

Impact of pharmacist-led or co-led medication education groups on patient outcomes: A literature review

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ABSTRACT

Introduction: Psychiatric pharmacists lead groups for patients with mental health disorders in a variety of locations. It is unknown whether these groups are effective in increasing patient knowledge and adherence or reducing negative healthcare outcomes. It is also unclear whether certain modalities of pharmacist-led medication education groups are more effective than others.

Methods: A literature search using MEDLINE and PsycINFO was performed using the search terms "medication," "patient education," "pharmacy" or "pharmacist," and "psychiatric" or "behavioral" or "mental." Full text articles of randomized controlled trials or those with a pre-post study design that reported outcomes of a pharmacist-led or co-led medication group were included.

Results: Six studies were included in the review, many of which were limited by small sample sizes and confounding factors. These studies suggest that pharmacist-led group medication education can improve cardiac risk factors in patients with diabetes, increase inhaler medication compliance in patients with asthma or chronic obstructive pulmonary disease, and improve the ability of pediatric patients and their parents to manage asthma. Elderly patients' ability to manage their medications improved in one study, but was only shown to be significant for patients using four or more medications in another study. Appropriate medication use by psychiatric outpatients was significantly improved with a pharmacist intervention while decreasing total drug and salary costs.

Discussion: Group interventions provided by pharmacists can be successful in improving patient care outcomes for a variety of disease states in diverse patient populations such as pediatrics and geriatrics. Further research is needed to evaluate the full impact of pharmacist-led medication education groups on outcomes such as patient attitudes, knowledge, patient ability to self-manage medications, adherence, and utilization of health care resources.

KEYWORDS

Group, patient education, pharmacist

INTRODUCTION

The provision of psychotherapy and psychoeducational groups to patients with psychiatric disorders has been a component of mental health treatment for many years. Most commonly, these groups are led by healthcare professionals such as psychologists, mental health therapists and nurses, and usually cover a wide range of topics pertinent to persons with psychiatric disorders. Groups may be educational or supportive in nature and are often provided in conjunction with other psychosocial or pharmacological interventions.

Psychiatric pharmacists often lead groups for patients with mental health disorders in a variety of locations. These can range from acute inpatient settings to outpatient services provided in a community mental

health center. Overall, these pharmacist-led groups tend to focus on medication education, although specific techniques of delivery may vary depending upon the setting and patient population. Although the provision of these types of groups by pharmacists has occurred for a number of years, it is unknown whether these groups are effective in increasing patient knowledge and adherence as well as reducing negative outcomes such as hospitalizations, emergency room visits, and costs. It is also unclear whether certain modalities of pharmacist-led medication education groups are more effective than others. Therefore, the purpose of this literature review was to determine the impact of pharmacist-led, or co-led, medication education groups on patient outcomes.

METHODS

Search strategy

A literature search was performed using MEDLINE (1974-2012) and PsycINFO (1597-2012). The search terms used were "medication," "patient education," "pharmacy" or "pharmacist," and "psychiatric" or "behavioral" or "mental." The search was limited to the English language and human subjects. All studies were reviewed and compared with the inclusion criteria. If the abstract was unclear or unavailable, the full text was reviewed.

Inclusion criteria

Studies were included in the review if they:

- Were a randomized controlled trial or pre-post design
- Were full text articles
- Had a pharmacist-led or co-led medication education group
- Reported outcomes

Review of Studies

Possible relevant studies were independently reviewed by two authors in order to determine whether the study met all of the inclusion criteria. All three authors then read the complete text of each study included in the final review.

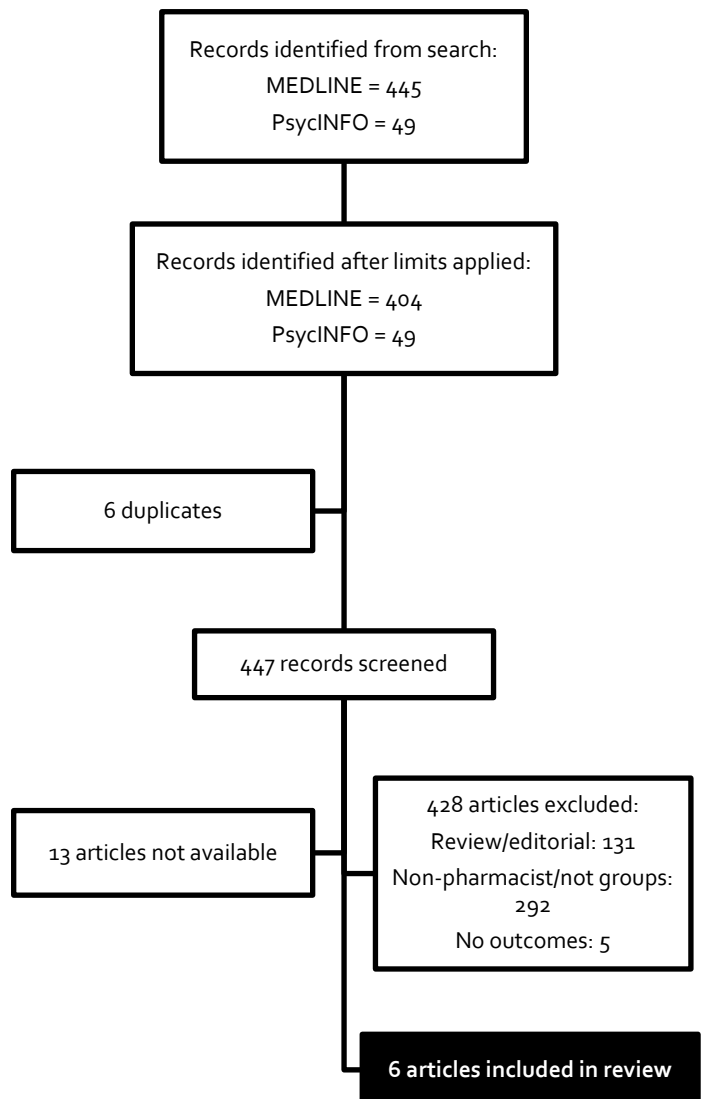
RESULTS

The results of the database search are detailed in Figure 1.

A retrospective study to assess the usefulness of a multidisciplinary team in delivering group education and medication management to patients with diabetes was performed by Martin et al.¹ The electronic medical records of 41 patients with diabetes who participated in the Multidisciplinary EDucation and Intervention for Cardiovascular risk reduction (MEDIC) program between May and October 2002 were reviewed. Patients in the MEDIC program were provided with both self-management education sessions and small group sessions for medication and behavioral adjustment led by different providers on the team including two clinical pharmacists, a registered nurse educator, a registered dietician, a physical therapist, and a social worker. The role of the pharmacists in this program was to educate and intervene in glucose monitoring, provide medication management including titration of medications, monitor for adverse effects, reduce the risk of chronic complications, and encourage adherence to diet and exercise. Outcomes collected at baseline and at three months post-intervention included hemoglobin A_{1c}, systolic and diastolic blood pressure (SBP and DBP, respectively), low-density lipoprotein cholesterol (LDL,

and body mass index (BMI). At three months post-intervention, there were significant decreases in both A_{1c} and DBP ($p < 0.01$ and $p = 0.04$, respectively). The data from a subset of patients who were not at target goals at baseline were analyzed separately. Among this subset, A_{1c}, SBP, and DBP all improved significantly ($p < 0.01$) with greater differences in absolute values observed compared to the values for all patients. No significant changes were found for LDL or BMI in either the subset or the overall group. This study demonstrated that a multidisciplinary group education intervention which includes a pharmacist as part of the team can improve cardiovascular risk factors in patients with diabetes.

Figure 1. Flow chart of literature search.



Gallefoss and Bakke² conducted a randomized controlled study on the effect of patient education on steroid inhaler compliance and use of rescue medication in adult patients with chronic obstructive pulmonary disease (COPD) or asthma. Patients (n=140) were randomized to either the intervention or standard treatment. The intervention group received an educational program consisting of two group sessions led by different healthcare providers including a medical doctor, a pharmacist, a trained nurse, and a physiotherapist.³ The pharmacist-led portion of one of the group sessions focused on medication pharmacology, the effect of the medications on breathing obstruction, and why the medications are used. The participants also received one or two individualized visits with the nurse in which the treatment goals for asthma and COPD, as well as how specific medications worked, were reviewed. An additional one to two visits with the physiotherapist were also provided to reinforce the techniques learned in the group sessions. Among the patients with asthma at a one year follow-up, the number of patients with steroid inhaler compliance (SIC) greater than 75% was almost twice as high in the educated group (n=57) compared to the control group (n=32) (p=0.04). There was no significant difference observed between the COPD groups. However, the educated COPD group required significantly less rescue medication than the control group (p=0.03) as indicated by prescription pickup. A similar trend was noted in the asthma group but was not statistically different (p=0.15). It was concluded that patient education by pharmacists, provided as part of a team, can modify medication habits by decreasing rescue inhaler use and improving SIC in patients with asthma and COPD.

Hunter and Bryant⁴ investigated the impact of a pharmacist taught education program for children, up to 17 years of age, with asthma. This three-part educational program, presented to both the children and parents, consisted of providing general information regarding the disease state, teaching proper medication technique, and conducting a question and answer session with a focus on handling tough situations and sharing experiences with other group participants. A follow-up questionnaire was used to assess the impact of the program on patient knowledge or attitudes about asthma, retention of information, and perceived benefit. After completion of the program, 100% of the participants (n=12) reported they had received adequate information to successfully and safely use their asthma medication, compared to only 58% prior to the start of the program. This study demonstrated pharmacists can increase patient knowledge regarding disease states and the medications

used to treat them. However, it should be noted that the authors of this study did not include any statistical analysis in their article. Therefore, it is unknown whether or not this change was statistically significant.

Hawe and Higgins⁵ evaluated the influence of the Education about Medication (ED MED) Program on the ability of elderly patients to take their medications correctly. Patients (n=148) were separated into groups by month of admission with the ED MED group being conducted every other month. Led by a pharmacist, the ED MED group included patients as well as family members when present. The ED MED group covered four main topics: brand and generic names as well as strengths of medications, directions for taking medications, proper storage of medications and reading of expiration dates, and how to prevent drug interactions. The primary outcome was severe medication noncompliance, defined as using 80% or less or 120% or more of the medications prescribed. At one month and three months after discharge, no statistically significant difference between patients receiving the education program and the control group was found. However, a secondary outcome measure, medication compliance in patients taking four or more drugs, was also measured. It was found that severe medication noncompliance was significantly higher in the control group (55%) than in the education group (32%) at three months post-discharge (95% CI 4–42). This outcome could not be accounted for by gender, age, living arrangements, or number of medications.

Schrader et al.⁶ examined the impact of the Medication Reduction Project (MED RED) on independent adults older than 65 living in South Dakota. Over 1,100 adults in both urban and rural South Dakota attended MED RED educational programs. MED RED meetings, conducted by a pharmacist, involved a general presentation about medications, potential problems with medications, how to properly use medications, and the importance of being actively involved in their health care. Following the meeting, four of five participants said they planned to discuss the possibility of decreasing the number of medications they were taking with their physician. Over half of the participants responded they were more likely to make positive changes in the use of their medications while two of three planned to tell their friends about what they learned in MED RED. Pharmacist interventions like MED RED may help elders in becoming more actively involved in their pharmacologic treatment.

Gray et al.⁷ conducted a prospective study to assess how clinical pharmacy services impact the health care quality provided to outpatient psychiatric patients. Cost was also

evaluated. A clinical pharmacist monitored the drug therapy of male veterans (n=19), made changes to therapy when necessary, and met weekly with the treatment center staff to discuss patient treatment. A weekly medication group was also conducted to educate the patients on the purpose of medication, potential side effects and what to do about them, dosing, and inaccurate beliefs regarding their medications. Patients were again educated by the pharmacist and given written information sheets when medications were refilled. Prior to pharmacist intervention and at three months, patients were evaluated for degree of mental functioning, number and severity of adverse drug effects, medication knowledge, medication use problems, and total number of medications prescribed. There was a non-significant trend toward improvement in mental functioning after pharmacist intervention; however, significant results were found for other outcomes measures. The number of all prescribed medications per patient was reduced ($p < 0.005$). The patients' medication knowledge improved from baseline ($p < 0.005$). This remained significant in a subgroup analysis of seven patients who retained the same number of medications, providing further support that the increased knowledge was not due to fewer medications per patient ($p < 0.05$). The number and severity of adverse drug effects, as well as drug use problems, decreased significantly from baseline ($p < 0.005$ and $p < 0.005$, respectively). The authors determined that utilizing one full-time pharmacist for one year resulted in an estimated annual savings of \$27,750 in total drug cost and \$18,750 in salary. They did not evaluate the possible increase in cost of monitoring, but reasoned that evaluation of psychiatric patients is performed mostly by observation and not laboratory tests; therefore, the cost was assumed to be lower. This study shows that utilizing clinical pharmacists as part of the medical team can greatly improve the quality of health care received by psychiatric outpatients while decreasing cost.

DISCUSSION

Group interventions provided by pharmacists can be successful in improving patient care outcomes for a variety of disease states in diverse patient populations such as pediatrics and geriatrics. The studies reviewed suggest pharmacists can improve cardiac risk factors in patients with diabetes, increase inhaler medication compliance in patients with asthma or chronic obstructive pulmonary disease, and improve the ability of pediatric patients and their parents to manage asthma. Elderly patients' ability to manage their medications improved in one study, but was only shown to be significant for

patients using four or more medications in another study. Appropriate medication use by psychiatric outpatients was significantly improved with a pharmacist intervention while decreasing total drug and salary costs. Overall, these studies demonstrate pharmacist involvement in a group education process can improve patient outcomes.

Psychiatric pharmacists are in a unique position to provide specific knowledge about medications and their use to patients with psychiatric disorders. This is clearly needed for this particular patient population due to poor rates of medication adherence. A group setting allows patients to share their knowledge and experiences with others in similar situations. This sharing is often better received than that provided by someone in a position of authority. Therefore, providing medication education in a group setting offers distinct advantages over providing the same information on an individual basis only.

Unfortunately, there are many limitations to the small number of studies that have been conducted to date on pharmacist-led education groups. First, the groups were not always conducted by only a pharmacist. Thus, it is difficult to determine the impact of the pharmacist versus other healthcare professionals. In the majority of studies, group education was accompanied by other services, so it is challenging to establish the impact of the group itself. Furthermore, the studies available are not all current. The most recent article reviewed was five years old with the oldest being over 30 years ago. Finally, many of the studies had a small number of subjects which may have impacted the ability to detect significant changes.

The current literature is primarily focused on individual patient counseling with relatively few published studies examining the impact of pharmacist-led medication groups. Therefore, further research is needed to evaluate the full impact of pharmacist-led medication education groups on outcomes such as patient attitudes, knowledge, patient ability to self-manage medications, adherence, and utilization of health care resources.

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