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Original Research

Nurses' attitudes and behaviors on patient medication education

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Abstract

Background: Medication education is vital for positive patient outcomes. However, there is limited information about optimal medication education by nurses during hospitalization and care transitions.

Objective: Examine nurses' attitudes and behaviors regarding the provision of patient medication education. The secondary objectives were to determine if nurses' medication education attitudes explain their behaviors, describe nurses' confidence in patient medication knowledge and abilities, and identify challenges to and improvements for medication education.

Methods: A cross sectional survey was administered to nurses servicing internal medicine, cardiology, or medical-surgical patients.

Results: Twenty-four nurses completed the survey. Greater than 90% of nurses believed it is important to provide information on new medications and medical conditions, utilize resources, assess patient understanding and adherence, and use open ended question. Only 58% believed it is important to provide information on refill medications. Greater than 80% of nurses consistently provided information on new medications, assessed patient understanding, and utilized resources, but one-third or less used open-ended questions or provided information on refill medications. Most nurses spend 5-9 minutes per patient on medication education and their attitudes matched the following medication education behaviors: assessing adherence (0.57; $p < 0.01$), providing information on new medications (0.52; $p < 0.05$), using open-ended questions (0.51; $p < 0.01$), and providing information on refill medications (0.39; $p < 0.05$). Nurses had higher confidence that patients can understand and follow medication instructions, and identify names and purpose of their medications. Nurses had lower confidence that patients know what to expect from their medication or how to manage potential side effects. Communication, including language barriers and difficulty determining the patient's understanding of the information, was the most common challenge for nurses and they suggested utilization of translator services and patient-friendly drug information resources as a way to improve.

Conclusion: Nurses have positive attitudes toward patient medication education. However, their attitudes do not fully explain their behaviors and many nurses are spending limited time with patients on medication education. Enhancements to medication education could include resources on communication and collaboration with pharmacists.

Keywords

Patient Education as Topic; Nurses; Attitude of Health Personnel; Health Knowledge, Attitudes, Practice; Surveys and Questionnaires; United States

INTRODUCTION

The Joint Commission's focus on improving care transitions describes models that include multidisciplinary and collaborative methods to educate patients and/or caregivers to practice self-care, including how to self-manage medications.¹ Various approaches to the provision of medication education have been described in the

literature, with varying success.

Examples of strategies employed by healthcare organizations to improve patient and/or caregiver discharge medication education include using motivational interviewing, the "teach-back" method, and offering pillboxes and reminders.² Additional strategies include providing written materials to patients and their families³, and one-hour educational sessions.⁴ However, there is no standardized approach to medication education and there is disagreement among providers about which profession should provide it.⁵⁻⁷

A survey was administered to nurses at a 635-bed tertiary care, academic, urban medical center. The average patient load for nurses servicing internal medicine, cardiology, or medical-surgical patients is five patients per nurse. Nurses at this institution are the primary source of patient medication education during the hospitalization as well as prior to discharge. Currently, there are 2 clinical pharmacists who also provide patient medication education but they only cover 1-2 out of 10 internal medicine services so medication education by pharmacists is not consistently provided for all patients on internal medicine, cardiology, or medical-surgical services. Physicians occasionally also provide some medication education, but it is primarily the responsibility of nurses.

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For non-English speaking patients, translator phone services are available. Additionally, all nurses have access to Lexi-comp (Wolters Kluwer Clinical Drug Information, Inc.) for medication education materials that are patient-friendly and available in different languages. At this medical center, medication education is one part of the nurses' responsibilities and there is no standard approach utilized. This survey study was conducted to determine nurses' attitudes and behaviors regarding the provision of medication education and challenges they face.

METHODS

A cross sectional survey was administered to nurses over 4 weeks in 2014. Nurses servicing internal medicine (general population) and cardiology or medical-surgical (specialized population) patients were included, and nurses who do not provide direct patient care were excluded. Nurses provided consent to participate in this study and the study was approved by the Institutional Review Boards.

The primary objectives were to examine nurses' attitudes and behaviors regarding the provision of patient medication education. The secondary objectives were to determine if nurses' medication education attitudes explain their behaviors, describe nurses' confidence in patient medication knowledge and abilities, and identify challenges to and improvements for the medication education process.

Patients on a medical-surgical unit are all post-operative so nurses servicing these patients and cardiology patients were classified as servicing a "specialized" population. These nurses were grouped separately from general internal medicine nurses servicing a "general" population to see if there are any differences in attitudes and behaviors about the provision of medication education between nurses who educate patients on a more specific group of medications (specialized) compared to a wider range of medications (general).

The nursing attitudes and behaviors survey instrument was developed following best practices for survey research.^{8,9} After reviewing the literature, survey items were derived from existing instruments⁵ or developed by study authors. The final version of the instrument consisted of 23, 4- and 5-point Likert-type items, 3 open-ended response questions, and 2 demographics questions. The Likert-type items were categorized into four domains: frequency of performing a specific task, perceived importance of performing these tasks, confidence in patients' medication knowledge and abilities, and average time spent. The open-ended response questions elicited descriptions of difficult experiences and challenges faced, what nurses have done differently to improve, and resources the pharmacy department could provide to improve medication education.

The survey was provided to nurse administrators or a decentralized pharmacist on 3 internal medicine, cardiology, or medical-surgical floors, who then distributed the surveys to the nurses. During the 4 week period, nurses were notified and reminded that they could complete a survey and return it to an envelope that was placed in a

secure location on the floor. Participation in the survey was voluntary and anonymous.

Data analysis included descriptive statistics for all survey items, including medians and ranges for continuous data and frequencies for discrete data. Chi-square statistical comparisons were conducted to see if survey responses differed significantly across shift and years of experience. Asymmetrical Somers' d values were calculated on ordinal Likert-type data with the nurse behaviors frequency serving as the dependent variable and their belief rating as the independent variable. This analysis was used to determine a percentage increase in explaining the nurses' medication education behaviors based on their medication education attitudes. Open-ended survey responses were aggregated and summarized qualitatively, grouping responses by similar concepts as determined by study investigators.

RESULTS

Study sample demographics

Twenty-four nurses completed the survey; 14 service general and 10 service specialized populations. Three nurses servicing specialized populations did not return a completed survey and it is not known how many were not returned from nurses servicing the general populations. Twenty-three nurses provided demographic information, with a median of 3.5 years of experience (range 0.25 – 42 years) and even distribution between the morning (n=13) and overnight shifts (n=10).

Study sample attitudes and behaviors

Results of the primary objectives describing nurses' positive attitudes (i.e. strongly agree or agree that it is important) and behaviors (i.e. performed every time or most of the time) during medication education are shown in Figure 1. Greater than 90% of nurses strongly agree or agree that when educating patients on medications it is important to provide information on new medications (100%), assess patient understanding afterwards (100%), utilize resources (100%), provide information on medical conditions (96%), assess patient adherence afterwards (92%), and use open-ended questions (92%). Much fewer nurses (58%) strongly agree or agree that when educating patients on medications it is important to provide information on refill medications. When educating patients on medications, >80% of nurses report performing the following tasks every time or most of the time: provide information on new medications (88%), assess patient understanding afterwards (83%), and utilize resources (83%). Fewer nurses use open-ended questions (33%) and provide information on refill medications (29%). Sixty-seven percent of nurses spend 5-9 minutes per patient performing medication education (n=16), 8% spend 0-4 minutes (n=2), 8% spend 10-14 minutes (n=2), none spend >15 minutes, and 17% did not answer (n=4). No differences were found when the data was analyzed based on shift, years of experience, or patient population served.

Results of the secondary objective determining if nurses' medication education attitudes explain their behaviors are also seen in Figure 1. Somers d scores were statistically significant for explaining nurses' behaviors using their

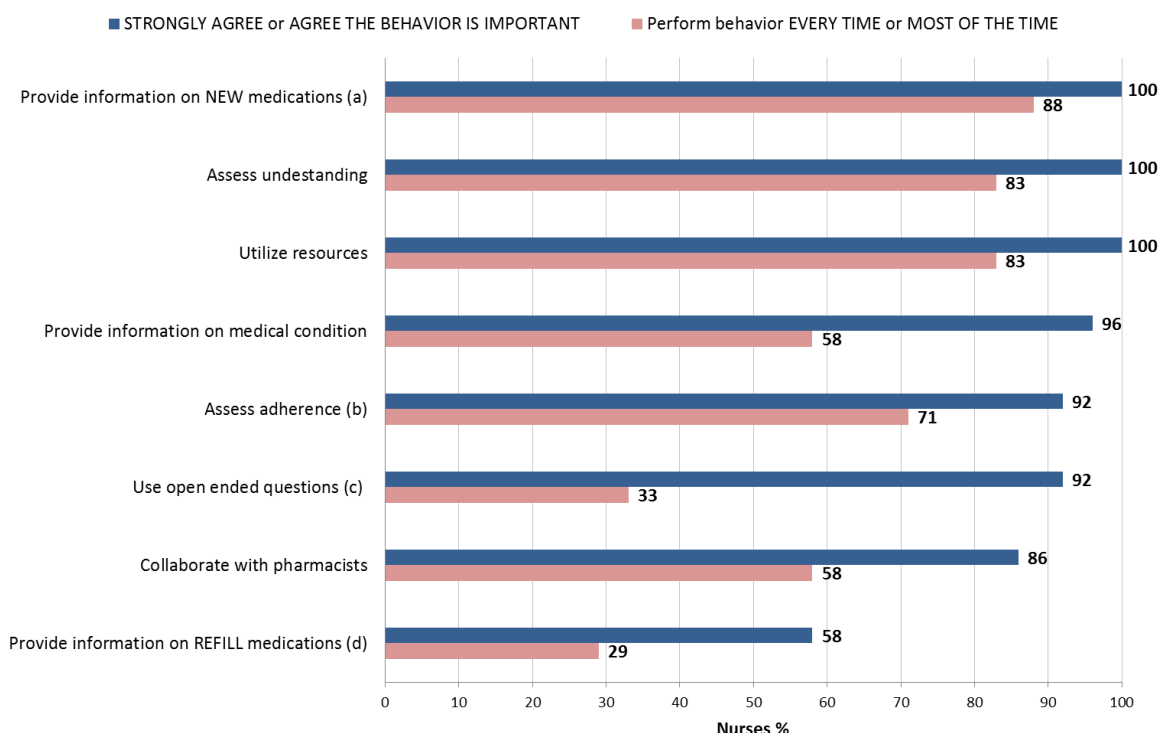


Figure 1. Nurses' attitudes and behaviors during medication education (n=24).

(a) Somers' d score 0.52, $p < 0.05$; (b) Somers' d score 0.57, $p < 0.01$; (c) Somers' d score 0.51, $p < 0.01$; (d) Somers' d score 0.39, $p < 0.05$

attitudes for: assessing patient adherence (0.57; $p < 0.01$), providing information on new medications (0.52; $p < 0.05$), using open-ended questions (0.51; $p < 0.01$), and providing information on refill medications (0.39; $p < 0.05$). This test demonstrates, for example, that knowing the attitudes of nurses in assessing patient adherence explains 57% of their behaviors in assessing patient adherence.

Nurses' confidence in patients' medication knowledge and abilities (i.e. strongly agree or agree that they are confident that after educating patients on their medications, patients can perform the items listed) is shown in Figure 2. Greater than 70% of nurses were confident that patients can understand and follow medication instructions, and identify the names and purpose of their medications. Fewer nurses were confident that patients know what to expect from medications (58%) and how to manage potential side effects (33%).

Study sample challenges, improvements, and resource needs

For the open-ended questions, nurses were asked to recall difficult experiences educating patients on medications and describe challenges they faced, what they have done differently to improve, and what the pharmacy department could provide to improve medication education. Nineteen nurses described 29 challenges; the most common was a communication barrier (n=17, 58.6%), of which 41% were related to differences in language and 59% were related to the patient's cognitive status or level of understanding of the information (i.e. not related to language). The next most common challenges included complex medication information (n=4, 13.8%), specifically, inability to pronounce medications and confusion with generic names and multiple manufacturers, multiple medications for the

same indication, and linking medications with indications. Other challenges included time limitations (n=2, 6.9%), and non-adherence (n=2, 6.9%).

Nurses were also asked to describe what they have done differently to improve patient medication education. Sixteen nurses described 23 changes. The most common were utilizing translator services (n=6, 26.1%) and providing written information (n=6, 26.1%); followed by educating the family or caregivers (n=4, 17.4%); tailoring the education session to the patient (n=4, 17.4%) such as by asking questions in different ways, providing patient specific schedules, and taking the patient's learning style into consideration; and providing additional medication information (n=3, 13%).

Lastly, nurses were asked to identify what the pharmacy department can provide to improve medication education. Ten nurses described 11 suggestions; the most common were providing additional written materials (n=5, 45.4%) for nurses (pre-printed brochures on common medications administered on the floor) and patients (easy to read and in different languages, medication schedules). The next most common response was to help identify when patients are being started on new medications (n=2, 18.2%). Finally, two responses indicated that the pharmacy department was already very helpful (n=2, 18.2%).

DISCUSSION

The results of this survey provide insight into the attitudes and self-reported behaviors of nurses regarding the provision of medication education. Greater than 90% of nurses believe it is important to provide information on new medications and medical conditions, utilize resources,

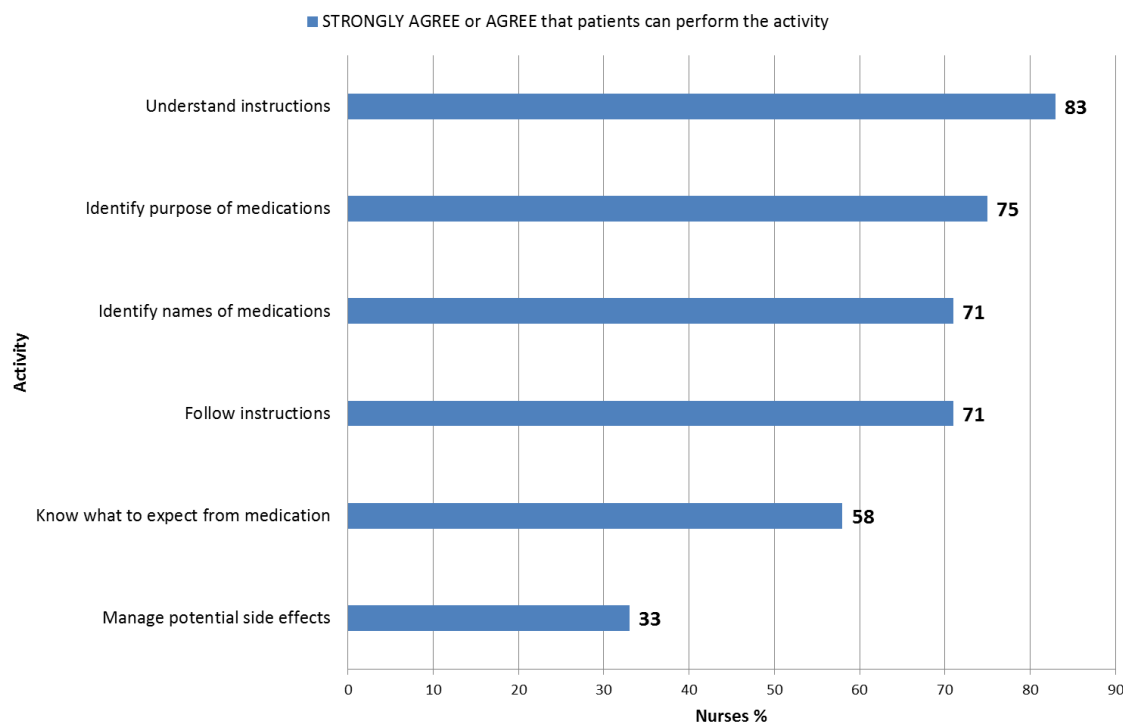


Figure 2. Nurses' confidence regarding patients' medication knowledge and abilities (n=24).
Survey Question: After educating patients on medications, you are confident that patients can...

assess patient understanding and adherence, and use open-ended questions when educating patients on their medications. On the other hand, a little over half believe it is important to provide information on refill medications. Greater than 80% of nurses consistently provide information on new medications, assess patient understanding, and utilize resources, while one-third or less use open-ended questions and provide information on refill medications.

These results are also the first to compare nurses' attitudes with their reported behaviors. Nurses' positive attitudes were significantly and positively associated with performing only a few aspects of medication education, specifically, assessing patient adherence, providing information on new and refill medications, and using open-ended questions. However, no relationship was found for performing other aspects, such as, collaborating with pharmacists, assessing patient understanding, utilizing resources, and providing information on medical conditions.

Most nurses surveyed believe it is important to utilize resources to improve medication education; and many report utilizing strategies such as translator services, providing written information, and tailoring the education session to the patient. Although phone translator services and printed patient medication information in different languages are available at the institution, nurses also suggested that the pharmacy department provide additional written materials for nurses and patients to help improve medication education.

These findings are similar to those of other studies. Most nurses in our study reported spending <10 minutes per patient on medication education, which is consistent with another study that found time pressure and competing

demands to be a frequently cited barrier to providing medication education.⁷ There is also a lack of consensus among healthcare providers about who is responsible for providing medication education, as found by Auyeung *et al.*⁶ Additionally, our study found that after educating patients about their medications, nurses lack confidence in their patients' knowledge regarding what to expect from their medications and how to manage their side effects. Similarly, Auyeung *et al.* found that patients reported low satisfaction with information they received about the risks of getting side effects and what to do if they experience them. They also found that doctors and nurses believed it was not solely their responsibility to provide that information to patients.⁶

Most nurses in our study agree it is important to collaborate with pharmacists on medication education, but do not perform this behavior frequently, even though involving pharmacists has been shown to reduce readmission rates.¹⁰ Most nurses surveyed do not frequently provide information on refill medications or use open-ended questions. This is supported by other studies that found that nurses primarily provide education sheets and do not feel that discharge education impacts medication adherence⁵, and are less likely to ask about adherence with refills compared to new prescriptions.¹¹

One limitation of this study is the small sample size of nurses surveyed. However, this small sample was purposefully selected to include nurses that provide patient care to general and specialized populations, enhancing the applicability of study findings across institutions with both. Another limitation is that surveys were provided to nursing administrators or a pharmacist for distribution to nurses. Due to the logistics of survey distribution, only information about how many surveys were distributed by the

pharmacist to nurses servicing a specialized population was available and there was no information available about how many surveys were taken by nurses but not filled out and returned on the general medicine floor. The study investigators recognize this limitation and suggest using an online or numbered survey in the future to better keep track of surveys distributed but not completed. Additionally, the relationship between survey distributors and nurse participants may have affected some survey results. To minimize the influence of the administrator, the pharmacist or nurse administrator reminded nurses that the survey was available for completion and completed surveys were returned by the nurse to an envelope on the floor. Survey data were also anonymized to prevent social desirability biases.

CONCLUSIONS

Nurses have strong positive attitudes toward the necessity and processes underpinning successful patient medication education; yet, they may not act fully upon these beliefs. These study results call into question whether patients are being educated enough about their medications to ensure their safe and effective use. Additional education needs to be provided to nurses regarding readily available resources for medication education, the importance of effective medication education for patient safety, and identification of opportunities to collaborate with pharmacists. Also,

nursing workload and expectations should be discussed with nursing administrators to identify why limited time is spent on this important aspect of patient care.

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CONFLICT OF INTEREST

Brandon Patterson: Pennsylvania Pharmacists Association Research Collaborative Adviser to Pharmacy Practice Clinical Network, employed by GlaxoSmithKline after all work for the study presented was completed, Pennsylvania Pharmacists Association and New Jersey Pharmacists Association developed and delivered continuing education on community pharmacy safety, American Pharmacists Association travel and expenses associated with coordinating the National Patient Counseling Competition. Jane Bowen, Melissa Rotz, and Sanchita Sen: None

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