill clients, and assessment skills that will aid in identifying those clients requiring such interventions.

The purpose of this study was to examine the concepts of self-efficacy, self care agency, and self-care behaviors with the aim of generating greater understanding of the mechanisms that move home care clients toward self care and independence. Self-efficacy has been suggested as a mechanism that mediates between self-care agency and self care by providing highly specific estimates of the ability of the self-care agent to perform the requisite behaviors of self-care (Carroll, 1995). Specifically, the purpose of this study was to examine the relationships between self-care, self-efficacy, and self-care behaviors demonstrated by the elderly,

chronically ill receiving home care, and to examine self-efficacy as a predictor of self-care behaviors required for maintaining medication regimens.

CHAPTER II

CONCEPTUAL FRAMEWORK AND REVIEW OF LITERATURE

Conceptual Framework

Orem's self-care theory and Bandura's self-efficacy theory provide the conceptual framework for this examination of chronically ill elderly home care clients' long-term medication behaviors. Orem (1985) states that "self-care is the practice of activities that individuals initiate and perform on their own behalf in maintaining life, health, and well being" (pg. 84). The provider of care is a self-care agent. The term agent implies a sense of the person taking action. Orem (1985) describes self-care agency as a human power, a complex acquired ability to meet the continuing requirements for care that regulates life processes, maintains or promotes function and development and promotes well being. The self-care concept of health emphasizes personal control over healthcare and health behaviors. The necessary prerequisites for self-care include knowledge about health, motivation for health, and the ability to initiate and perform self-care behaviors (Harper, 1984).

Self-care agents respond to the various demands that life presses upon them. These demands, termed therapeutic self-care demands by Orem (1985) are responded to by self-care behaviors performed for a period of time in an attempt to meet the demand.

Self-care behaviors are those things an agent does to provide self-care, such as exercise, diet, activities of daily living, or the behavior being examined in this study, medication management.

Orem (1991) describes self-care agency as a deliberate action that consists of three types of operations or phases. The estimative operations are those investigational operations which include obtaining knowledge about a specific situation, developing awareness of courses of action to take, and acquiring the knowledge needed. The second phase, transitional operation, includes reflection, critical judgment, and decision making. The third phase, productive operations, includes preparing to act, self-care actions, monitoring effect of self-care behaviors, and judgments about the effectiveness of actions.

The chronically ill elderly client receiving home care is a self-care agent. Those with chronic illness require a considerable amount of health care, requiring considerable self-care. A self-care system is usually sufficient unless the person is faced with a new health care situation requiring adaptation or alternative health behaviors (Harper, 1984). Chronic illness places significant demands upon the client (therapeutic self-care demand). For many elderly clients, a medication regimen plays a significant role in their overall maintenance plan. Effective medication management can prevent progression of disease or disability while promoting well being (Conn, Taylor & Wienke, 1995). However, medication management continues to be a significant problem for the elderly.

There are multiple reasons to conclude that noncompliance with medication in the

elderly population is a serious problem. The elderly take a disproportionate number of medications (Stewart & Caranosos, 1989). Noncompliance in the elderly represents a greater health risk since medication may be more critical to control symptoms and to maintain function than for other populations (Stewart & Caranosos, 1989). Older persons generally describe medication management in concrete terms, and are unable to describe medication management beyond simply taking medications as directed (Conn, Taylor & Weinke, 1995). Medication management includes a multitude of self-care behaviors: (a) making knowledgeable, appropriate decisions about daily medication administration; (b) negotiating and communicating with health care providers regarding regimens; (c) cueing and remembering to take medications (Harper, 1984); and (d) making decisions about over the counter medications (Conn, Taylor & Weinke, 1995). Elderly persons are able to identify that specific behaviors corresponding to Orem's (1991) three phases of deliberate actions, are important in the process of medication management (Conn, Taylor & Weinke, 1995). The chronically ill elderly client determines what aspects of a medical regimen need to be performed, what he or she will do, then performs and evaluates the behaviors taken.

In the health care delivery system of home care, the nurse acts as a facilitator, with the ultimate goal of independence for the client in ongoing medication management. Difficulties that persons have with ongoing medication management, as identified by De Geest, Abraham, Gemoets and Evers (1994), can occur within the three phases of self-care agency. Lack of social support and lack of knowledge can affect the estimative

phase. Cost, lack of medication aids, and scheduling problems can affect the transitional phase. Environmental factors, distractions, interruptions, delivery systems, and side effects can affect the productive phase. Additional factors that may contribute to noncompliance include demographic factors, patient attitudes, physician-patient relationships, complexity, duration of treatment and skill level (Burke & Dunbar-Jacobs, 1995; Stewart & Caranasos, 1989). When the abilities of the self-care agent are limited, deficits in self-care may result, and nursing assistance is required. The nurse designs a system to render this assistance. The nurse assesses the individual self-care deficits and plans, implements, and evaluates nursing action directed toward supplementing them (Harper, 1984). Orem's self-care theory provides a framework within which the nurse can assist the patient with all the aspects of medication management, not merely compliance. Self-care systems and behaviors are prerequisites for safe, accurate self-medication in elderly populations. Typically, studies examine factors related to medication compliance or the taking of medication as ordered. There are real differences between the theoretical constructs of self-care behaviors and compliance (Harper, 1984). Compliance relates to following the doctor's orders and taking medications as ordered, while self-care behaviors includes actions initiated by the person to restore or maintain health, actions are more than conformity (Harper, 1984). Utilization of the construct of self-care behavior allows the researcher to examine these actions.

The theory of self-efficacy has been proposed as a link between self-perception and

individual actions (Jenkins, 1988, Carroll, 1995). Self-efficacy focuses on individually perceived assessment of abilities related to specific behaviors (Jenkins, 1988). Bandura (1977) stated that expectation of personal mastery affects both initiation and persistence of behavior. Self-efficacy affects the choices of activities and setting one chooses, as well as how much effort to put forth and for how long. Self-efficacy can affect people's emotional reactions such as anxiety, distress, and thought patterns in regard to behavioral changes. (Strecher, DeVellis, Becker & Rosenstock, 1986).

Bandura (1977) distinguished efficacy expectation from outcome expectation. Outcome expectation is defined as a person's estimate that a given behavior will lead to certain outcomes. An efficacy expectation is the conviction that one can successfully execute the behavior required to produce outcomes. Research has focused predominately upon efficacy expectation, which is the concept being examined in this research, simply termed self-efficacy.

Bandura (1977) approaches the explanation of human behavior in terms of a continuous reciprocal interaction between personal attributes, behavioral factors, and environmental determinates. Within this framework lies the limits of each individual as well as the opportunity for each to influence his or her own future. Individuals are neither powerless objects controlled by environmental forces nor free agents who become whatever they choose. A change in behavior, such as taking daily medication, is mediated by cognitive processes. These processes are induced and altered by experiences of mastery

resulting from successful performance of an activity (Bandura, 1977). This sense of mastery is termed self-efficacy.

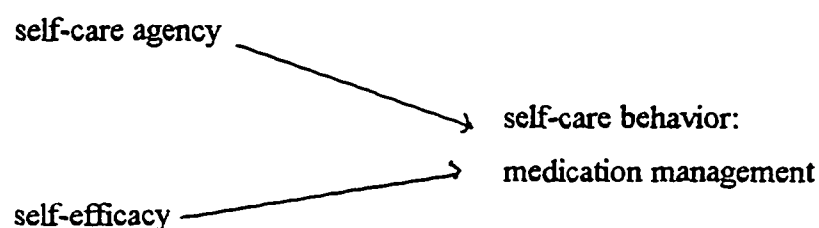
Self-efficacy is learned from four major sources: performance accomplishments, vicarious experience, verbal persuasion, and emotional arousal. The strongest source is performance accomplishments attained through personal experiences (Strecher, et al., 1986). Success raises mastery expectations, repeated failure lowers expectations (Bandura, 1977). The second source, vicarious experience, includes learning thorough observation of events and/or other people (Strecher, et al., 1986). Seeing others perform with success can increase expectations in observers. Vicarious experience, relying upon social comparison is a less dependable source of information about one's own accomplishments (Bandura, 1977). Verbal persuasion is the third source of efficacy expectations. People are led by suggestion into believing that they can cope successfully with a specific task (Bandura, 1977). This method is familiar to health educators who have encouraged patient's to persevere (Strecher, et al., 1986). Emotional arousal is the last source of information that can affect perceived self-efficacy (Bandura, 1977). Stressful situations generally elicit emotional arousal that, depending upon the situation, may have influence upon competency (Bandura, 1977). Physiological responses associated with emotional arousal behave as cues that can either enhance or decrease performance.

The nurse is in a pivotal position to influence self-efficacy in the elderly. The nurse coaches the elderly client in self-care activities by facilitating situations for the elderly to

perform self-care behaviors in an supportive environment (performance accomplishment), by setting and supporting realistic goals (verbal persuasion), and by providing anticipatory guidance (sharing vicarious experience) (Carroll, 1995). By providing emotional support and by creating a safe environment nurses can decrease emotional arousal.

Self-efficacy appears to be a consistent predictor of success (Carroll, 1995; Coehlo, 1984; Condiotte & Lichtenstien, 1981; De Geest et al, 1995; DiClemente, 1981; Gortner & Jenkins, 1990; McIntyre, Lichtenstein, & Mermelstein, 1983; Vidmar & Robinson, 1994; and Waller & Bates, 1992). Bandura (1977) asserted that efficacy expectation reflects a person's perceptions, rather than actual capabilities and it is perceptions that often influence behavior. Early assessment of a client's self-efficacy permits easy identification of actual or potential failure, thus permitting early preventative or corrective action (De Geest et al, 1995).

The relationships of self-care agency and self-efficacy to the self-care activity of long term medication management was examined in this study. Further, an examination of self-efficacy in long-term medication behavior as a predictor of actual medication behaviors was performed.



Theoretical Definition of Terms

The following terms were used in this study:

1. Self-Care Agency is the ability to meet the continuing requirement for care that regulates processes, maintains or promotes function and development and promotes well being (Orem, 1985).
2. Self-Efficacy is the conviction that one can successfully execute the behavior required to produce the outcome (Bandura, 1977).
3. Medication Management Behaviors are a multitude of self-care behaviors such as making knowledgeable, appropriate decisions about daily medication administration, negotiating and communicating with health care providers regarding regimens, cueing and remembering to take medications (Harper, 1984) and making decisions about over-the-counter medications (Conn, Taylor & Weinke, 1995).

This research explored the relationships between levels of self-care agency, levels of self-efficacy and the ability to provide the medication management. Additionally, long-term medication behavior self-efficacy was assumed to be a predictor of long-term medication management in the study population.

Hypotheses

This study sought to test the following hypotheses: (1) There is a positive relationship between level of self-care agency and level of medication management in chronically ill, elderly, homebound individuals, and (2) Level of long-term medication

behavior self-efficacy is a predictor of the level of medication management in chronically ill, elderly, homebound individuals. In addition, the following question was addressed: What is the degree of variability in level of medication management that is attributable to self-care agency and long-term medication behavior self-efficacy in chronically ill, elderly, homebound individuals?

Review of Literature

A review of the pertinent literature focused on the following areas; self-efficacy as it relates to health related behaviors; self-care agency in relationship to medication management; self-efficacy and self-care agency in relationship to self-care behaviors; and self-efficacy and self-care agency in relationship to long term medication behaviors. Included in this review are studies by Carroll (1995) and De Geest, et al (1995) upon which this research was based.

Self-Efficacy and Health Care Behaviors

Multiple studies have examined self-efficacy and health behaviors, among them cigarette smoking, and cardiac recovery programs. Behavior such as smoking cessation and rehabilitation exercise involve both initiation and persistence of behavior. Medication management, a complex self-care activity, involving actions initiated by the person to restore or maintain health (Harper, 1984), is similar in action to the behaviors examined in such studies. Prochaska and DiClemente (1984) proposed that efficacy expectations

influenced cessation and the maintenance of cessation in cigarette smoking. Utilizing a prospective survey design, the researchers examined self-efficacy and cessation behaviors. A convenience sample of 872 males and females with a mean age of 39 formed the data pool. The researchers categorized subjects into one of five stages of smoking cessation: (a) smokers with no intention of stopping; (b) smokers considering quitting; (c) recent quitters; and (d) those who failed at cessation. Self-efficacy was found to be related to progression toward cessation.

Brod and Hall (1984) found that subjects who joined smoking cessation programs reported higher levels of self-efficacy than persons who did not join. A sample of 108 smokers whose mean age was 37 completed a questionnaire that measured their confidence to resist the urge to smoke in various situations and a non-situational specific survey of self-efficacy. The hypothesis that smokers who enter treatment programs will have a higher self-efficacy score than those smokers who did not enter treatment was supported.

A sample of 78 men and women (mean age 37) was examined by Condiotee and Lichtenstein (1981) for the purpose of identifying smoking cessation maintenance behavior and self-efficacy levels. The subjects completed one of two different smoking cessation programs at which time level of self-efficacy was measured. The researchers hypothesized that subjects with high levels of self-efficacy would maintain smoking cessation behaviors. Follow up data collection to assess relapse behavior suggested that there was a statistically significant relationship between low self-efficacy and relapse. Follow-up with the same

sample population by McIntyre, Lichtenstein and Mermelstein in 1983 supported these findings, although weakened predictability occurred at one year.

Several researchers (Blittner & Goldberg, 1978; Chambliss & Murray, 1979; and Nicki, Remington & MacDonald, 1985) utilized experimental designs to measure effectiveness of interventions to increase self-efficacy in regard to smoking cessation behaviors. Results indicated that interventions to increase self-efficacy in the research samples produced persons who were more successful in smoking cessation than those who did not receive the intervention. Limitations of these studies included generalizability (population means were in the 20-40 age group), and the influence of other factors. Nevertheless, these experimental manipulations suggested that self-efficacy could be raised, resulting in greater success in smoking cessation programs.

The concept of self-efficacy has been examined as an independent variable in multiple studies involving cardiac patients. Self-efficacy expectations and activity level following cardiac surgery were measured by Gortner and Jenkins (1990) in an experimental study. It was hypothesized that an inpatient education and telephone monitoring program would increase efficacy expectation for recovery from coronary artery bypass graft (CABG) surgery at 12 and 24 weeks post surgery. The sample population of 156 men and women with an average age of the late 50s was randomly assigned to a control and experimental group. Jenkin's Self-Efficacy Scales (1988) were used to assess self-efficacy expectations about ability to perform the specific behaviors related to

recovery. A corresponding checklist was used to measure actual behaviors.

Self-efficacy was measured prior to surgery, at discharge, and at four, eight, 12 and 24 weeks post surgery. Behavior was assessed by self-report also at four, eight, 12 and 24 weeks. Self-efficacy at eight weeks was found to be a significant predictor of self-reported behavior at 12 weeks accounting for 14.8% of the 34.8 % variance. The research suggests that a planned program to increase self-efficacy can increase behavior and that measures of self-efficacy can be used to predict later behaviors.

Self-efficacy along with the Health Belief Model was examined in Robertson and Kellers' study of 1992. A model to identify the relationships of the variables in explaining adherence to a exercise regimen in post-cardiac patients was developed. Robertson and Kellers utilized Jenkin's Self-Efficacy Scale and Activity Scale (1988) to assess self-efficacy and self-reported behaviors. The convenience sample of 51 men and women who had undergone percutaneous transluminal angioplasty (PTCA) or coronary artery bypass graft (CABG) in the previous 4-8 months were asked to complete the following: Jenkin's Self-Efficacy Scale along with instruments measuring severity, benefits, barriers, and Jenkin's Activity Scale.

Analysis of the resulting data identified that perceived barriers, benefits, severity, self-efficacy and type of surgery (or cue to action) explained 31% of the variance in exercise adherence. Perceived barriers followed by self-efficacy contributed the most to the variance. The researchers proposed that other factors might be important to adherence

as the variables in this study only accounted for 31% of the variance. The researchers also suggested that longitudinal studies to examine the dynamics of self-efficacy and the effectiveness of self-efficacy intervention should be future applications of self-efficacy research.

In 1994 Vidmar and Robinson examined the relationship between self-efficacy and exercise compliance in a cardiac population. The cross-sectional study examined a sample of 206 individuals who had completed a 12 week supervised phase II outpatient rehabilitation program. The researchers examined self-efficacy thorough the use of two tools; the Self-Efficacy Scale developed by Ewart, Taylor, Reese, and DeBusk (1985) and McAuley, Poag, Gleason, and Wraith's (1990) Exercise Barriers Efficacy measure, with which subjects' perceived abilities to exercise despite barriers were measured. Compliance with the exercise program was also measured.

Subjects with high self-efficacy demonstrated higher treadmill rates and work loads than did those who scored low in self-efficacy. Those who reported higher self-efficacy in overcoming barriers to exercise also scored higher on exercise accomplishment. The researchers used a regression analysis to determine predictability for exercise behavior. Efficacy in overcoming exercise barriers was found to be the most predictive of exercise behavior.

Self-care agency and medication management

Harper (1984) evaluated the effectiveness of a self-care medication program on knowledge of medications, health locus of control and self-care medication behaviors. The purpose of the study was to apply Orem's (1985) theoretical construct of self-care agency to the problem of self-medication behaviors among black, elderly hypertensive women. Harper utilized a pretest/post-test control group design. The sample of sixty volunteers who had self-reported or health care provider reported problems with medication administration were randomly assigned to one of two treatment conditions. The experimental group was provided with a medication self-care program designed to promote self-care agency. The control group received instruction about hypertension, its pathology and risk factors.

Variables of knowledge, health locus of control and medication self-care behaviors were measured in the study. The Self-Care Behavior Rating Scale developed by Harper for use in the study was based on Orem's (1985) construct of self-care. Harper's scale assessed verbal communication about medication self-care and actual performance. Inter-rater reliability for each of the scale's twelve items ranged from 0.88 to 1.00. Test-retest reliability over two weeks was .94. Other tools utilized in the study included the knowledge of medication subtest developed by Harper (1984), Health Locus of Control (Wallston, Wallston & Kaplan, 1976) and pill counts to detect medication errors.

Women in the experimental self-care program group improved in medication self-care behaviors. Approximately 95% of the scores of the experimental and control

groups were significantly different, medication behavior improved for subjects in the experimental group. Women in the self-care program also decreased medication errors significantly. Systolic and diastolic blood pressures also decreased for the experimental group, while blood pressures in the control group rose. Limitations include generalizability to other populations and disease processes. The authors suggested that unidentified factors that may have been related to increased blood pressure in the control group should be examined.

Medication complexity has been examined for effect on adherence to a medication adherence regimen. Conn, Taylor and Kelly (1991) hypothesized that the complexity of the regimen may affect adherence rather than the numbers and doses of medications. Two studies were performed to examine this relationship. The first study involved an elderly population (n=178) who had recently been discharged from an acute care hospital. The second study involved elderly who had not been hospitalized (n=138). Medication adherence was measured through pill counts and self-report. Medication complexity was measured by the Medication Complexity Index (MCI) (Kelly, 1988) that assessed not only the number and frequency of medications but also various activities associated with medication adherence. The MCI was based on Orem's (1991) self-care theory assuming that managing medication is an example of self-care behaviors requiring mental and physical actions.

Results of the studies indicated that MCI scores were not significantly related to adherence scores, though correlations were within the predicted direction. Conn, Taylor, and Kelly (1991) stated that adherence is only one aspect of medication management. Problem solving, communication, life style, side effects and severity of illness are all aspects of medication management. The researchers recommended that future research should include investigation of relationships between medication regimen complexity and aspects of medication management other than adherence.

Later in 1995, Conn, Taylor and Wienke examined management of medication in an elderly population utilizing Orem's (1985) self-care theory as a framework. The investigators performed a task analysis to identify the components of medication management and the perceived importance of each component. A convenience sample of 24 adults who were older than 65 and 25 dyads of elderly adults and caregivers were used in the descriptive study. The elderly adults were on at least two prescription medications.

Subjects in the study noted how frequently a certain medication activity was performed, who performed the activity, and a rating of the importance of the activity. Demographic information was also gathered. The research revealed that medication administration involves not merely administration or compliance, but also the steps of obtaining medications, contacting the physician, arranging medication, evaluating side effects and effectiveness. The subjects in the sample rated the estimative operations of knowing and deciding as important as the productive operation of actually administering

the medication. Orem's (1990) theory of self-care as a deliberate action proved to be useful in explaining the complexity of successful medication management.

Limitation of this study relates to generalizability. For example, severely impaired elderly were not included. The study also examined only prescription medication. It can be assumed that over the counter medication would require more decision making processes than prescription medication.

Self-care agency, self-efficacy, and self-care behaviors

Carroll's study of elderly coronary artery bypass graft (CABG) patients described and tested a model of recovery in the elderly after surgery (1995). The model was derived from self-care and self-efficacy theory and was designed to examine the effects of self-efficacy expectations as a mediator between self-care agency and self-care behaviors. Carroll used a prospective repeated measures design to determine changes in self-care agency, self-efficacy expectations, and self-care behaviors. A sample population of 133 adults greater than 65 years of age was examined. The convenience sample was gathered from elderly men and women who had undergone CABG surgery in two urban teaching hospitals.

Carroll measured self-care agency with Kearney and Fleischer's Exercise of Self-Care Agency Scale (1979). A revised scale was used for the study with a Cronbach's alpha range of 0.79 to 0.85. Jenkins Self-Efficacy Expectations Scale and Jenkin's Activity

Scale utilized by Gortner and Jenkins (1990) and Robertson and Kellers (1992) was also utilized in the study.

Data was collected before surgery, before discharge, and at six and 12 weeks post surgery. A repeated measure analysis of variance indicated significant changes in self-care agency, self-efficacy expectation and performance of self-care. Estimated self-care agency increased from a mean of 119.2 to 126.7 at 12 weeks. Self-efficacy expectation scores were the lowest at discharge and increased up to 12 weeks. Assessment of self-care behaviors also increased up to 12 weeks.

Carroll (1995) proposed that self-efficacy is a mechanism that mediates between self-care agency and self-care behaviors by providing very specific estimates of ability of the self-care agent to perform the requisite behavior of self-care for recovery. Carroll (1995) stated that there are two possible paths to self-care behavior, the direct path from self-care agency to behavior, and the second path in which self-efficacy expectation mediates between self-care agency and behavior. Three regression equations were estimated to test for mediation. Results indicated there was a significant influence of self-efficacy expectations as a mediator between self-care agency and self-care behaviors at discharge. The data at six weeks found significant effects of self-efficacy expectations as a mediator between self-care agency and all self-care behaviors measured. At twelve weeks significant effects for self-efficacy expectations as a mediator for the behaviors of walking, general activities, and roles and relationships was found.

A regression analysis was performed for six and twelve weeks post discharge to determine predictability of behavior based on self-efficacy expectations. At six weeks post surgery the factors of self-efficacy expectation, younger age, and less restricted activity prior to surgery explained 27% of the variance. At twelve weeks self-efficacy expectations explained 37% of the variance in self-care behaviors. Limitations of this study included lack of examination of the physical and environmental factors that may influence ability to perform self-care behaviors and the lack of explanation of the purpose or content of a discharge class that was provided to all the subjects.

Self-care agency, self-efficacy, and long-term medication behaviors

Similar to Carroll's study (1995) of the concepts of self-efficacy and self-care, De Geest, et al. (1995) examined how perceived self-efficacy and self-care agency related to long-term medication behavior. De Geest, et al. also examined relationships between knowledge of therapeutic regimen, symptom frequency and level of symptom distress, with non-compliance. These two studies formed the basis for this research which examined self-care agency, self-efficacy, and long-term medication behaviors in chronically ill homebound patients.

The sample in the De Geest, et al. (1995) descriptive, cross-sectional design study was 148 patients from a renal transplant program in Belgium. All were one year post transplant, greater than 18 years of age, and taking immunosuppressive drugs. The mean age was 46.19. Researchers collected data through interviewing and survey. Self-care

agency was measured using a Dutch version of the Appraisal of Self-Care Agency Scale (Evers, 1989). Self-efficacy related to long term medication behavior was measured by the Long-Term Medication Behavior Self-Efficacy Scale developed by De Geest (1994). The knowledge of therapeutic regimen tool contained 32 items that measured knowledge and problem-solving abilities. This tool was designed specifically by the researcher for the study. The Transplant Symptom and Symptom Frequency Scale (Lough, Lindsey, Shinn & Stotts, 1985, 1987) was used to measure perception of symptoms. The dependent variable of compliance was measured by self-report and clinical outcomes of episodes of rejection.

Thirty-three subjects (22.3%) were found to be non-compliant with immunosuppressive therapy. There was no difference in terms of the factors of age, sex, or years of education. Unmarried and single individuals were found more frequently in the non-compliant group. Compliant patients had higher levels of self-care agency. No statistical difference was found between compliers and non-compliers related to knowledge except in problem solving abilities. Compliers were found to have increased problem solving abilities. Symptom frequency or distress had no significant effect upon compliance. Perceived self-efficacy was found to be significantly different between compliers and non-compliers in the first 100 patients. In the second group of patients utilizing the adapted tool a significant difference was not found.

Late acute rejection incidence was 6.19% in the compliant group and 24.24% in the non-compliant group. There was no significant difference in terms of chronic rejection, or five year survival rates. Further analysis of data with a logistic-regression model using gender, marital status, self-efficacy, self-care agency, knowledge about medication administration and signs of infection, and situational-operational knowledge as predictor variables revealed 78.6% correct classification to the non-compliers versus compliers groups. Limitations included the use of two different scoring methods of the instrument. The first method, used with 100 of the subjects, utilized a 5-point Likert-type scale, and the second, used with 48 subjects, used a 100-point probability scale with 10-unit intervals. The Cronbach's alpha for the first and second scales were 0.86 and 0.94 respectively.

In summary, review of research relating Orem's theory of self-care agency to medication behaviors suggests that interventions to increase self-care agency (Harper, 1984) can improve adherence to medication administration. Further, Orem's framework of self-care as a deliberate action was useful in explaining aspects of medication management (Conn, Taylor & Kelly, 1995). Conclusions derived from these studies suggest that medication behavior involves multiple factors, not merely adherence. A study of medication management of the elderly may include measurements of decision making, knowledge and compliance, reflecting phases of self-care agency. Research that examined self-efficacy and human behaviors indicated that those with increased self-efficacy tended

to be more successful in initiating and maintaining a specific behavior change. Therefore, the concepts of self-care agency and self-efficacy are assumed to be important factors in long-term medication behaviors.

Assessment of elderly patient's self-care agency and self-efficacy in medication management by nurses may be useful in identifying those patients who require intervention to increase these factors. Individual's abilities and limitations must be understood by nurses if they are to understand self-care deficits and the nature of them (Orem, 1985). By understanding interventions that can improve a patient's ability to manage long-term medications, the home care nurse may have significant impact upon that patient's ability to remain at home and upon the quality of life.

CHAPTER III

METHODS

Design

This study utilized a descriptive, correlational design to examine the relationships between self-care agency, self-efficacy, and medication management behaviors in the elderly, chronically ill home care client.

Setting and Sample

In order to be a recipient of home care services by a certified home care agency subjects in the convenience sample first had to meet criteria to qualify for Medicare reimburseable home care. Persons must be at least 64 years or older, have a need for intermittent skilled nursing care, and be homebound. Further criteria for this study included the presence of a chronic illness, and a need for long term medication management. The ability to read and understand English was also required. All subjects received skilled nursing care from a large home care agency serving clients in the northern lower Michigan area. The setting for data collection was subject's homes, which varied from urban to rural areas.

The sample consisted of 27 subjects. The ages of the individuals ranged from 64 to 94, with a mean of 76.41, SD. = 8.72. The majority of the subjects were female (70.4%). All of the subjects were white. The majority of the subjects (70.4%) lived with someone. The remainder of the demographic data is presented in Table 1.

Table 1

Demographic Data

	(n)	Percent
<u>Education</u>		
< high school	8	29.6
high school	9	33.3
college	10	37.0
<u>Health Perception</u>		
generally good	10	37.0
fair	11	40.0
poor	6	22.2
<u>Income</u>		
<10,000\$	10	37.0
11-20,000\$	10	37.0
21-40,000\$	6	22.2
>40,000\$	1	3.7
<u>Diagnosis</u>		
heart	10	37.0
lungs	1	3.7
muscle or bone	1	3.7
brain or nerves	3	11.1
bowel or bladder	1	3.7
endocrine	2	7.4

Note: Nine responses to diagnosis were coded as missing, selection of more than one answer occurred, therefore percentages do not total 100%.

Instruments

Data collection tools utilized in the study included a demographic data form, a self-care agency scale, a long-term medication self-efficacy scale, and nursing documentation tool related to medication management goal achievement.

The Long-Term Medication Behavior Self-Efficacy Scale (LTMSES) This scale was used to measure self-efficacy as it relates to medication behaviors. Bandura's (1987) approach to measuring self-efficacy in early studies established the approach now used in various studies. A sampling of various activities related to the behavior of self-medication was measured on the scale. LTMSES was developed by De Geest, Abraham, Gemoets and Evers (1994) for the purpose of measuring self-efficacy in a large study of medication behavior of transplant patients. In-depth interviews with 14 patients with life long dependence on medication were conducted to assess common themes of medication behavior. These themes were integrated within Bandura's conceptualization of human agency as a triadic model consisting of personal attributes, environmental factors, and task related and behavioral factors. The themes of emotions distress, confidence in the prescribing physician, perceived health status, and normalcy were categorized as personal attributes. Environmental factors included the themes of routine, distraction, social support, and the cost of medication. The third dimension (task-related and behavioral factors) was composed of the themes of side-effects, drug delivery systems, medication aids, schedule, and knowledge. The LTMSES utilized in this study was an adapted form of the final tool developed by De Geest, et al.(1996). The initial 33-item scale was reduced to a 27-item scale in 1995. When used in an as yet unpublished study with heart transplant patients the Cronbach's alpha was 0.88, reflecting high reliability (De Geest, personal communication, March 26, 1996). The scale, as revised by De Geest, et al., is currently being used in

being used in several research projects; a compliance study with liver transplant recipients, arthritis patients, and schizophrenic patients (De Geest, et al., 1996). Subjects are asked to respond to statements such as "taking my medication when I am home" and "taking my medication when I am very ill" on a Likert-type scale ranging from 1 (very little confidence) to 5 (quite a lot of confidence). The scale is calculated by summing the scores of all items divided by the number of items. Scores range from 1 to 5, with higher scores indicating higher levels of self-efficacy. For this study, questions not appropriate for the sample population such as "Taking my medication while at a bar" were deleted from the instrument, resulting in a revised version containing 14 items.

The Exercise of Self-Care Agency Scale (ESCAS) ESCAS was developed by Kearney and Fleisher (1979) to measure self-care agency based on Orem's theory of self-care. A consensus approach with a group of graduate students to identify characteristics of self-care agency was used. An open-ended six item questionnaire was used to identify the components of self-care agency. Through consensus, the group established four subconstructs that contribute to a person's exercise of self-care agency, and five indicants of exercise of self-care agency. The indicants were responsibility for self, motivation to care for self, application of knowledge of self-care, health priorities, and self-esteem. Forty-three items were developed from these indicants and arranged in a Likert-type five point scale.

Nursing and psychology students were given the ESCAS with a repeat of the scale

again in five weeks to measure test- retest reliability. Reliability over a five week period was 0.77 for nursing students and 0.80 and .81 for psychology students. Content validity was established by review by experts in the field of the self-care concept. Reviewers rated each of the scale's items on its worth as an indicator of exercise of self-care agency.

Construct validity was established by developing and testing hypotheses with the Adjective Check List by Gough and Heilbrun (1965) and The Internal-External Locus of Control Scale by Rotter (1975). A positive correlation was found between the ESCAS and the Adjective Check List. Locus of control was not found to have a positive correlation with exercise of self-care agency.

Items on the scale such as "I seek help when unable to take care of myself" and "I like myself" are responded to on a five point Likert-type scale from "very characteristic of me" to "very uncharacteristic of me". A score of 1 is assigned to the response "very uncharacteristic of me" and a score of 5 is assigned to the response "very characteristic of me". Negative statements in respect to exercise of self-care are scored in reverse. A total score is derived by summing the responses to indicate the degree of self-care agency, a high score is related to high self-care agency. Keeping in mind that the ESCAS was developed with a population of nursing and psychology students, the instrument in this study was revised to decrease the number of responses required by elderly individuals. Three questions related to each of the five indicants (responsibility for self, motivation to

care for self, application of knowledge of self-care, health priorities, and self-esteem) were selected by a consensus of experienced home care nurses, resulting in a revised tool of 15 questions.

Demographics

Demographic data was collected on the Demographic Data Form. Information includes age, gender, education level, perceived health status, marital status, race, income, and type of chronic illness.

Medication Management Goal Achievement (MMGA)

Clients in home care participate in mutual goal setting with the home care nurses. Typically goals related to medication behaviors are identified. For the purposes of the study, standardized goal statements were provided to be utilized as appropriate for each subject. Goal statements included: (a) Client is able to state the purpose of medications, (b) Client is able to administer medications as ordered, and (c) Client is able to identify appropriate side effects of each medication to report to care provider and/or actions to take. Nurses in the agency in which the study was performed, record goal achievement in nurses notes and care plans. Nurses were asked to report data on numbers of goals achieved. The goals were designed to capture the aspects of estimative operations as well as productive operations that are utilized in medication management as stated by Conn, Taylor and Wienke (1995). Nurses reported on the data collection instrument whether the

client has not met, partially met, or met the stated goals. Results were scored as

Not Met = 1, Partially Met = 2, and Met = 3.

Procedure

Trained home care nurses introduced the study to potential participants with the use of a standardized introduction paragraph. An informational letter with the researcher's name and telephone number for questions, a consent form, The ESCAS, the LTMSES, the Demographic Data Form, and addressed envelopes were provided to subjects to be returned to the researcher. The scales were numbered for tracking purposes. The home care nurses were provided with corresponding numbered and addressed data collection tools (MMGA) with which to indicate medication management goal achievement. These were also returned directly to the researcher, to be matched later. Fifty-four questionnaires were distributed to nurses and 27 matched sets were returned, yielding a response rate of 59%. Prior consent from the Human Research Review Committee at Grand Valley State University, and from the participating agency was obtained prior to data collection.

CHAPTER IV

DATA ANALYSIS

Techniques

Data analysis was accomplished using the Statistical Package for Social Sciences (SPSS). The purpose of the study was to examine the relationships between self-care agency, long-term medication behavior self-efficacy, and medication management in elderly, chronically ill homebound individuals. To test the strength and direction of the relationship between self-care agency and medication management, a Pearson's Correlation was calculated. Pearson's Correlation was also calculated to determine the strength and direction of long-term medication self-efficacy as a predictor of medication management. The .05 level of significance was used to evaluate the relationships. A regression analysis was calculated to determine the amount of variability in the level of medication management accounted for due to statistically significant variables. Demographic data was analyzed using appropriate statistics. In the analysis, missing data was replaced with the statistical mean, as is appropriate according to Polit and Hungler (1989).

Reliability Testing

Statistical testing was performed to measure the reliability of the instruments. The shortened ESCAS demonstrated a Cronbach's alpha of .631. This is lower than a .7 value that Polit and Hungler (1989) state is satisfactory. This was also lower than the .77, .80 and .81 found by Kearney and Fleisher (1979) and the .80 found by DeGeest, et al. (1995).

Cronbach's alpha for the LTMSES was found to be .85. This was very close the .88 found by DeGeest, et al. in 1994. The tool developed to assess medication management goal achievement was found to have a Cronbach's alpa of .78, demonstrating high reliability.

Hypotheses Testing

The distribution of the scores on the Exercise of Self-Care Agency scale ranged from 38 to 66, out of a possible 15 to 75. The mean was 55.93 (SD = 7.31). This suggests a sample with moderate degree of self-care agency.

The distribution of the scores on the Long-Term Medication Behavior Self-Efficacy scale ranged from 2.5 to 5 out of a possible range of one to five. The mean was 4.26 (SD = 0.68). This suggests a sample with high degree of self-efficacy for long-term medication behavior.

Although an ordinal level of measure, the summated score on the MMGA was treated as interval measure. The scores ranged from three to nine, out of a possible range of 3 to 9. The mean was 7.48, (SD = 1.83). This score suggests a sample with a high degree of medication managment goal achievement. Specific statistical information for the instrument is provided in Table 2.

Table 2

Medication Management Goal Achievement

	(n)	Percent
<u>Able to state purpose of medications</u>		
not met	2	7.4
partially met	3	11.1
met	22	81.5
<u>Able to administer medications as ordered</u>		
not met	7	25.9
partially met	2	7.4
met	17	63.0
missing data	1	3.7
<u>Able to identify appropriate side effects of each medication to report to care provider and/or actions to take</u>		
not met	3	11.1
partially met	11	40.7
met	13	48.1

The first hypothesis, "There is a positive relationship between level of self-care agency and level of medication management in chronically ill, elderly, homebound individuals", was tested statistically. Pearson's correlation coefficient was used to evaluate the strength and direction between the scores on the ESCAS and those of the MMGT ($r = .20$, $p = .31$). A .05 level of significance was used to evaluate the hypothesis. Although the relationship was found to be mildly positive, statistical significance was not found. Based on these findings, a statistically significant positive relationship between self-care

agency and level of medication management was not supported.

The second hypothesis was "The level of medication behavior self-efficacy is a predictor of the level of medication management in chronically ill, elderly, homebound individuals". The total scores on the LTMSSES were compared to the scores on the MMGA tool to examine the strength and direction of the relationship, using Pearson's correlation coefficient. ($r = .61$, $p = .001$). Again, the level of significance was .05. The r value of .61 revealed a strong positive relationship between self-efficacy and medication management that was significant. The hypothesis was supported.

Next, the research question "What is the degree of variability in level of medication management goal achievement that is attributable to self-care agency and long-term medication behavior self-efficacy in chronically ill, elderly homebound clients?" was addressed. The variable of self-care agency was not included in the regression, as it was not found to be statistically correlated to the dependant variable. Therefore, a simple linear regression was conducted using MMGA as the dependent variable and LTMSSES as the independent variable. Based upon the regression, long-term medication behavior self-efficacy explained 37.9% of the variance in medication management goal achievement ($F = 15.27$; $p = .0006$).

A Pearson's correlation coefficient was then conducted to measure the strength and direction between level of self-care agency and self-efficacy. Scores of the ESCAS

were compared to the scores of the LTMSES. The relationship was found to be mildly positive, but not statistically significant ($r = .32$, $p = .1$).

CHAPTER V

DISCUSSION AND IMPLICATIONS

Discussion of findings related to conceptual framework

The finding of only moderate scores on the ESCAS and corresponding high level of medication management goal achievement in this sample would not tend to support Orem's (1985) definition of self-care agency: the ability to meet the continuing requirement for care that regulates processes, maintains or promotes function and development, and promotes well being. Literature suggests that elderly individuals recognize positive health practices and self care from a lifetime experience of learning, yet findings in this study suggested only moderate levels of self-care agency in the sample (Hickey, Dean & Holstein, 1986). Several factors may have influenced this finding. One must consider that individuals who accept a referral to home care and the interventions of a nurse represent individuals who recognize a lack of self-care agency in meeting therapeutic self-care demands. Eighty percent of the individuals in this study identified on the ESCAS that it was characteristic or very characteristic of them to "seek help when unable to care for themselves." The fact that all the individuals in this study were accepting help from nurses may have influenced their perceptions of their ability to perform self-care, resulting in only moderate ESCAS scores.

The subjects in this study were all elderly. Historically, individuals of this age were not as interactive in health care as individuals are today. They played a more dependent

role and viewed the physician as the authority figure who "orders" medications. They may have perceived lower self-care agency and placed greater importance on medication management, as dictated by the nurse. A self-care system is usually sufficient until a person faces a new health care situation that requires adaptation or alternative health behaviors (Harper, 1984). It is conceivable that the subjects in this study having undergone recent changes in their health situation, which resulted in self-care deficit, received the assistance of the nurse and were able to increase the behavior of medication management, which would have been important to them. Therefore, they may have scored lower on the ESCAS and higher on the MMGA.

The instrument (ESCAS) itself, may have influenced the finding of moderate self-care agency. The Cronbach's alpha of .63 suggests that the altered instrument may not have been reliable in capturing self-care agency in this sample. An examination of the results of individual statements on the instrument reveals that only 66% perform activities to keep from getting sick and only 66% look for better ways to look after their health. Prevention was not typically a primary focus of the older generation and may not be perceived as important or pertinent in this age category. Only 48% felt that they had something to contribute to others. Elderly, chronically ill individuals may indeed feel they have little to contribute to others, yet still be able to take care of themselves.

Self-efficacy, the conviction that one can successfully execute the behavior required to produce the outcome, was supported by high scores of the LTMBSES and resulting

high levels of goal achievement. Those individuals who felt they would be able to execute the specific behavior of medication management were indeed more apt to achieve all of their goals for medication management. Individuals with strong efficacy beliefs about medication behavior are more motivated and are assumed to persist longer in correctly following the prescribed regimen (DeGeest, et al, 1995). Bandura (1986) states that self-efficacy perceptions are behavior specific. The relationship between self-care agency and self-care behavior (medication management) may be mediated by how well people judge their specific capabilities, their specific self-efficacy expectations toward medication management. This study suggests that self-efficacy for long term medication behavior increased the individual's ability to carry out the specific self-care activity of medication management, even without a corresponding high level overall self-care agency.

The varying degrees of goal achievement in medication management reflected the multitude of medication management behaviors such as, (a) making knowledgeable, appropriate decisions about daily medication administration, (b) negotiating and communication with health care providers regarding regimens, and (c) cueing and remembering to take medications (Harper, 1984). Individuals were able to attain mastery of some (Table 2), but not necessarily all of the behaviors required in order to achieve all their medication management goals, supporting the definition of medication management as more than mere compliance (Harper, 1984)

Relationship of findings to previous research

Findings in this study indicated that the sample demonstrated only moderate levels of self-care agency. This characteristic was found to be dissimilar to the population in Carroll's (1995) study who had higher levels of self-care agency. It was also dissimilar to the compliant subjects found in the DeGeest, et al. study of 1995. Typically, referral sources (physicians and hospital discharge planners) select patients for home care referrals based upon complex needs and/or suspected deficits in self-care. Perhaps the specific interventions of the home care nurses toward medication management and the high levels of self-efficacy assisted the individuals in this study to achieve their medication management goals. A self-care medication program designed to increase self-care resulted in improved medication self-care behaviors in Harper's study population (1984). Although no specific experimental program to increase self-care was utilized in this study's sample, it is inherent in the home care arena to work with individuals on enhancing self care agency. Individuals in this study received specific interventions to raise level of medication management.

Long-term medication behavior self-efficacy was found to account for 37.9% of the variance in medication management goal achievement. This supports Bandura's (1977) theory that self-efficacy is predictive of behavior. This finding also supports the work of Gortner and Jenkin's (1990) work with cardiac surgery patients. Their sample was younger (mean age of 59.2 for males and 57.0 for females) and predominately male(80%).

The researchers found that self-efficacy contributed 14.8% of the 34.8% explained variance in self-care behaviors at 12 weeks post-op and 8.5% of the variance at 24 weeks post-op.

Carroll (1995) found that self-efficacy explained 37% of the variance in exercise behavior in post CABG patients at 12 weeks. The sample in Carroll's study, though specifically post CABG patients, was similar to this study in mean age (71.8) and in presence of chronic illness, coronary artery disease. Heart disease accounted for the predominate chronic illness in this study (37.0%). Carroll's sample was different in that it was mostly male (76%). Of interest is that 24% of Carroll's sample received home care services.

The combination of perceived barriers, type of surgery (PTCA vs. CABG), and self-efficacy explained 31% of the variance in exercise adherence in post-surgery heart patients (Robertson & Keller, 1992). The sample in their study differed in some ways from the sample in this study. Robertson and Keller's subjects were predominately male (74%). The mean age of the sample was 61.3, younger than this study's sample. Level of education was similar, 45.1% with high school and 43.1% with at least some college.

The findings of high levels of medication management goal achievement in the study sample would seem to contradict previous research about elderly patients. However, individuals are often referred to home care to assist in medication management. The fact

that all these patients received interventions toward medication management goal achievement may have increased the ability to meet these goals.

Limitations and recommendations

There are certain limitations to this study. The sample size was small. The resulting sample was generally homogenous: white, income less than 21,000, and some college education. This would limit generalizability. The sample did represent a good range of ages in the elderly, from 64 to 94.

Sampling bias may have occurred. Individuals with mutually agreed upon medication management goals would reflect selection of those individuals that the nurses felt would be able to progress and accomplish goals. Individuals with extreme difficulties with self-care behaviors may not have been included, due to lack of self-care related goals. Bias may also have occurred in the recruitment of individuals for the study. Although nurses were instructed to randomly recruit individuals (i.e. offer inclusion in the study to the next patient seen that day), nurses may have subjectively recruited individuals that they felt would complete the surveys or would be a "good subject".

The reliability of the shortened ESCAS, (.63) should be kept in mind when examining the scores and relationships found. The shortened form may not have reliably captured the essence of self-care agency. Conclusions based upon analysis of this data must be questioned.

Self-efficacy is believed to be dynamic (Bandura, 1977). In other words, success at medication management may increase self-efficacy and subsequently self-efficacy increase medication management. A longitudinal study would have provided more information on the dynamic aspect of self-efficacy. It is also unknown in this study how long each individual and nurses had been working toward medication management goal achievement. This must be considered a limitation of this study.

Implication for nursing

The purpose of developing and testing theoretical models is to determine those concepts that have the strongest impact on professional and practice outcomes (Hinshaw, 1984). The model constructed in this study was an initial attempt to examine the relationships between self-care agency, self-efficacy, and medication management. Variables in this study provide cues to understanding factors involved in medication management. Self-care is the most basic form of care for all all groups , and interactive in the health care system (Dean, Hickey & Holstein, 1982). Interventions taken by nurses to increase self-care agency can create an environment in which the elderly can perform self-care behaviors (Carroll, 1995), a phenomenon that may have occurred in this study. The nurse assists to provide an environment that motivates the individual to establish appropriate goals and adjust behavior to achieve results specified by the goals (Orem, 1985). As more people live longer with chronic illness the impact of lifelong health behavior patterns becomes increasingly evident (Hickey, Dean & Holstein, 1982). Nurses

are in a unique position to influence the change and maintenance of behavior, such as medication management behavior.

A greater understanding of self-efficacy could help nurses identify those individuals requiring more intensive efforts to increase self-efficacy. By addressing the sources of self-efficacy (a) performance accomplishment, (b) vicarious experience, (c) verbal persuasion, and (d) emotional arousal, nurses can help to increase self-efficacy. Nurses can instruct individuals about realistic trajectories to goal achievement, in order to prevent the setting of unattainable expectations (Carroll, 1995). Target behaviors, such as medication management can be divided into easily managed components that progress in a stepwise manner to facilitate success (Allen, 1988), thereby assisting with performance accomplishment. Recognition of accomplishing each small step will increase feelings of efficacy. It is important for nurses to help individuals attribute accomplishment to effort (Allen, 1988), thereby increasing feelings of mastery. The use of anticipatory guidance (verbal persuasion) and sharing of experiences (vicarious experiences) also increase self-efficacy (Carroll, 1995). Using techniques such as relaxation training can decrease anxiety (emotional arousal) and improve efficacy (Allen, 1988).

Further studies should include investigation into complexity of medication regimen, dynamics of long-term medication behavior self-efficacy over time, and exploration of other factors that may contribute to medication management such as social support, and locus of control. Additional studies should continue to explore the mediating aspects of

self-efficacy toward specific self-care behaviors. Information gathered concerning medication management in elderly individuals, can then be broadened to encompass other aspects of self-care.

APPENDICES

Appendix A

Cover Letter

Dear Home Care Patient:

I am a graduate nursing student at Grand Valley State University completing my masters thesis. Part of my thesis research includes gathering information about how people take care of themselves and how they manage their medications. Information obtained from the study may help nurses to provide better care to home care patients. The study involves filling out three questionnaires and returning them to me. Your home care nurse will also provide some information from your medical record to the researcher. All information will be identified by code number to protect your confidentiality. I would appreciate your taking a few minutes to fill out the enclosed questionnaires and return them to me in the included stamped envelope. To ensure your confidentiality please return the signed consent form separately. If you have questions about the study or would like further information I can be reached at (616) 938-9706.

Thank you in advance for your time and participation in this project.

Elaine Lince RNC BSN

Appendix B

CONSENT FORM

This study is designed to learn more about home care clients and how they take care of themselves and manage their medications. It is being conducted by Elaine J. Lince RNC BSN, a graduate nursing student at Grand Valley State University. Patients will be asked to complete written questionnaires and return them to Ms. Lince in self-addressed stamped envelopes. Patients also agree to have information from their medical record to be provided to Ms. Lince in a way that maintains confidentiality.

If you are willing to participate, please read and sign the following statement:

1. I have freely consented to take part in a study of home care clients conducted by Elaine J. Lince RN BSN, which is being done to meet partial requirements for her masters of nursing thesis through Grand Valley State University.
2. I understand that participating in the study is voluntary.
3. I understand that I can request to withdraw at any time.
4. I understand that that this study should not lead to any physical or emotional risk to myself, or affect the care being provided to me.
5. I understand that the results of the study will be treated in strictest confidence and the identification of individual participants will not be possible. I understand that within these restrictions, results will be made available to me at my request.
6. I understand that I can call Elaine J. Lince at (616) 938-9706, or the chair of the Grand Valley State University Human Research Review Committee at (616) 895-2472 with any questions I have about this study.

I, _____, state that I understand what is required of me as participant and agree to take part in this study.

Signed _____ Date _____

Appendix C

DEMOGRAPHIC DATA FORM

1. Your age is ____
2. Your gender:
 - __1. Female
 - __2. Male
3. Your educational level:
 - __1. Never finished high school
 - __2. High school
 - __3. College
4. Your health is:
 - __1. generally good
 - __2. fair
 - __3. poor
5. Living Situation
 - __1. Live alone
 - __2. Live with someone
6. Your race is:
 - __1. White
 - __2. Hispanic
 - __3. Black
 - __4. Other
7. Your income level is:
 - __1. less than \$10,000
 - __2. \$11,000 - \$20,000
 - __3. \$21,000 - \$40,000
 - __4. greater than \$40,000
8. The home care nurse sees you because you have a disease that affects your:
(pick one)
 - __1. Heart
 - __2. Lungs
 - __3. Muscles or bones
 - __4. Brain or nerves
 - __5. Stomach
 - __6. Bowel or bladder
 - __7. Skin
 - __8. Endocrine (Diabetes)

Appendix D

Exercise of Self-Care Agency Scale

Please read each statement and decide how well it describes you. For each item, circle the following number that best describes your response to the statement. Use the the following meaning for each number.

- 5 The statement sounds very characteristic of me
- 4 The statement sounds characteristic of me
- 3 I have no opinion on this statement
- 2 The statement is uncharacteristic of me
- 1 The statement is very uncharacteristic of me

very very
uncharacteristic characteristic

- | | |
|---|---------------------|
| 1. I would gladly give up my set ways if it meant improving my health. | 1__ 2__ 3__ 4__ 5__ |
| 2. I like myself. | 1__ 2__ 3__ 4__ 5__ |
| 3. I seek help when unable to take care of myself. | 1__ 2__ 3__ 4__ 5__ |
| 4. I often put off doing things that I know would be good for me. | 1__ 2__ 3__ 4__ 5__ |
| 5. I perform certain activities to keep from getting sick. | 1__ 2__ 3__ 4__ 5__ |
| 6. I look for better ways to look after my health. | 1__ 2__ 3__ 4__ 5__ |
| 7. I understand my body and how it functions. | 1__ 2__ 3__ 4__ 5__ |
| 8. I have little to contribute to others. | 1__ 2__ 3__ 4__ 5__ |
| 9. Over the years I have noticed the things to do that make me feel better. | 1__ 2__ 3__ 4__ 5__ |
| 10. I tend to neglect my personal needs. | 1__ 2__ 3__ 4__ 5__ |

very very
uncharacteristic characteristic

11. I take responsibility for my own actions.

1__ 2__ 3__ 4__ 5__

12. Sometimes when I feel sick I ignore the
feeling and hope it goes away.

1__ 2__ 3__ 4__ 5__

13. I understand myself and my needs pretty well

1__ 2__ 3__ 4__ 5__

14. I have a planned program for rest and exercise.

1__ 2__ 3__ 4__ 5__

15. I feel I am a valuable member of my family.

1__ 2__ 3__ 4__ 5__

Appendix E

LONG-TERM MEDICATION BEHAVIOR SELF-EFFICACY SCALE

(De Geest et al., 1994)

We would like to know how much confidence you have about doing each of the behaviors listed below. For each of the following statements, please circle the number that most closely represents your level of confidence in performing the behavior.

	Confidence
	very little quite a lot
1. Taking my medication when I am at home	1__ 2__ 3__ 4__ 5__
2. Taking my medication even though the pills are big and hard to swallow.	1__ 2__ 3__ 4__ 5__
3. Taking my medication even though it is expensive	1__ 2__ 3__ 4__ 5__
4. Taking my medication in the absence of medication aids (e.g., pill box, calendar,...)	1__ 2__ 3__ 4__ 5__
5. Taking my medication when nobody helps me get ready.	1__ 2__ 3__ 4__ 5__
6. Taking my medication even when it has side effects.	1__ 2__ 3__ 4__ 5__
7. Taking my medication when the time of intake does not coincide with my meal times.	1__ 2__ 3__ 4__ 5__
8. Taking my medication when nobody reminds me about the time at which I should take my medication.	1__ 2__ 3__ 4__ 5__
9. Taking my medication when I have visitors in my home.	1__ 2__ 3__ 4__ 5__
10. Taking my medication after I have gotten very angry at a friend or spouse or child.	1__ 2__ 3__ 4__ 5__
11. Taking my medication when I am in pain.	1__ 2__ 3__ 4__ 5__
12. Taking my medication while watching TV.	1__ 2__ 3__ 4__ 5__

Confidence
very little quite a lot

13. Taking my medication when I feel very ill. 1___ 2___ 3___ 4___ 5___
14. Taking my medication when I feel very sad. 1___ 2___ 3___ 4___ 5___

Appendix F
HOME CARE NURSE

Please complete this data collection tool and return in stamped self-addressed envelope. Do not include any additional or identifying information. Thank you for your assistance in this research. If you would like further information regarding the research when it is finished, you may indicate so and include your address.

GOAL	GOAL ACHIEVEMENT		
	not met	partially met	met
1. Client will be able to state the purpose of medications.	_____	_____	_____
2. Client will be able to administer medications as ordered.	_____	_____	_____
3. Client will be able to identify appropriate side effects of each medication to report to care provider and/or actions to take.	_____	_____	_____

Appendix G
Permission Letters

January 27, 1997

Barbara Kearney
75256 Highway 59
Covington, LA 70435

Dear Ms. Kearney,

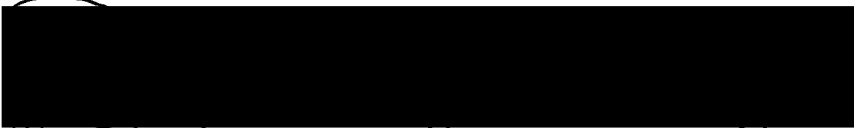
I am writing to obtain written permission to use the Exercise of Self-Care Agency in my thesis research toward my Master's degree, as per our conversation today. I am exploring the relationship of self-care agency, self-efficacy in medication behaviors, and medication management in elderly, chronically ill home care individuals.

Sincerely,



Elaine J. Lince RNC BSN

You have Barbara Llusker and
my permission to use the ESCA
tool. Please share your results
with me. Enclosed is a sample sound
copy.



2/4/97



KATHOLIEKE
UNIVERSITEIT
LEUVEN

Elaine Lince, BSN, RNC
3799 Holiday Village
Traverse City, MI 49686
USA

ONZE REF.
UW REF.
LEUVEN,

Leuven, March 26, 1996

Dear Ms.Lince,

Thank you for your letter. I was very pleased to read that you are interested in using the Long-Term Medication Behavior Self-Efficacy Scale.

The Long-Term Medication Behavior Self-Efficacy Scale has been used in two research projects on "Prevalence, determinants, and consequences of non-compliance with immunosuppressive therapy in transplant recipients". The first study included a sample of 150 renal transplant recipients (De Geest et al., Transplantation 1995; 59: 340-347) and the second study consisted of 101 heart transplant recipients (not yet published). Self-efficacy was a determinant of compliance behavior in both studies.

The Long-Term Medication Behavior Self-Efficacy Scale has been adjusted, based on results of the first study using factor analysis and correlation analysis (not yet published). The initial 33-item instrument has been reduced to a 27-item instrument. The Cronbach's alpha for the 27-item instrument was 0.88 in the heart transplant study, reflecting high reliability. Please, find a copy of the scale included.

The self-efficacy score is calculated by summing the scores of all items divided by 27. Thus, the self-efficacy scores range between 1 and 5, with higher scores indicating higher levels of self-efficacy.

Items 8, 9, and 14 of the scale are related to side-effects of medication. Because the Long-Term Medication Behavior Self-Efficacy Scale was developed as part of a research-project in transplant recipients, the side-effects included are side-effects of immunosuppressive medication. When using the scale in another population, these side-effects should be replaced by side-effects related to the drug under study. It is important to choose the most distressing side-effects because they are most likely to influence compliance behavior (cfr. Common Sense Model, Leventhal et al., 1983, 1987).

SECRETARIAAT TEL (016)33 69 72 - 33 69 73
STUDENTENSECRETARIAAT TEL (016)33 69 75
FAX (016)33 69 70

The Long-Term Medication Behavior Self-Efficacy Scale (27 item-instrument) will be further validated in several research projects: a compliance study in liver transplant recipients at the University Hospitals of Groningen in The Netherlands, and a Canadian research project in arthritis patients, respectively. The scale has also been translated in Chinese to use in a sample of schizophrenic patients in Taiwan. Dr. A. Bandura of Stanford University asked me to inform him on the use of the instrument in different research projects for the book he is writing: "Self-Efficacy: The Exercise of Control".

I would be most interested to cooperate with you and your colleagues in further validating the Long-Term Medication Behavior Self-Efficacy Scale. I am looking forward to hear more about your research project. Please, do not hesitate to contact me if you have further questions concerning the scale.

I wish you all success in your further research.

Yours sincerely,

A black rectangular box redacting the signature of Sabina De Geest.

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