ABSTRACT

HOW DO ADVANCED PRACTICE NURSES
PROMOTE MEDICATION COMPLIANCE IN THE ELDERLY?

By Sheila Marie Landon

Background: The elderly are the fastest growing segment of the population and there are high degrees of chronicity associated with the aging process. Inappropriate prescribing to elderly patients is increasing. It is not uncommon for older patients to receive one or more medications from their primary health care provider and additional medications from specialty physicians, with each provider unaware of medications prescribed by others.

Purpose: The purpose of this study was to examine how advanced practice nurses (APNs) promote medication compliance in the elderly.

Sample and Setting: The participants were obtained through the Wisconsin Department of Regulation and Licensing and were chosen by the researcher. The listing included all APNs from the state of Wisconsin. The sample was derived from APNs practicing in Brown, Oconto, Outagamie, Shawano, and Waupaca counties. These counties reflect the Northeastern Wisconsin region. The sample was obtained through a random selection of every fifth name from the list. A provider questionnaire was mailed to the APN's home and returned to the researcher. The inclusion criteria included any male or female APN with prescription privileges, provider for any elderly person 65 years or older and resides in the above named counties.

Design and Method: This study was a descriptive qualitative design. Qualitative content analysis method was used to formulate descriptions of the questionnaire. Data analysis revealed that three main themes emerged: *Simplify Dosing Schedules, Frequent Follow Ups,* and *Affordable Medications*.

Implications: In light of the importance of medication compliance in modulating patient outcomes, advanced practice nurses need to recommend strategies to integrate medication compliance. The findings from this study confirm that advanced practice nurses should have the knowledge, attitude, and skills to follow an appropriately prescribed regimen. Multidisciplinary efforts to promote medication compliance may improve the outcome. Many elderly patients are unaware of the importance of complying with the medication regime which is reflected in their reports of not taking medications when they feel better or if their condition worsened. Advanced practice nurses are in a unique position to educate patients about the importance in medication compliance.

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I would like to dedicate this clinical project to all of the people who continuously support and encouraged me while in the pursuit of accomplishing this goal. I would also like to dedicate this project to all the wonderful Advanced Practice Nurses who continue to promote medication compliance to the elderly

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CHAPTER I

INTRODUCTION

In the United States, there were 37.3 million citizens over the age of 65 in 2006. This is an increase of 3.4 million or 10% since 1996. It is expected that this will increase to 20% of the population by 2030 (Administration of Aging [AoA], 2008, statistics). The elderly consume more prescription and nonprescription drugs than any other group. The elderly account for approximately 50% of the total drug use in the United States (Harris, Cody-Connor, 2005). Noncompliance to medication regimens is common in the elderly, especially with elderly undergoing long term medical therapy (Harris, Cody-Connor, 2005). It has been estimated that as many as 200,000 people may die in the United States each year from medication-related problems (Simonson & Feinberg, 2005).

There are many reasons why noncompliance with medication regimen is a more severe problem in the aged. The elderly have an increase in symptomatolgy and disease for which more medications are prescribed by one or more providers. Because greater medication use, older persons experience not only more side effects, but an increased incidence of adverse drug reactions. Elderly clients have more difficulty following prescriptions because of multiple medications, cognitive decline, and frequent physical limitations that may impede complications (Hughs, 2004).

In addition, expensive costs of medication regimens place financial burdens on the elderly and can be a significant factor in noncompliance with treatment program. Older Americans have a lower economic status than their younger counterparts. Loss of

income during retirement forces the elderly to rely on Social Security benefits, pensions, and assets they have accumulated over their lifetimes. Economically according to Administration on Aging (2008), the median income for age 65 and older in 2006 was $23,500 for males and $13,603 for females. Households containing families headed by persons 65+ reported a median income in 2006 of $39,649 ($41,091 for non-Hispanic Whites, $30,775 for African-Americans, $43,035 for Asians, and $29,385 for Hispanics).

Some 50% of patients with chronic disorders do not obtain optimal clinical benefit from prescribed regimens because of delayed or missed doses. The extent and nature of compliance problems are consistent regardless of disease, symptom, regimen, or age group. Medication compliance may deprive a patient of anticipated therapeutic benefits, possibly worsening the condition or allowing disease progression (Schaffer and Yoon, 2001).

Inappropriate prescribing to elderly patients is increasing. It is not uncommon for older patients to receive one or more medications from their primary care provider and additional medications from specialty physicians, with each provider unaware of medications prescribed by the others (Austin, 2004). As the number of providers following the patient increases, so does the number of medications. A national study of non-institutionalized United States adults revealed that 90% of persons 65 years or older used at least 1 medication per week. More than 40% used 5 or more medications per week, and 12% used 10 or more per week (Kaufman, Kelly, Rosenberg, Anderson and Mitchell, 2002). The situation may only become more complicated in years to come.

According to MacLaughlin et al. (2005), healthcare providers traditionally rely upon self-report to assess medication compliance. During the interview, the patient or occasionally the caregiver will be asked a direct question regarding medication use. The provider often poses a single-closed-ended, judgmental question such as, "do you take your medicines as prescribed?" Invariably, patients respond 'yes' for fear of alienating their provider and because of discomfort in sharing difficulties associated with medication use. This direct method of questioning has been proven to be unreliable. An alternative interview approach provides more complete and reliable information. By posing open-ended, nonjudgmental questions, interviewers may actually encourage patients to share their experiences with medications. Phrases such as, "Will you tell me how you take your medications?" have proven to be more helpful in soliciting greater information. Elderly patients may also be asked to show their healthcare provider how they take their medications. This method allows the provider to assess the number of tablets or pills taken, the time of day the medication is taken, and the indication for use of each medicine (MacLaughlin et al., 2005).

Researchers across several decades have described patient compliance as the best documented, but least understood health behavior (Vik, Maxwell, & Hogan, 2004). Although a variety of methods to measure compliance exist, problems with validity and reliability are inherent with every one of them. Vik, Maxwell, & Hogan (2004) state that presently there is no generally accepted gold standard for measuring adherence. This belief is highlighted by Steiner and Earnest (2000), who noted that the only way to be

certain about a patient's compliance is to administer the medication directly to the patient.

Barat, Andreasen, and Damsgaard (2001) reported discrepancy in 22% of drug regimens between a home visit review and information collected at the primary care provider's office. The authors also noted a positive correlation between nonadherence to the prescribed medication regimen and the use of three or more prescription medications as well as 71% of the medication discrepancies concerned dosage Bedell et al. (2000) reported similar results. In 60-and-older age group, 82% (n = 312) had a discrepancy between the medication regimen and medications actually taken, and patients cared for by cardiologists were more likely to have discrepancies in the medication regimen. Bikowski, Ripsin, and Lorraine (2001) recommended the brown bag approach, computerized medication regimens, and online communications to decrease medication regimen discrepancies. Continual medication reviews at every visit with the older patient are necessary to determine regimen compliance. Barat, Andresen, and Damsgaard (2000) recommended improved patient education (i.e., regarding dosage, indication, benefits, risks), the use of ''compliance aids'' such as pill boxes, medication calendars, and careful evaluation of each drug by primary care providers to reduce the number of medications prescribed and to increase drug regimen compliance based upon client feedback, Bedell et al. (2000) also reported that medication regimen compliance could be improved by providing clients with information regarding medication indication, symptom improvement, adverse effects, cost, and the importance of providing a complete medication list to all providers involved in the clients' care. Visual identification of

medications, continuous meticulous medication review, and thorough patient education by advanced practice nurses are methods to increase medication regimen compliance and decrease polypharmacy.

Due to the complexity of medication compliance behaviors, no single strategy has been confirmed as the best to enhance medication compliance. Multifaceted interventions seemed to be more effective than simple strategies. Many essential issues concerning compliance to medication therapy remain unanswered. After critically reviewing the literature concerning medication compliance among the elderly, there is a conclusion that many theories or models have been developed to predict the person's compliance with the treatment regimen; however, most of them were developed to reflect the caregivers' value system, thus limiting their usefulness. Gaps that were noted in the literature included: although there is a plethora of literature on why the elderly are noncompliant with medications, there was a dearth of studies on what advanced practice nurses are doing today to help these elderly be more compliant with taking their medications.

Significance in Nursing

In the 1960's, the consumer movement began and clients became more knowledgeable regarding the disease process. They became more assertive in demanding their rights to accurate, complete information in order to make their own decisions about health care. Health care providers encouraged clients' active, responsible participation in

decision-making. There is a continuing trend to emphasize public awareness of health maintenance and preventive measures to sustain a balanced healthy state.

In addition, over the past several years, technical advances made in the health care industry have been phenomenal. New medications, techniques and comprehensive care have complicated the health care process. But, all the modern advances are no value if prescribed regimen is not followed by the client. Medications may be beneficial for treating the disease process, but the problem for the elderly client, family and health care provider is associated with maintaining as an adequate regimen that is usually complex and varied (Oseadon and Gramley, 1991).

Primary care providers have been instrumental in using holistic approach to enhance health promotion, illness prevention, diagnosis and treatment of illness. This focus is in harmony with the concept of compliance. Compliance requires the client to receive sufficient information to make decisions for life-style changes. Compliance is viewed as an interactive decision-making process where the focus of control resides with the client. Health care providers need to know and understand what promotes compliance and what effect health-promoting beliefs have on proper medication usage.

Health promotion has been a basic function of nursing and is applicable to fostering medication compliance. Nurse practitioners are in a unique position to promote proper medication usage in the elderly. Through a leadership role, advanced practice nurses (APNs) are able to promote optimum life-styles by fostering positive health practices. By identifying the variables of health promotion, the APNs can assess the clients' current status and what strategies can be used to promote compliance.

Problem Statement

Much research has been conducted on medication compliance among the elderly population and why it has been occurring; however little research has been conducted on what APNs are doing to help promote medication compliance. Furthermore, through a review of literature, very little research was found that explored the role of APNs in promoting compliance. Eliciting an understanding of what APNs believe and practice related to medication compliance among the elderly would assist them to teach and educate much more appropriately.

Purpose of the Study

The purpose of this study was to examine how APNs are promoting medication compliance in the elderly in Northeastern Wisconsin.

Research Question

How are advanced practice nurses promoting medication compliance to the elderly?

Definitions of Terms

Conceptual Definitions

1. Advanced Practice Nurse -- A licensed registered nurse, who has completed graduate training as a clinical nurse specialist, nurse anesthetist, nurse-midwife, or nurse practitioner.

2. Promote--"to contribute to the growth of further understanding" (Merriam Webster online Dictionary, 2008).
3. Medication compliance-- "the act or process of complying to a desire, demand, or proposal to coercion" (MacLaughlin et al., 2005).
4. Elderly-- "age 65 years old and above" (Sidhu et al., 2007)

Operational Definitions

1. Advanced Practiced Nurse-- A licensed registered nurse, who has received a master's degree in the science of nursing has prescriptive authority and has been working as a nurse practitioner for at least one year.
2. Promote -- Medication compliance will be measured by respondent's definition.
3. Medication compliance – Medication compliance as defined by the respondent.
4. Elderly-- an ambulatory individual above the age of 65 and currently taking one or more medications prescribed by a health care provider. Is a current patient at a Northeastern Wisconsin clinic.

Assumptions

1. Advanced practice nurses can influence the elderly in promoting medication compliance.
2. Advanced practice nurses discuss the patient's medications, including why they are on them, the dosage and times taken at every appointment.
3. The elderly are at greater risk for noncompliance because of their complex medication regimens and higher incidence of chronic disease.
4. Subjects will be honest in answering the questionnaire.

Summary

With the elderly population increasing at a rapid rate, primary care providers need to further research regarding the care of this special age group. Older persons utilize the health care system more and have unique medical needs.

CHAPTER II

LITERATURE REVIEW

Introduction

The purpose of this study will be to examine how advanced practice nurses promote medication compliance to the elderly population.

In this chapter, research literature relating to promotion of medication compliance will be reviewed. The literature review will be divided into specific areas: *Methods to Assess Compliance and Education.*

Review of Literature

The purpose of this literature review is to answer the following questions. (a) What methods are utilized by health care providers to assess medication compliance in the elderly? (b) What interventions do health care providers utilize to decrease medications that are not clinically indicated in the elderly? The answers to these questions are critical as there is a direct correlation between advanced practice nurses education and the incidence of medication compliance in the elderly.

Methods to Assess Compliance

In a study done by Arar, Wen, McGrath, Steinbach, Pugh (2005), a cross-sectional, observational study was done to assess the role of electronic medical records (EMR) in facilitating the content and process of patient–provider exchanges about medications during outpatient primary care visits. Fifty encounters with six physicians using the EMR were videotaped, transcribed and content analyzed by applying

conversation analysis and ethnomethodology techniques. The analysis focused on three aspects of medication communication: (a) process of care: practices by patients and physicians to implement medication decisions; (b) themes: medication topics that consistently emerge; and (c) names: ways patients and physicians refer to medications. In-depth analysis of 20 encounters examined the extent to which either or both parties initiated, expanded and concluded medication discussions. Results showed on average 21.2 (range: 8–35; SD=7.4) distinct exchanges per encounter were observed. Of those, 33% were related to medication. Of the 350 medication-related exchanges throughout the encounters, 56% were categorized as routine medication discussion such as ordering and/or refilling medications. Mailing issues were the next most common medication-related exchanges (10.6%), followed by partial adherence (8.9%), self-regulation (7.4%), alternative therapy/over-the-counter medication (6.6%), side effects (6%) and formulary issues (4.6%). Patients and providers used three ways to name medications: generic/scientific name (42%); physical description (39.7%) and brand name (18.3%). Forty-one percent of exchanges included initiation by one or both parties but no further discussion of the issue; 42% included initiation and expansion by both parties but not conclusion; only 17% of exchanges contained complete medication exchanges (initiation, expansion and conclusion) by both parties. The EMR facilitated content and process of communication regarding medications during outpatient encounters, especially among patients taking multiple medications and patients who used physical descriptions to identify their medications. EMR use stimulated medication exchanges, leading to further

expansion about the topic. However, less than one-fifth of exchanges ended with clear conclusions by both parties regarding prescribed medication regimens.

In a study done by Fillit et al. (1999), they reported utilizing the brown bag approach for medication review. Of 37,372 potential subjects, 5737 had an identified risk for polypharmacy based upon a review of prescription medication data obtained from managed care pharmacy database and 1087 participants voluntarily brought all prescription and nonprescription medications to their primary care provider for a medication review. Sixty-one percent of the 275 physicians involved in the study reported that the medication review was ‘‘very’’ or ‘‘somewhat’’ useful. In the reviews, 35% of client’s drugs were discontinued as unnecessary medications, and 45% of the physicians made at least one change in their prescribing practices as a result of the medication reviews. Medication review is especially useful when a patient is under the care of multiple physicians (e.g., specialists). Drug duplications, new medications, drug interactions, and drug–disease interactions can be identified by reviewing all medications. Visual medication review is a useful intervention to assess polypharmacy, manage disease processes effectively, decrease drug interactions, and evaluate the medication regimens.

Education

In a study done by Akerblad, Bengtsson, Ekselius, and Von Knorring (2003), the main objective was to evaluate two different interventions to improve adherence to antidepressant drugs. Secondary objectives included response to treatment, relation between adherence and response, patient satisfaction and tolerability. A randomized

controlled design was used to assess the effect of a patient educational compliance enhancing programme (CP) and therapeutic drug monitoring in 1031 major depressed patients treated with sertraline for 24 weeks and managed by their general practitioner. Adherence was measured by questioning, measurable serum levels of sertraline and desmethylsertraline, appointments kept and a composite index including all three methods. Treatment adherence was found in 37-70% of patients, depending on the method used. Neither of the interventions resulted in a significant increase in adherence rate. However, significantly more patients in the CP group had responded at week 24 compared to patients in the control group. Overall, significantly more adherent patients responded to treatment compared to non-adherent patients, regardless of method used to determine adherence. This large study demonstrates that treatment response increases when using an educational compliance programme and that a strong relationship between treatment adherence and response exists.

In a study by Hunt, Siemienczuk, Touchette, and Payne (2004), a prospective, randomized, controlled single-blind trial was used at nine primary care practice clinics located in Portland, Oregon. The participants were patients with mildly uncontrolled hypertension as defined as blood pressure readings of 140 to 159/90 to 99 mmHg from an electronic medical record database. Patients were first randomized and then mailed two educational packets approximately 3 months apart. The first mailer included a letter from each patient's primary care provider. The mailer included a booklet providing an overview of hypertension and lifestyle modification and a refrigerator magnet noting target blood pressure. The second mailing also included a letter from the patient's primary

care provider, a second educational booklet focused on medication compliance and home blood pressure monitoring, and a blood pressure logbook. The control group consisted of similar patients receiving usual care for hypertension. The results showed no significant difference found in the mean blood pressure between intervention and control patients (135/77 mmHg vs 137/77 mmHg; P=.229). Patients in the intervention arm scored higher on a hypertension knowledge quiz (7.48 +/- 1.6 vs 7.06 +/- 1.6; P=.019), and reported higher satisfaction with several aspects of their care. No significant difference was seen in the prevalence of home blood pressure monitoring ownership or use. However, significant improvement in patient knowledge, frequency of home monitoring, and satisfaction with care were demonstrated.

Aubert et al. (2003) used a longitudinal cohort to evaluate the impact of telephone counseling and educational materials on medication adherence and persistency among members with newly diagnosed depression enrolled in a pharmacy benefit management-sponsored disease management program. The study population comprised of 505 members with a new or recurrent episode of depression that consented and enrolled in a depression disease management program. After written consent was obtained, program participants received up to 4 telephone-counseling calls and 5 educational mailings focused on the importance of medication compliance, barriers to medication compliance, quality of life, symptoms, and satisfaction with the program. A control group of 3744 members was selected from client companies that opted not to offer the depression program. Measures of medication adherence, persistency with prescription drug therapy, and patient refill timeliness were computed for both groups and compared. The results

showed patients enrolled in the depression disease management program were significantly more likely to adhere to their medication regimen during acute (89.0% vs 67.7%, P < .001) and continuation treatment phases (81.1% vs 57.6%, P < .001). In addition, members enrolled in the program were significantly more likely to continue their therapy after 7 months (77.8% vs 49.5%, P < .001) and refilled their prescriptions on a timelier basis (0 vs 18 days, P < .001). The study proves that a pharmacy benefit management sponsored health management depression program succeeded in encouraging patients with new or recurrent depression to stay on antidepressant medication and to reach treatment goals outlined by best practice guidelines.

In a study done by Haynes, McDonald and Garg (2002), low adherence to prescribed medical regimens is a ubiquitous problem. Typical adherence rates are about 50% for medications and are much lower for lifestyle prescriptions and other more behaviorally demanding regimens. In addition, many patients with medical problems do not seek care or drop out of care prematurely. Although accurate measures of low adherence are lacking for many regimens, simple measures, such as directly asking patients and watching for appointment nonattendance and treatment nonresponse, will detect most problems. For short-term regimens (< or =2 weeks), adherence to medications is readily achieved by giving clear instructions. On the other hand, improving adherence to long-term regimens requires combinations of information about the regimen, counseling about the importance of adherence and how to organize medication taking, reminders about appointments and adherence, rewards and recognition for the patient's efforts to follow the regimen, and enlisting social support from family

and friends. Successful interventions for long-term regimens are all labor-intensive but ultimately can be cost effective.

In a study done by Hoffman et al. (2003), a randomized control design was used to evaluate the impact of mail-based physician and member educational interventions on patient adherence to antidepressant medications. Patients receiving a new prescription for an antidepressant and their prescribers were followed for 6 months after filling a new prescription for an antidepressant. A pharmacy claims database was used to identify patients and track medication adherence. Prescribers were randomly assigned to the intervention and control groups. Patient assignment was linked to their physician's assignment. The control group received no intervention. The educational intervention consisted of monthly letters to patients and prescribers regarding the Health Plan Employer Data and Information Set (HEDIS) standards or educational information regarding the importance of medication adherence. The primary outcome was adherence as measured by the medication possession ratio and measurement as specified by HEDIS. The Student's test, the chi 2 test, and a logistic regression model were used to compare groups and the variables that affect adherence. Other secondary measurements of adherence were performed. The results showed a total of 9564 patients were included. Patients in the intervention group demonstrated greater adherence compared with the control group at 90 and 180 days ($P < .05$). After adjusting for variables, the intervention variable stood alone in its significant impact on adherence ($P < .01$; confidence interval, 1.003-1.197). Adherence in the total population was significantly higher for selective serotonin reuptake inhibitors than for other agents ($P < .001$). A monthly mail-based

educational intervention program regarding antidepressant medications can positively influence patient adherence to therapy.

In a study done by Ponnusankar, Surulivelrajan, Anandamoorthy, and Suresh (2004), the primary aim was to assess the impact of patient medication counseling by comparing the levels of patient's medication knowledge and adherence achieved by medication counseling in an outpatient clinic. Ninety patients were randomized in the ratio of 1:2 into either counseled or usual care group. Their medication knowledge was assessed by a questionnaire and adherence was assessed by pill count method and self-assessment by the patients. Their medication knowledge was assessed at baseline and during their subsequent appointments. The average medication knowledge score of the counseled group versus usual care group was 13.82+/-1.8064 and 11.78+/-3.5037. Compliance score of the patients during their follow-up period was 92.29+/-4.5 and 84.71+/-11.80 for the counseled and control group, respectively. Statistical analysis of medication knowledge was carried out and all the demographic characters and number of medication were individually correlated with medication knowledge score and the difference observed was statistically significant. Compliance score of the patients was 92.29+/-4.5 and 84.71+/-11.8 % for the counseled and usual care group, respectively.

Summary

Medication compliance with the elderly has been a long standing issue for years. There really has not been an appropriate solution for managing the issue. Many studies have conducted possible solutions, but the problem remains unsolved.

CHAPTER III

METHODOLOGY

The purpose of this study was to examine how APNs promote medication compliance in the elderly. In this chapter the research design, sample, setting, data collection instruments, data collection procedures and anticipated limitations of the methodology and the study are presented.

Design

A descriptive qualitative design was used to examine how APNs promote medication compliance in the elderly. The participants were asked to complete a provider questionnaire that included demographic and self-report data.

Sample and Setting

The participant's name and address were obtained through the Wisconsin Department of Regulation and Licensing. The listing included all APNs from the state of Wisconsin. The sample was derived from APNs practicing in Brown, Oconto, Outagamie, Shawano, and Waupaca counties. These counties reflect the Northeastern Wisconsin region. The sample was obtained through a random selection of every fifth name from the list. The provider questionnaire was mailed to the APN's home and returned to the researcher. The inclusion criteria included any male or female APN with prescription privileges, provider for any elderly person 65 years or older and resides in

the above named counties. A total of 50 questionnaires were mailed out and 11 were returned for a 22% response rate. The questionnaire required extensive narrative comments and may have contributed to the low response rate.

Data Collection Instruments

A provider questionnaire (Appendix A) was developed by this researcher. The questionnaire elicited information regarding demographic data including age, gender, number of years experience as a registered nurse, number of years experienced as an APN. The remainder of the questionnaire asked about their patient's medications and their compliance. The first question asked if they have their patients bring their medications to their appointments. This question required a simple yes-no response. The last four questions asked how the APN promotes medication compliance with their elderly patients and what would be an easier way for the elderly to be more compliant. These questions required more extensive narrative response.

Data Collection Procedure

Written permission for this study was obtained from the University of Wisconsin Oshkosh Institutional Review Board (IRB) for the Protection of Human Participants (Appendix C). A list of APNs was obtained from the Wisconsin Department of Regulation and Licensing. The listing included all APNs from the state of Wisconsin. The sample was derived from APNs practicing in Brown, Oconto, Outagamie, Shawano, and Waupaca counties. These counties reflect the Northeastern Wisconsin region. The

sample was obtained through a random assignment of every fifth name from the list. The questionnaire was mailed to their home and returned to the researcher. Each participant received a letter of intent, the questionnaire, and a self addressed stamped envelope to be returned to the researcher. To protect the rights of the participants, each were required to sign an informed consent (Appendix B). The informed consent document stated the participation for this study was strictly voluntary and subjects could withdraw from this project at any time without consequence. The participants were also informed that anonymity and confidentially would be maintained throughout the project. The participants were asked to answer a 5-question demographic questionnaire along with a 4-question self report questionnaire to describe their experiences. The questionnaire took 15 to 20 minutes of their time. The answers were coded, utilizing the numbers 1 to 11 and summarized so no one was able to be identified by name. During the review of the transcriptions, significant statements from each of the participants were noted. Common themes between the participants' significant statements were identified. Only the researcher had access to the questionnaires used in the study.

Data Analysis Procedure

Qualitative analysis was used to identify prominent themes and patterns among the themes. Qualitative analysis requires reading the data over and over in a search for meaning and deeper understanding. Themes can only become emerged when the researcher becomes completely familiar with the data (Polit and Beck, 2008). The

questionnaires were broken down by comparing the participants' answers and fitting the data together to come up with common themes.

Limitations

The limitations of the study included:

1. Small sample size limited generalizability.
2. The sample was obtained from Northeastern Wisconsin clinics and cannot be compared to clinics outside of Northeastern Wisconsin.

Summary

In this chapter, the design, setting and sample were presented. The design was a descriptive qualitative study. A sample of 11 APNs from Northeastern Wisconsin participated. With consent to participate, they were required to complete a questionnaire. Each questionnaire was analyzed thoroughly and transcribed. Significant statements from each of the participants were noted and common themes between the participants' significant statements were identified. Although there are some limitations to the study, the benefits will allow practitioners to have better insight into the experiences of dealing with medication compliance among the elderly.

CHAPTER IV

RESULTS AND DISCUSSION

Introduction

The purpose of this descriptive, qualitative study was to explore how APNs promote medication compliance in the elderly. A sample of ten females and one male participated in the study. The participants completed a provider questionnaire that included demographic and self-report data. The data was examined for themes. This chapter addresses the results of the demographic and self report questionnaire.

Demographic Data

The sample for this study consisted of 1 male and 10 females who were practicing APNs from Northeastern Wisconsin. Participant's addresses were obtained from the Wisconsin Department of Regulation and Licensing. The participants were mailed a questionnaire containing demographic and self-report questions to their home. Return address stamped envelopes were also included to reduce the burden of cost. The participants completed a 5-question demographic questionnaire (Table 1) followed by a 4-question self report questionnaire. The age range was 39 to 57 years, with a mean age of 46.5 years and median of 46.5 years. The number of years experience as a RN ranged from 11 to 35 years, with a mean of 21.1 years and median of 20.5 years. The number of years experience as an APN ranged from 1 to 14 years, with a mean number of 6.4 years

and median of 5.5 years. Eight of the participants have their patients bring their medications to the appointments for verification and three of the participants do not.

Table 1

Demographic Data

	Range	Mean	Median	Mode
Age	39-57	46.5	46.5	39
Years Experience RN	11-35	21.1	20.5	20
Years Experience APN	1-14	6.4	5.5	1

Self Report Questionnaire

The study was conducted with a random sample of ten females and one male who were APNs practicing in Northeastern Wisconsin. Each questionnaire took approximately 15 to 20 minutes to complete. The answers from the questionnaire were transcribed verbatim. The data were then analyzed using a qualitative analysis style to uncover themes in the data, which is discussed in this chapter.

The self report questionnaire was created by the researcher with the questions derived from the researcher's professional experiences. The questions included:

1) How do you know what medications your patients are taking?

2) How do you promote medication compliance with the elderly patients you see?

3) How do you help your patients be more compliant with their medications?

4) Do you think there is an easier way for the elderly to be more compliant with their medications?

The four questions yield summary data rather than separate answers to each question. As the analysis proceeded, summary data revealed three themes. These themes were: *Simplify Dosing Schedules, Frequent Follow Ups,* and *Affordable Medications*.

Results

Questionnaires were reviewed numerous times by the researcher to evaluate the true meanings of the data. Following a thorough analysis of the data, three major themes emerged. *Simplify Dosing Schedules, Frequent Follow Ups,* and *Affordable Medications* were identified as the three major factors in helping the elderly increase medication compliance for this study. The main themes that emerged were the result of data saturation, "which occurs when themes in the data become repetitive and redundancy" is achieved of reoccurring data found in the majority of the self report (Polit and Beck, 2008, p. 70-71). The data discussed here reflects practices and feelings of the advanced practice nurses questioned.

Simplify Dosing Schedules

This theme reflects the APN's shared beliefs of what is required of them to maintain good medication compliance for the elderly. Four of the participants simplified dosing schedules by decreasing the amount of times needed to take their medications such as "ordering once or twice daily prescriptions instead of three or four times daily." Five of the participants use "combo medications" whenever possible. There are certain

medications that can be combined together to form one pill that will lessen the amount of pills that are taken in a day. One other participant also reflected in regards to prescribing combination medications by stating "it lessens the medication frequency and amount of medications taken in one day." Three participants set up "bubble packets" for their patients. This is where all the pills they take are set up in one packet and can be taken at the scheduled time. "This is much easier for the patient to follow and can be refilled once a week." Another participant reported, "This will cause less grief for the patient and their family."

Simplify dosing schedules make it possible for the elderly to be more compliant with their medications. Simplifying medications consists of decreasing times needed to take medications, prescribing combination medications (combo), and using bubble packets; all are which are very important in helping promote medication compliance for the elderly.

Frequent Follow Ups

The second theme that emerged was the APNs needs to schedule the elderly for more frequent follow up visits. During these appointments, APNs can take some extra time in teaching the patient about their medications and the importance in taking them. Five of the participants reported, "Discussing how to take their medications, how the medication works, and the value of taking the medication on a daily basis without skipping doses" would be of good use in helping promote compliance. Also during these appointments, APNs found it very helpful to have the patient bring their medications to clarify what they were taking and time of day. One participant reported, "If the patient

forgets to bring the medications to their appointment, then I will call the pharmacy where they pick up their prescriptions to verify the medications and dosage." Two of the participants use the computer system to help verify the medications. They both go through each medication one at a time at each visit and update the system as needed if there is a change.

Affordable Medications

The third theme that emerged was APNs should prescribe affordable medications to the elderly. Five of the participants reported "prescribing cost affordable meds," as being a key to helping the elderly comply with their medications. One participant reported "the patient has to be able to afford the meds in order for them to be compliant." Another participant reported to keep in mind that "even with cost saving drug plans, it can still be very costly." Another participant reported that "NP's may want to consider using other benefits to help the burden of cost such as a government program or Medicare." "Having the patient more aware of assistant programs that are out there can help with cost for the patient," another participant reported. Three participants reported, "Encouraging use of pharmacy plans such as the four dollar plan at Wal-Mart."

Every day there are patients who struggle to make the difficult choice between paying for medications or paying for other important items such as food or rent. Choosing the appropriate medication at the cheapest dose possible will help the patient be more compliant with their medications.

Summary

In this chapter, the demographic data and results from the self report questionnaire were provided. Data analysis revealed APNs thought they had multiple options to assist the elderly with medication compliance. The three main themes emerged, *Simplify Dosing Schedules, Frequent Follow Ups,* and *Affordable Medications*. These themes demonstrate alterations that the APN could incorporate into their practice. It is hoped that by supporting medication compliance in the elderly they will maintain optimal health.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

This chapter examines how APNs are promoting medication compliance in the elderly. It included research conclusions, implications for nursing practice and recommendations for future research.

Summary

The number of elderly in the U.S. continues to grow each year. According to the US Census Bureau's (2008) "in this century, the rate of growth of the elderly population (persons 65 years old and over) has greatly exceeded the growth rate of the population of the country as a whole. The elderly increased by a factor of 11, from 3 million in 1900 to 33 million in 1994. In comparison, the total population, as well as the population under 65 years old, tripled. Under the Census Bureau's middle series projections, the number of persons 65 years old and over would more than double by the middle of the next century to 80 million. About 1 in 8 Americans were elderly in 1994, but about 1 in 5 would be elderly by the year 2030." With the number of elderly taking medications increases, the prevalence of risk factors increases with noncompliance, also. Much of the literature regarding the elderly and medication compliance addresses implications for the need to examine the barriers that health care providers face. There is very little information out that looks at APNs and their role in providing medication compliance.

The purpose of this research study was to examine how APNs promote medication compliance in the elderly. The goal was to identify areas related to how APNs are promoting medication compliance. A descriptive qualitative design was used to examine how APNs promote medication compliance in the elderly. Eleven APNs from Northeastern Wisconsin participated in this study. Each participant completed a demographic and self-report questionnaire. The questionnaires were transcribed and later analyzed using a qualitative content analysis style to uncover themes that explained APNs way to promote medication compliance among the elderly. Three major themes emerged from the data. *Simplify Dosing Schedules, Frequent Follow Ups,* and *Affordable Medications* were identified as the themes that depicted the APN.

The first theme, *Simplifying Dosing Schedules*, reflects the participants' shared beliefs of what is required of them and their fellow providers to meet the elder's needs. The participants acknowledge the fact that they may need to reduce the complexity of medication therapy and reduce the number of pills. Polypills that combine multiple drugs such as aspirin, a β-blocker, an ACE inhibitor, a statin, a thiazide diuretic, and/or antiplatelet medication are more common in Europe than in the United States (Alberts, 2008). Polypills have the advantage of ensuring the delivery of two or more evidence-based medicines in a single pill. A combination product can simplify therapy and may promote medication compliance. The use of polypills that concurrently target medical conditions without increasing the number of pills required can improve outcomes in some patients. APNs should be aware of the effect that these and other barriers can have on achieving the optimal benefits of a medication.

The second theme, *Frequent Follow Ups*, was based on participant's description of the need to see patients on a more frequent basis. An important contributing factor to medication noncompliance is poor communication between the provider and the patient, such as the lack of rapport and poor quality of relationship. Therefore, another possible reason for noncompliance may be that patients do not see their providers often enough to be reminded about taking their medication, especially when the patient is seemingly well during the nonsymptomatic stages of their disease. Therefore, a good APN-patient relationship requires close mutual collaboration towards shared goals, and an agreed commitment to therapeutic objectives, for example medication compliance. In addition, the APN's willingness to allow a patient to become involved in their illness may facilitate treatment decisions that are meaningful to both parties. In order for the collaboration approach to be successful, APNs must determine the elderly patient's ability to make decisions, empathize with their needs and concerns, and ensure that they feel as involved in the treatment decision-making process as they are comfortable with it.

The third theme, *Affordable Medications*, comes to many of the APN's mind. Even if patients are receiving the best therapies available at the time of discharge, medications work only when patients remember to take them and can afford them. The complexity of medication management for patients with multiple co-morbidities poses a financial burden, especially on elderly patients. Drug costs are increasing at a rate greater than those of any other health care expenditure (Albert, 2008). APNs should be knowledgeable about the costs of drugs, because Medicare Part D coverage is likely to require substantial out-of-pocket expenses. If financial strain can cause the elderly to

skip or miss doses, then a less complex drug regimen, such as once-daily dosing, and the use of generic medications should be considered. Part of the discussion with the elderly at appointments should include the costs of medications and a plan for drug payment. APNs can be instrumental in ensuring that patients understand the complexities of a medication regimen and are financially able to maintain the medication plan of care.

The researcher expected the participants to describe strategies to meeting their medication compliance needs, but they did not express experiencing any barriers to promoting medication compliance to the elderly. APNs in other areas across the state or the country may be able to identify barriers that may exist in their community.

Conclusions

The APNs who participated in this study were aware of strategies to increase compliance for the elderly that are available. These strategies include simplify dosing schedules, frequent follow up, and affordable medications. Most of the participants do use these strategies to assist patients in helping them be more compliant with their medications.

Implications for Advanced Nursing Practice

Wisconsin's population as of 2007 consisted of 13.1% who are older than 65 years. This number is predicted to increase to 21.1% by 2030 (U.S. Census Bureau, 2008). In light of the importance of medication compliance in modulating patient outcomes, APNs need to recommend strategies to integrate medication compliance. The

findings from this study confirm that APNs should have the knowledge, attitude, and skills to follow an appropriately prescribed regimen. Multidisciplinary efforts to promote medication compliance may improve the outcome. Many elderly patients are unaware of the importance of complying with the medication regime which is reflected in their reports of not taking medications when they feel better or if their condition worsened. Another reason for noncompliance could be the fact that the majority of these elderly patients have multiple co morbidities and the evidence supports poor compliance among a person with three or more co morbid conditions (Alberts, 2008). This finding is important for APNs who play an important role in raising their awareness of noncompliant behaviors. Once compliance problems are identified, effective communication between patients and the APN is essential and forms the basis for actions and strategies. In addition, APNs can provide detailed and specific information in a manner that is easy to understand to increase knowledge and thereby increasing compliance to medications. APNs can also assist patients to identify mechanisms that promote compliance to a prescribed regimen. Providing patients with skills such as problem solving, self monitoring, and developing self prompting and reminder systems, can also empower patients and increase compliance. APNs are in a unique position to educate patients about the importance in medication compliance.

Implications for Graduate Nursing Education

Graduate nursing education needs to provide comprehensive learning experiences regarding the facilitation of medication compliance to the elderly and maintaining

compliance. These learning experiences should include awareness of barriers of compliance, strategies to promote compliance, and simplifying drug regimens. Education and management of patients by APNs improves the patients' medication compliance and leads to improved self-care, better clinical outcomes, and reduced medical costs.

Recommendations

Based on the findings of the research, the following recommendations for future research are warranted:

1. There is enormous space for research involving APNs involvement in promoting medication compliance and the elderly. Additional studies using larger samples would provide a better understanding of how APNs are promoting medication compliance in the elderly.
2. Studies comparing different rural communities of Wisconsin or in the United States might be helpful to distinguish any differences from one region to another.
3. Studies with a more random selection of participants would offer a more diverse sample.
4. Studies need to examine the differences of how rural and urban elderly their medication compliance needs.
5. Studies involving the elderly and the family members who assist with their medications would offer different viewpoints.

Chapter Summary

This chapter provided a summary of the current research study that examined how APNs promote medication compliance in the elderly. An overview of the research findings was discussed. Following discussion of the study, conclusions were drawn by the researcher regarding implications that study results may have on advanced practice nursing and graduate nursing education. Recommendations for further research were outlined.

APPENDIX A

Provider Questionnaire

Directions: Please answer the following questions by filling in the blank or checking the space in front of the item which best answers the question. Feel free to use the back of this paper for extra space when answering the questions.

1. Age:

2. Gender: _____Male _____Female

3. # of years experience as RN_____

4. # of years experience as FNP_____

5. Do you have your patients bring their medications to there appointments? Please check **YES____ NO____**

6. If no, please describe how you know what medications your patients are taking.

7. If no, how do you promote medication compliance with the elderly patients you see? Please describe.

8. How do you help your patients be more compliant with their medications? Please describe.

9. Do you think there is an easier way for the elderly to be more compliant with their medications? Please describe.

APPENDIX B

Informed Consent

LETTER TO PARTICIPATING ADVANCED PRACTICE NURSES

UNIVERSITY OF WISCONSON OSHKOSH

INFORMED CONSENT DOCUMENT

My name is Sheila Landon; I am a Registered Nurse and a graduate student in the Master of Science in nursing program at the University of Wisconsin Oshkosh. I am conducting a study to find out what advanced practice nurses are doing to promote medication compliance in the elderly. I would appreciate your participation in this study, as it will assist me in making recommendations for improving health professionals as well as improving health care for the elderly.

As part of this study, I am asking that you fill out a questionnaire provided for you. It will take approximately 15-20 minutes and can be done at your convenience. I will be asking you to share with me how you are promoting medication compliance in the elderly in your practice and what you are doing to help the elderly be more compliant with their medications. I will not release information about you or anyone that could identify you. I will analyze the information for themes and attempt to describe what is being done today by advanced practice nurses in promoting medication compliance in the elderly. All of the information I collect will be anonymous and will remain confidential. By filling out this questionnaire, you are agreeing to participate in this study and you understand this study is strictly voluntary.

I do not anticipate that the study will present any medical or social risk to you, other than the inconvenience of your taking time to answer the questions for me.

If you want to withdraw from the study at any time, you may do so without penalty, The information collected from you up to that point would be destroyed if you so desire.

Once the study is completed, I would be happy to share the results with you. In the meantime, if you have any questions, please contact me at:

Sheila Landon
N5192 County Road MM
Shawano, WI 54166
(715) 526-2882

If you have any complaints about your treatment as a participant in this study, please call or write:

Chair, Institutional Review Board
For Protection of Human Participants
C/O Grants Office- UW Oshkosh
800 Algoma Boulevard
Oshkosh, WI 54901
(920) 424-1415

Although the chairperson may ask for your name, all complaints are kept in confidence.

Sincerely,

Sheila Landon

Enclosure

This research project has been approved by the University of Wisconsin Oshkosh IRB for Protection of Human Participants for 1-year period, valid until October 2009.

APPENDIX C

UW Oshkosh IRB Approval

THE UNIVERSITY OF WISCONSIN
OSHKOSH

October 13, 2008

Ms. Sheila Landon
N5192 Cty. Rd. MM
Shawano, WI 54166

Dear Ms. Landon:

On behalf of the UW Oshkosh Institutional Review Board for Protection of Human Participants (IRB), I am pleased to inform you that your application has been approved for the following research: How Do Advanced Practice Nurses Promote Medication Compliance in the Elderly?.

Your research protocol has been classified as EXEMPT. This means you will not be required to obtain signed consent. However, unless your research involves **only** the collection or study of existing data, documents, or records, you must provide each participant with a summary of your research that contains all of the elements of an Informed Consent document, as described in the IRB application material. Permitting the participant, or parent/legal representative, to make a fully informed decision to participate in a research activity avoids potentially inequitable or coercive conditions of human participation and assures the voluntary nature of participant involvement.

Please note that it is the principal investigator's responsibility to promptly report to the IRB Committee any changes in the research project, whether these changes occur prior to undertaking, or during the research. In addition, if harm or discomfort to anyone becomes apparent during the research, the principal investigator must contact the IRB Committee Chairperson. Harm or discomfort includes, but is not limited to, adverse reactions to psychology experiments, biologics, radioisotopes, labeled drugs, or to medical or other devices used. Please contact me if you have any questions (PH# 920/424-7172 or e-mail: rauscher@uwosh.edu).

Sincerely,

Dr. Frances Rauscher

Dr. Frances Rauscher
IRB Chair

cc: Suzanne Marnocha
1441

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