Assessing the Effectiveness of a Multidisciplinary Approach in Reducing Hospital Readmissions among Vulnerable Populations: A Focus on Social Service Administrators and Pharmacists

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Abstract

Background: Hospital readmissions, particularly among vulnerable populations, are a significant challenge for healthcare systems. A multidisciplinary approach involving social service administrators and pharmacists has been proposed as a strategy to reduce readmissions by addressing both medical and social determinants of health.

Objective: This study aimed to assess the effectiveness of a multidisciplinary approach involving social service administrators and pharmacists in reducing 30-day hospital readmissions, improving medication adherence, and facilitating follow-up care among vulnerable patients.

Methods: A retrospective cohort study was conducted at a tertiary hospital with 200 patients. The intervention group (n=100) received multidisciplinary care, while the control group (n=100) received standard care. Hospital readmission rates, medication adherence, and follow-up attendance were compared between the two groups. Additionally, semi-structured interviews with a subset of patients were conducted to explore their experiences with the multidisciplinary approach.

Results: The intervention group had significantly lower readmission rates (18% vs. 32%, p=0.015), higher medication adherence (85% vs. 67%, p=0.003), and better follow-up care attendance (78% vs. 55%, p=0.009). Qualitative findings highlighted the importance of care coordination and social support in facilitating recovery.

Conclusion: A multidisciplinary approach involving social service administrators and pharmacists effectively reduces hospital readmissions and improves medication adherence by addressing both medical and social needs. This model should be considered for broader implementation to improve patient outcomes.

Keywords: Multidisciplinary care, hospital readmissions, medication adherence, social determinants of health, vulnerable populations, pharmacists, social service administrators

Introduction

Hospital readmissions are a significant concern for healthcare systems worldwide, particularly among vulnerable populations such as the elderly, low-income patients, and individuals with chronic diseases.

These readmissions not only increase healthcare costs but also have a negative impact on patient outcomes, often signaling a failure to address underlying issues that lead to recurrent hospitalizations (Joynt & Jha, 2013). Reducing readmissions has therefore become a priority for healthcare providers, with increasing emphasis on developing strategies that address both the medical and social determinants of health.

Vulnerable populations often face barriers beyond medical treatment, such as poor access to social support, transportation, or financial resources, which can complicate their recovery and contribute to higher readmission rates (Szreter and Woolcock,2004). Research has shown that addressing these social determinants of health is essential for improving patient outcomes and reducing readmissions, especially for those with chronic conditions or those recovering from surgery (Braveman& Gottlieb, 2014).

A multidisciplinary approach, which involves collaboration between healthcare professionals such as social service administrators and pharmacists, has been proposed as an effective strategy to reduce hospital readmissions. Social service administrators help patients navigate the social barriers that may impede recovery by addressing issues such as access to housing, financial assistance, and transportation (Brandling and House,2009). Pharmacists, on the other hand, play a crucial role in ensuring medication adherence, providing patient education, and conducting medication reconciliation to prevent errors and optimize treatment (Chisholm-Burns et al., 2010). When these two professionals work together, they can offer comprehensive support that addresses both medical and non-medical factors, potentially reducing the risk of hospital readmissions.

Despite the growing recognition of the importance of multidisciplinary care, there is limited research that specifically examines how the collaboration between social service administrators and pharmacists impacts hospital readmission rates. This study aims to evaluate the effectiveness of a multidisciplinary approach, focusing on the contributions of social service administrators and pharmacists in reducing readmissions among vulnerable populations. By exploring how this collaboration improves patient care, the research seeks to provide insights into the development of more effective strategies for preventing hospital readmissions.

Literature Review

Hospital Readmissions and Vulnerable Populations

Hospital readmissions are a significant issue facing healthcare systems globally, particularly among vulnerable populations, which include the elderly, low-income individuals, and patients with chronic conditions. These groups often experience higher rates of hospital readmissions due to a combination of medical and social factors, such as poor access to healthcare, inadequate social support, and challenges in managing chronic conditions (Joynt & Jha, 2013). The healthcare costs associated with frequent readmissions are substantial, leading to increased attention on reducing readmission rates as a measure of healthcare quality and efficiency (Szreter and Woolcock, 2004).

Studies have consistently shown that vulnerable populations are disproportionately affected by social determinants of health (SDOH), which include factors such as income, education, housing, and access to healthcare (Braveman& Gottlieb, 2014). These determinants significantly impact a patient's ability to recover post-discharge and avoid unnecessary readmissions. Research has demonstrated that efforts to reduce hospital readmissions must address both clinical and non-clinical factors that contribute to poor health outcomes in vulnerable populations (Brandling and House, 2009).

Multidisciplinary Care Models

Multidisciplinary care models have gained traction as an effective approach to improving patient outcomes, particularly for those at higher risk of readmission. These models involve the collaboration of various healthcare professionals, each contributing their expertise to address both the medical and social needs of the patient. The World Health Organization (WHO) has emphasized the importance of integrated care, which promotes the coordination of healthcare services to improve patient outcomes, particularly for individuals with complex needs (Nolte & McKee, 2008).

The effectiveness of multidisciplinary care in reducing hospital readmissions has been supported by multiple studies. For example, research by Hulscher et al. (2013) found that integrating social and medical support can significantly reduce readmission rates, particularly for patients with chronic diseases. By involving a team of professionals, including doctors, nurses, social workers, and pharmacists, multidisciplinary care addresses the full spectrum of factors influencing a patient's health. However, there is limited research specifically examining how social service administrators and pharmacists collaborate to reduce hospital readmissions, which is a gap this study seeks to fill.

Role of Social Service Administrators in Addressing Social Determinants of Health

Social service administrators play a critical role in addressing the non-medical factors that affect a patient's ability to recover and avoid hospital readmissions. These professionals help patients navigate challenges such as inadequate housing, lack of transportation, and financial difficulties, all of which are recognized as key social determinants of health (Braveman& Gottlieb, 2014). Studies have shown that when these social determinants are addressed effectively, patients are less likely to experience complications that lead to readmissions (Brandling and House, 2009).

Social service administrators often act as liaisons between patients and community resources, ensuring that patients have access to the support they need after discharge. For example, a study by Szreter and Woolcock (2004) demonstrated that social interventions, such as connecting patients with housing support or transportation services, contributed to a reduction in hospital readmissions. These findings highlight the importance of addressing social determinants of health as part of a comprehensive approach to patient care. Despite this, the specific role of social service administrators in multidisciplinary care models aimed at reducing readmissions remains underexplored, and more research is needed to understand their contributions fully.

Role of Pharmacists in Ensuring Medication Adherence

Pharmacists are essential members of multidisciplinary care teams, particularly in managing medication-related issues that contribute to hospital readmissions. Studies have shown that improper medication management, including non-adherence to prescribed regimens, is a leading cause of preventable readmissions (Chisholm-Burns et al., 2010). Pharmacists address these issues by providing medication reconciliation, patient education, and follow-up care to ensure that patients understand their treatment plans and adhere to their medications post-discharge (Al-Qazaz et al., 2011).

A systematic review by Chisholm-Burns et al. (2010) demonstrated that pharmacist-led interventions significantly improved medication adherence and reduced hospital readmissions. Pharmacists 'involvement in patient education and medication management helps prevent adverse drug events, which are common

causes of rehospitalization, especially in vulnerable populations with complex medication regimens (Santschi et al., 2011). The integration of pharmacists into multidisciplinary care teams is therefore critical to reducing readmission rates, as their expertise ensures that patients are properly managing their medications, thus reducing the risk of complications.

The Synergy of Social Service Administrators and Pharmacists in Reducing Readmissions

While the individual contributions of social service administrators and pharmacists have been well-documented, there is limited research examining how these professionals collaborate to reduce hospital readmissions. Integrated care models that combine the expertise of both professionals may offer a more comprehensive approach to addressing the complex needs of vulnerable patients. Social service administrators work to eliminate social barriers to recovery, while pharmacists ensure that patients are adhering to their medication regimens, thereby addressing both the social and medical factors that contribute to readmissions.

Research by Parry et al. (2009) found that multidisciplinary interventions that include social and medical support are more effective at reducing readmissions than interventions that focus solely on medical care. In particular, the collaboration between social service administrators and pharmacists can help address the root causes of preventable readmissions by ensuring that patients receive the necessary social support and understand their medication plans. However, further research is needed to evaluate the effectiveness of this collaboration and its impact on patient outcomes.

Gaps in the Literature

Despite the growing recognition of the importance of multidisciplinary care in reducing hospital readmissions, there remains a gap in the literature concerning the specific collaboration between social service administrators and pharmacists. Most existing studies have focused on the roles of these professionals in isolation, without examining how their combined efforts influence patient outcomes. This study seeks to fill this gap by evaluating the effectiveness of a multidisciplinary approach that includes both social service administrators and pharmacists in reducing hospital readmissions among vulnerable populations.

Methodology

Study Design

This study employed a retrospective cohort design to evaluate the effectiveness of a multidisciplinary approach involving social service administrators and pharmacists in reducing hospital readmissions among vulnerable populations. The retrospective design allowed for the examination of medical records and patient data to compare outcomes between patients who received standard care and those who received integrated multidisciplinary care during their hospital stay and post-discharge.

Setting

The study was conducted at a large tertiary hospital, which provides care for patients with chronic diseases and post-surgical needs. The hospital has a dedicated multidisciplinary care team, which includes social service administrators and pharmacists who collaborate to address both the medical and social needs of vulnerable patients.

Participants

Participants for this study were selected from the hospital's patient database, focusing on patients who were discharged. Eligible participants met the following criteria:

- Inclusion Criteria:
  - Adults aged 18 and older.
  - Patients identified as vulnerable due to factors such as low income, lack of social support, or chronic medical conditions (e.g., diabetes, heart failure, chronic obstructive pulmonary disease).
  - Patients who were discharged after being treated for a chronic condition or post-surgical care.
  - Patients who had received care from both a social service administrator and a pharmacist during their hospital stay.

- Exclusion Criteria:
  - Patients with terminal illnesses requiring palliative care.
  - Patients with insufficient medical records or missing data on follow-up care.
  - Patients who were readmitted within 48 hours of discharge for unrelated emergencies (e.g., trauma or accidents).

A total of 200 patients were included in the study. Of these, 100 patients received multidisciplinary care involving social service administrators and pharmacists (intervention group), and 100 patients received standard care without the involvement of these professionals (control group).

Intervention

The intervention group received integrated multidisciplinary care from a team that included a social service administrator and a pharmacist during their hospital stay and post-discharge. This multidisciplinary care focused on:

- Social Service Administrators: Addressed social determinants of health by assisting patients with access to financial support, housing stability, transportation to follow-up appointments, and coordination with community resources.
- Pharmacists: Focused on medication reconciliation, patient education on medication adherence, and follow-up consultations to monitor and ensure proper medication use post-discharge.

Patients in the intervention group were also provided with individualized care plans, which included follow-up appointments and check-ins with the pharmacist and social service administrator to address both medical and social needs.

Data Collection

Data were collected from the hospital's electronic medical records (EMR) system. The primary outcome of interest was hospital readmissions within 30 days of discharge. Additional data collected included:

- Patient Demographics: Age, gender, socioeconomic status, comorbidities, and insurance status.
- Clinical Data: Primary diagnosis, length of hospital stay, number of medications prescribed, and any complications during the hospital stay.
- Social and Supportive Services: Information on the types of social services provided (e.g., financial aid, housing support) and the frequency of interactions with the social service administrator.

- Medication Management: Data on medication adherence, pharmacist-led interventions, and patient education on medication use.

All data were de-identified to maintain patient confidentiality and were securely stored in compliance with hospital regulations and ethical guidelines.

Data Analysis

Data were analyzed using both quantitative and qualitative methods.

1. Quantitative Analysis:
   - Primary Outcome: The primary outcome was the 30-day hospital readmission rate for both the intervention and control groups. Chi-square tests were used to compare readmission rates between the two groups.
   - Secondary Outcomes: Secondary outcomes included medication adherence (measured through follow-up records) and the number of follow-up appointments attended post-discharge.
   - Statistical Tests: Logistic regression was used to assess the association between multidisciplinary care and the likelihood of hospital readmissions, controlling for patient demographics, comorbidities, and other potential confounders. Statistical significance was set at a p-value of <0.05.

2. Qualitative Analysis (Optional):
   - Patient Interviews: A subset of 20 patients from the intervention group participated in semi-structured interviews to explore their experiences with multidisciplinary care, including how they perceived the role of the social service administrator and pharmacist in their recovery.
   - Thematic Analysis: The qualitative data from interviews were analyzed using thematic analysis. Key themes related to the effectiveness of the multidisciplinary care model, patient satisfaction, and barriers to recovery were identified.

Ethical Considerations

Ethical approval for the study was obtained from the Ethics Committee. Since the study involved retrospective analysis of patient data, individual informed consent was waived by the ethics committee. However, informed consent was obtained from patients who participated in the qualitative interviews. All data were de-identified, and patient privacy was protected throughout the study.

Trustworthiness

To ensure the trustworthiness of the study:

- Credibility: Data from multiple sources (medical records, patient interviews) were triangulated to strengthen the credibility of the findings.
- Dependability: A detailed audit trail was maintained to document all steps of the data collection and analysis process.
- Transferability: Thick descriptions of the setting, participants, and intervention were provided to allow for the potential transfer of findings to other settings.
- Confirmability: Reflexivity was practiced by the researchers to minimize personal biases in interpreting the data, particularly during the qualitative analysis.

Findings

The results of this study highlight the impact of a multidisciplinary approach, involving social service administrators and pharmacists, on reducing hospital readmissions among vulnerable populations. The findings are presented in two parts: (1) quantitative data on hospital readmission rates and medication adherence, and (2) qualitative insights from patient interviews about their experiences with multidisciplinary care.

Quantitative Findings

The primary outcome was the rate of hospital readmissions within 30 days of discharge for both the intervention group (receiving multidisciplinary care) and the control group (receiving standard care). In addition, data on medication adherence and follow-up appointments were collected.

Table 1: Hospital Readmission Rates and Medication Adherence

Outcome	Intervention Group (n=100)	Control Group (n=100)	P-value
30-day Hospital Readmissions (%)	18%	32%	0.015
Medication Adherence (%)	85%	67%	0.003
Follow-up Appointment Attendance (%)	78%	55%	0.009

P-value < 0.05 indicates statistical significance.

- Hospital Readmissions: The intervention group, which received multidisciplinary care, had significantly lower hospital readmission rates (18%) compared to the control group (32%), with a p-value of 0.015. This suggests that the collaborative efforts of social service administrators and pharmacists were effective in reducing readmissions among vulnerable patients.

- Medication Adherence: Medication adherence was higher in the intervention group (85%) than in the control group (67%), with a statistically significant difference (p=0.003). This highlights the positive impact of pharmacist-led medication reconciliation and patient education on adherence.

- Follow-up Appointments: Patients in the intervention group were more likely to attend follow-up appointments after discharge (78%) compared to the control group (55%), with a significant p-value of 0.009. Social service administrators played a key role in ensuring patients had the necessary support (e.g., transportation, scheduling) to attend their appointments.

Qualitative Findings

Qualitative data were gathered through semi-structured interviews with a subset of 20 patients from the intervention group. Thematic analysis identified three major themes: (1) improved care coordination, (2) enhanced medication management, and (3) addressing social barriers to recovery.

Theme 1: Improved Care Coordination

Patients emphasized the importance of having a coordinated team supporting their recovery, with social service administrators and pharmacists working together to address both medical and social needs.
- Participant 7 (Heart Failure Patient):
"It was really helpful to have someone checking in on my medications and another person making sure I had transportation to get to my appointments. They worked together, and that made everything smoother."

Theme 2: Enhanced Medication Management
Several participants noted that the pharmacist's involvement helped them understand their medications better and adhere to their treatment plans.
- Participant 3 (Diabetes Patient):
"The pharmacist explained how to take my insulin properly and adjusted the dosage based on my blood sugar readings. I wouldn't have known how to manage it without their help."

Theme 3: Addressing Social Barriers to Recovery
Social service administrators played a critical role in helping patients overcome financial and logistical barriers to accessing care, particularly by providing assistance with transportation, housing, and financial support for medications.
- Participant 12 (Chronic Obstructive Pulmonary Disease [COPD] Patient):
"The social service team helped me apply for financial aid to pay for my medications and arranged transportation for my follow-up visits. Without them, I probably would have been back in the hospital."

Discussion
This study assessed the effectiveness of a multidisciplinary approach involving social service administrators and pharmacists in reducing hospital readmissions among vulnerable populations. The findings highlight the significant role of this collaborative model in improving patient outcomes, particularly by reducing 30-day hospital readmissions, enhancing medication adherence, and ensuring follow-up care. This section discusses these findings in relation to existing literature, addresses the implications for clinical practice, and identifies areas for improvement and future research.

Reducing Hospital Readmissions
The results demonstrated that patients who received multidisciplinary care had significantly lower 30-day readmission rates compared to those who received standard care (18% vs. 32%, p=0.015). This finding aligns with existing research that highlights the importance of addressing both medical and social determinants of health to reduce readmissions (Szreter and Woolcock, 2004). Vulnerable patients often face barriers that go beyond medical care, such as difficulties with transportation, housing instability, and financial challenges, which contribute to poor post-discharge outcomes and increase the likelihood of readmission (Braveman& Gottlieb, 2014).

By integrating social service administrators into the care team, this study addressed these non-medical factors that can hinder recovery. Patients who received support from social service administrators reported better access to resources such as transportation and financial assistance, which allowed them to attend follow-up appointments and adhere to their treatment plans. Previous research has also emphasized the importance of social services in reducing hospital readmissions, particularly among low-income or socially isolated patients (Brandling and House, 2009). The findings suggest that providing holistic, patient-centered care through a multidisciplinary team significantly enhances patient outcomes, especially in vulnerable populations.

Improved Medication Adherence

Medication adherence is a critical factor in preventing readmissions, particularly for patients with chronic conditions that require complex treatment regimens. This study found that medication adherence was significantly higher in the intervention group (85% adherence) compared to the control group (67%, p=0.003). Pharmacist-led interventions, including medication reconciliation, patient education, and regular follow-ups, played a key role in achieving these outcomes.

Pharmacists 'involvement in ensuring proper medication use is well-documented in the literature. Studies have shown that pharmacist-led interventions can improve medication adherence, reduce medication errors, and prevent adverse drug events, all of which contribute to reduced readmission rates (Chisholm-Burns et al., 2010; Santschi et al., 2011). In this study, pharmacists ensured that patients understood their medication regimens and made necessary adjustments based on individual needs. The findings reinforce the critical role that pharmacists play in multidisciplinary teams, particularly in managing complex medication regimens and supporting chronic disease management.

Follow-up Care and Addressing Social Barriers

The study also found that patients in the intervention group were more likely to attend follow-up appointments (78%) compared to the control group (55%, p=0.009). Social service administrators played a significant role in facilitating access to follow-up care by addressing logistical challenges such as transportation and appointment scheduling. These findings underscore the importance of providing coordinated care that addresses both the clinical and non-clinical factors affecting a patient's ability to recover (Braveman& Gottlieb, 2014).

Patients frequently mentioned the value of having both pharmacists and social service administrators involved in their care. By working together, these professionals ensured that patients were not only adhering to their treatment plans but also had access to the necessary social support to facilitate recovery. This comprehensive approach is supported by research showing that interventions addressing social determinants of health are more likely to improve patient outcomes and reduce readmissions (Brandling and House, 2009). The integration of social and medical support helps prevent the fragmentation of care, ensuring that patients receive the holistic support they need to stay out of the hospital.

Challenges and Barriers to Implementation

Despite the success of the multidisciplinary approach, some challenges were identified. Several patients in the qualitative interviews mentioned difficulties in understanding the roles of different professionals in their care, particularly when communication between team members was not seamless. These findings align with previous research that has identified communication gaps and role confusion as barriers to the successful implementation of multidisciplinary care models (Hulscher et al., 2013).

To address these challenges, future efforts should focus on improving communication within the care team and ensuring that patients have a clear understanding of each professional's role. Hospitals can implement shared care plans and integrated electronic health records (EHR) to facilitate better communication among team members and ensure that all professionals are aligned in their approach to patient care. Clear communication not only improves care coordination but also enhances patient engagement, as patients are

more likely to trust and follow through with their care plans when they understand the roles of each team member (Greene et al., 2012).

Implications for Practice

The findings of this study have important implications for clinical practice, particularly in the context of managing vulnerable populations. First, the results highlight the effectiveness of multidisciplinary care models in addressing the complex needs of these patients. Hospitals and healthcare systems should consider integrating social service administrators and pharmacists into care teams to reduce hospital readmissions and improve patient outcomes.

Second, addressing social determinants of health should be an integral part of post-discharge planning, particularly for patients with chronic conditions or those recovering from surgery. Social service administrators play a key role in identifying and mitigating the social barriers that can hinder recovery, such as housing instability, lack of transportation, or financial challenges. By ensuring that these non-medical needs are addressed, hospitals can reduce the risk of readmissions and improve overall health outcomes for vulnerable patients.

Finally, pharmacists should be actively involved in discharge planning and follow-up care to ensure that patients adhere to their medication regimens and understand how to manage their conditions. Pharmacist-led medication management, combined with social support, can significantly reduce preventable hospital readmissions, particularly for patients with complex medication regimens.

Limitations

This study has several limitations that should be acknowledged. First, the sample size was relatively small, with 200 patients, and the study was conducted in a single tertiary hospital. This limits the generalizability of the findings to other healthcare settings. Future research should expand the sample size and include multiple healthcare institutions to validate the findings.

Additionally, the study relied on retrospective data, which may be subject to limitations in the accuracy and completeness of medical records. Future studies could consider a prospective design to capture real-time data on patient outcomes and care processes. Finally, while qualitative data provided valuable insights into patient experiences, only a small subset of patients was interviewed, which may limit the depth of understanding of patient perspectives. Further qualitative research with a larger sample size could provide a more comprehensive view of the challenges and benefits of multidisciplinary care.

Future Research

Future research should focus on evaluating the long-term effects of multidisciplinary care models on patient outcomes, particularly for chronic disease management. Studies should also examine the cost-effectiveness of integrating social service administrators and pharmacists into hospital care teams, as this approach may reduce overall healthcare costs by preventing readmissions. Additionally, research should explore the perspectives of healthcare providers involved in multidisciplinary care, identifying barriers to implementation and strategies for improving team communication and collaboration.

Conclusion

This study demonstrates that a multidisciplinary approach involving social service administrators and pharmacists is effective in reducing hospital readmissions, improving medication adherence, and addressing

social barriers to recovery among vulnerable populations. The findings highlight the importance of integrating both medical and social support into patient care, particularly for individuals facing complex health and social challenges. By addressing the full range of patient needs, hospitals can reduce preventable readmissions and improve long-term health outcomes.

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