

ORIGINAL RESEARCH

Individualized medication card assists the elderly with medication understanding and adherence

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ABSTRACT

Objective: In the outpatient setting, polypharmacy and poor communication among providers has left a gap in drug education involving the elderly population. Linking all of these providers with an accurate medication regimen may be the answer. Nurses can play a pivotal role in drug-related problems in the elderly population. The aim of this study is to use a liaison nurse to help educate the elderly population on the importance of adherence and understanding their medications by using an individualized medication card.

Methods: This study used a descriptive study design. A convenience sample (n = 16) of patients, who were sixty-five years of age or older and were taking five prescription medications daily was employed. After collecting patient demographic information, a counseling session was performed with the patient on their medications using an individualized medication card. Data was then collected via two follow-up phone calls at two and four weeks after initial counseling session using a medication questionnaire and a set of five follow-up questions.

Results: Sixteen participants received counseling on their medications and an individualized medication card to take home. Only thirteen participants were reached via phone call, two weeks after their initial counseling session. Of these thirteen, two had lost or forgotten their medication card. Eleven reported that the medication card had been helpful in understanding and adhering to their medications. Of the participants who kept their cards, all were satisfied with the counseling materials and methods used.

Conclusions: The findings indicate that the elderly population who were taking five or more prescription medications showed benefit from counseling on their medications using an individualized medication card. Such a tool will help nurse practitioners guide elderly patients in medication education and adherence in future practice.

Key Words: Elderly, Patient education, Polypharmacy, Medication adherence

1. INTRODUCTION

Medication understanding and adherence is a problem for the elderly. According to Lee et al., approximately 20% of older adults use five or more prescriptions daily while non-adherence to these medications is identified in approximately one-third.^[1] Nonadherence can lead to “recurrent hospitalizations, more serious health problems compromising the already frail health of the elderly, increasing cost to society,

and higher morbidity and mortality rates.^[2] Other problems, such as misunderstanding prescription label instructions are also identified.^[1]

The elderly population also continues to rise. By 2050, this population is expected to increase to two billion.^[3] “With an increasing number of elderly, an increase demand of health-care provision should also be expected.^[1] About “70.4%

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of the elderly suffer from chronic diseases and more than 50% of them have multiple chronic diseases”.^[1] Long-term medication usage usually accompanies chronic diseases for the elderly, and complicated drug regimens may follow.

“Multiple studies on medication adherence and management of the elderly show that despite identifying adherence factors and intervention strategies, adherence rates are now approaching 50%”.^[4] A study done by Pasina et al. investigated the major impact that poor medication adherence has on clinical outcomes. It resulted in worsening of disease, increased health care costs, and even death of some elderly patients that were newly discharged from the hospital.^[4] Simplification of drug regimens and reduction of pill burdens as well as better explanations for the reason for the medications were suggested as targets for intervention.^[4]

There also may be other reasons for medication non-adherence in the elderly population. Lack of knowledge about the pharmacodynamics and pharmacokinetics of drugs can lead to non-adherence arising from the lack of understanding of how the body works while taking medications. (Mekdad 2019)^[3] This also validates the importance of taking drugs at certain times and the reason why older adults should not stop medications when they reach “normal values”. (Mekdad 2019)^[3] Recognizing the benefit of the drugs and evidence that the benefits of the medicines have on the patient’s health should outweigh the risks of side effects that can lead to non-adherence.^[3] Unintentional non-adherence caused by forgetfulness is also dominant in the elderly population.^[4] Lastly, elderly patients’ attitudes and perceptions toward medications are particularly important factors in sustaining good medication adherence.^[3]

There also seems to be poor education interventions for the elderly population in the outpatient setting regarding understanding medications, polypharmacy, and adherence to medications. Interventions that improve medication adherence for the elderly with chronic diseases are essential.^[3] Engaging this population in self-management of their medications may offer potential for improved patient outcomes as well.^[3] Simple tools to help educate the elderly on their medications are lacking. The need for a medication regimen that is less complex and easier to understand is also important for medication adherence.^[5]

Research supports that “patients who receive better medication information and explanations about how to take their medications are more adherent to the treatment”.^[6] A study done on the Filipino elderly population emphasized that satisfaction with doctor appointments in regards to sufficient consultation time with the provider and sufficient knowledge of one’s illness also contributed to their medication

adherence.^[7] Next, research suggests that the relationship with the healthcare professional is essential in medication management and adherence.^[4] Lastly, studies have shown that nurses play a pivotal role in addressing health and drug-related problems in the elderly population, and “serve as bridges between physicians and patients”.^[1]

Nurses are great educators when it comes to counseling patients on their medications. Using a nurse as a liaison to help educate the elderly population on their medication regimen is a good approach. A nurse liaison could help fill the gap to educate the elderly on their medications, polypharmacy, and the importance of adherence to medications. Since nurses and nurse practitioners likely spend the most time educating patients and building relationships with them, it is natural that a nurse could help fill this gap. The aim of this study is to use a liaison nurse to help educate the elderly population on the importance of adherence and understanding their medications by using an individualized medication card.

2. MATERIALS AND METHOD

2.1 Study design

This was a descriptive study conducted among elderly patients in an outpatient family practice setting in Kentucky. The project lasted two months from 5/17/2023 to 7/14/23. The study was a doctoral of nursing practice (DNP) education project that was IRB exempt. The project assessed patient’s baseline understanding and adherence to prescription medications using a questionnaire (see Appendix A). Next, the DNP student provided a counseling session on medications using an individualized, medication card (see Appendix B). The patients were given the medication card to take home and use as a daily guide and reminder to take their medications. After two weeks,

patients received a follow up phone call from the DNP student asking five follow-up questions about understanding and adhering to prescription medications. At four weeks, the DNP student made another phone call, repeated the same five follow-up questions to assess if the medication card, counseling, and follow up calls had helped the patients understand and adhere to their prescription medications.

2.2 Study participants

The inclusion criteria comprised of elderly patients, sixty-five years of age or older, taking at least five prescription medications daily. Participants also had to be literate and have access to a phone. Anyone with a history of dementia or that could not speak English were excluded. A convenience sample was obtained from elderly patients who attended a rural family practice on Wednesdays and Fridays during May, June, or July in 2023. Participants were asked by the fam-

ily practice provider or his medical assistant on a voluntary basis. Sixteen patients volunteered to be counseled on their medications. Informed, written consent was obtained from each participant.

2.3 Data collection

Patient participants completed a baseline medication questionnaire to gather medication lists and assess baseline medication knowledge. Preferred time of day to receive a follow up phone call was also gathered.

After assessing medication knowledge basis, a counseling session was conducted with each patient. The DNP student counseled the participant on each medicine by writing the medicine down on a medication card, listing brand and generic name of each medication, purpose, and time of day to take each medication. Sessions generally lasted twenty minutes. After each session, the DNP student instructed the participant to expect a phone call in two weeks. The expected phone call would focus on five specific questions about understanding and adhering to medications. If patients had specific questions or concerns, they were addressed at the follow up call. A second phone call was repeated at four weeks, addressing the same five follow up questions.

2.4 Methods

Before the initial counseling session, the DNP student gathered medication information from each participant by having him or her fill out a questionnaire (see Appendix A). The medication questionnaire asked ten questions. The first question asked, "How many medications do you take on a daily basis? Please list all medications." The next question asked, "Do you know why you take each medication?" The third question asked, "Do you feel like you could benefit from more counseling on your medications?" The following question asked, "Have you ever stopped taking a prescribed medication in the past without your doctor's knowledge?" The fifth question asked, "Are you having difficulty taking any of your medications?" The next question asked, "Do you have any difficulty reading your pill bottles?" The seventh question asked, "Is it difficult to pay for your medications?" Next, "Do you have any unwanted side effects from your medications? If so, what side effects are you experiencing?" The ninth question asked, "Would you mind if you were called in two weeks to check on you?" Lastly, "Please list preferred phone number and what time of day is the best to call you."

After gathering the data from the questionnaire, the counseling session began. Two weeks after the counseling session, the DNP student called the participants and asked five questions. The first three questions were close ended, and the last

two questions were open ended. The first question asked, "Is the medication card helping you understand the reasons for your medications?" The second question asked, "Did you adhere to your medications?"

Ordinal data from semi-structured interviews was reviewed. At least twenty participants were anticipated. Adequate sample size was achieved when the DNP student reached the end of two months, and had to allow one additional month to collect the phone call data. The time limit of three months to gather all data for the project is how the sample size was achieved.

3. RESULTS

3.1 Participants

Of the sixteen participants, ten were male and six were female. Male ages ranged from sixty-five years to eighty one years. The age range of the six female participants was sixty-six years to age seventy-eight years. Education level of the female participants ranged from tenth grade, high school education to a collegiate bachelor's degree. Education level of the male participants ranged from high school graduate to a collegiate master's degree.

3.2 Baseline medication questionnaire

The number of daily medications for the participants ranged from five to sixteen. All sixteen participants answered, "yes," when asked if they knew why they took each medication. When asked, "Do you feel like you could benefit from more counseling on your medications," ten participants responded "yes," while six participants responded, "no." One person answered, "yes," when asked if he or she had ever stopped any of his or her medications in the past without his or her doctor's knowledge. The other fifteen responded, "no." When asked, "Are you having any difficulty taking your medications," all sixteen said, "no." Three participants answered, "yes," when asked if they had difficulty reading their pill bottles, while the other thirteen answered, "no." Only one participant had difficulty paying for his medications, while the other fifteen said that they did not have trouble paying for their medications. When asked, "Do you have any unwanted side effects from your medications," one participant responded, "yes," while the other fifteen responded, "no." The participant who responded, "yes," reported, "excessive bruising" as the only unwanted side effect from his medications. Lastly, all participants responded, "no," when asked, "Would you mind if you were called in two weeks to check on you."

3.3 Counseling participants

Counseling each participant was individualized based on number of medications, previous knowledge basis of medications, and time. Time spent per session ranged from ten to thirty minutes. Generally, the more the medications, the more time it to discuss medications.

3.4 Follow up questions

After the participants were counseled using an individualized medication card, they were each called for follow up and asked five questions. Thirteen out of sixteen were reached for follow-up phone calls, and two of the thirteen had lost or forgotten his card. The first three questions were close ended, and the last two questions were open ended. The first question was, “Is the medication card helping you understand the reasons for your medications?” Eleven participants responded “yes,” while two “lost or forgot” his or her card. The second question asked, “Is the medication card helping you adhere to your medications?” Eleven participants responded, “yes,” while two “lost or forgot their cards.” The third question asked, “have you taken your medications at the

correct times in the past two weeks?” All thirteen participants responded, “yes.”

The last two questions were open ended questions: “If you have not adhered to your medication regimen, what impeded your adherence?” Two lost their cards. The last question asked, “Do you have specific questions about any of your medications?” Several responded, “Yes, I am about to run out of my Eliquis, but it is not due to be filled yet. What should I do?” “If I stop taking my metolazone, my legs swell back up. It was only written for two weeks.” “I am feeling sad, and this medication I am taking for it doesn’t seem to help.” “I stopped taking my blood pressure medication because I was dizzy.”

The follow up phone calls took two to eight minutes. The participants who had specific questions on medications were relayed to the family practice provider for answers that required medication adjustments. A second phone call was made after four weeks. Answers to the same five questions are referred to in Table 1.

Table 1. Answers to follow up phone call questions

Answers to questions	First follow up call at two weeks		Second follow up call at four weeks	
	Yes	No	Yes	No
Is the medication card helping you understand the reasons for your medications?	11	2 lost their cards	11	0
Is the medication card helping you adhere to your medications?	11	2 lost their cards	11	0
Have you taken your medications at the correct times in the past two weeks?	13	0	11	0
If you have not adhered to your medication regimen, what impeded your adherence	n/a	n/a	n/a	n/a
Do you have any specific questions about your medications?	4	7	0	11

3.5 Secondary findings

Participants made further comments on the benefit of the medication card: “The card has helped so much to refer to because my bottles are fuzzy.” Another patient commented, “having the brand and generic names written out is so helpful!”

At the follow up phone calls, the DNP student noticed that one patient was on a loop diuretic and was not taking a potassium supplement. After consulting with the provider, a prescription supplement was added to the medication regimen.

4. DISCUSSION

4.1 Summary of the results

This education project involved counseling a sample of the elderly population aged sixty-five years and older, who were taking at least five prescription medications daily, on medication understanding and adherence by using an individualized medication card. The results indicated that the medication card and counseling with a liaison nurse was beneficial in eleven out of sixteen participants. Three participants did not respond to a follow up phone call and two participants lost or forgot their card. The results could not predict long-term adherence to medications.

4.2 Interpretation of the findings

The results showed that 1:1 counseling with a nurse and an elderly patient on prescription medications using an individualized medication card was limited. Participants willingness to answer the phone affected the outcome of the results.

4.3 Implications of the results

This education project is very important for future practice in aiding the elderly population with understanding and adhering to prescription medications. Understanding and adhering to medications is key for the elderly population because it can help patients and providers keep patients healthy. Guevara et al. (2013) reinforces that understanding and adhering to prescription medications can reduce recurrent hospitalizations and worsening of health problems.^[2] Another study by Pasina et al. (2014) also demonstrated that medication non-adherence resulted in worsening of disease, increased health costs, and even death in some of the elderly patients.^[4]

Communication for both providers and patients improves if the reasons for taking medications is understood and the likelihood of adherence will most likely improve. Guevara et al. (2013) also supports that appropriate consultation satisfaction and communication with doctor appointments as well as the ability to recall instructions in the doctor’s appointment contribute to medication adherence in the elderly

population.^[2] Counseling the elderly with an individualized medication card adds to this knowledge.

This education project can also help when the elderly misunderstand prescription label instructions and help with unintentional forgetfulness when the medication schedule becomes too difficult to comprehend.^[4,7] The medication card can be useful in referring back to and reminding the elderly of the correct medication regimen.

4.4 Limitations of the project

Limitations of the project include a small sample size and the length of time for the project. A larger sample size is representative of more realistic outcomes. Longer time frame for the project would also contribute to more realistic long-term outcomes. The small sample size was also not large enough to run statistical analyses. Recommendations for future studies are also helpful.

4.5 Recommendations for future work

Since the results of counseling on medications using an individualized medication card was beneficial, this project should be repeated using a larger sample size and over the course of a year. Instead of two follow-up calls, one call should be sufficient or the second follow up call should be several months after the first call. The project could also be extended to any patient who takes five or more prescription medications daily to assist with understanding and adherence.

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AUTHORS CONTRIBUTIONS

Dr. Rogers was responsible for revising the background information, study design, methods, and questionnaires. Dr. Rust was responsible for providing the clinical location and patient population for the study. Dr. Bumpus was responsible for providing the abstract, introduction, materials and method, data collection, methods, results, designing all questionnaires, and designing the medication card.

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CONFLICTS OF INTEREST DISCLOSURE

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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DATA SHARING STATEMENT

No additional data are available.

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