

Empowering Patients Through Partnership: A Mixed-Methods Examination of Nursing Technician and General Practitioner Perceptions on Treatment Adherence and Self-Management

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1. Nursing Technician
2. General Practitioner

ABSTRACT

Patient education and self-management support are critical components of effective chronic disease management. This mixed-methods study examined nursing technician and general practitioner perceptions regarding their roles in promoting treatment adherence and self-management among patients with chronic conditions. A cross-sectional survey was administered to 150 nursing technicians and 50 general practitioners, assessing their attitudes, practices, and perceived barriers related to patient education and self-management support. Semi-structured interviews were conducted with 20 nursing technicians and 10 general practitioners to gain deeper insights into their experiences and perspectives. Quantitative data analysis revealed that both nursing technicians and general practitioners recognized the importance of patient education and self-management support, but reported various challenges, including time constraints, limited training, and patients' resistance to change. Thematic analysis of qualitative data identified key themes, such as the need for collaborative partnerships, tailored approaches, and organizational support. The integration of quantitative and qualitative findings highlighted the complexity of implementing patient education and self-management support in chronic disease management and the need for multifaceted interventions to overcome barriers and optimize outcomes. This study contributes to the growing body of research on the roles of nursing technicians and general practitioners in empowering patients through partnership and provides insights for enhancing chronic disease management in healthcare settings.

1. Introduction

Chronic diseases, such as diabetes, cardiovascular disease, and chronic respiratory disorders, pose significant challenges to healthcare systems worldwide (World Health Organization, 2021). Effective management of chronic conditions requires a

patient-centered approach that empowers individuals to actively participate in their care and make informed decisions about their health (Wagner et al., 2001). Patient education and self-management support are essential components of this approach, as they help patients acquire the knowledge, skills, and confidence needed to manage their conditions and adhere to treatment plans (Bodenheimer et al., 2002).

Nursing technicians and general practitioners play crucial roles in delivering patient education and self-management support in various healthcare settings (Hosseini et al., 2018; Kennedy et al., 2013). As frontline healthcare providers, they have frequent interactions with patients and are well-positioned to assess patients' needs, provide tailored education, and support behavior change (Mulder et al., 2015). However, implementing effective patient education and self-management support can be challenging due to various factors, such as time constraints, limited resources, and patients' individual barriers (Raaijmakers et al., 2013).

Despite the growing recognition of the importance of patient education and self-management support in chronic disease management, there is limited research on the perceptions and experiences of nursing technicians and general practitioners in this context (Mulder et al., 2015). Understanding their perspectives is crucial for identifying facilitators and barriers to effective implementation and developing strategies to optimize their roles in promoting treatment adherence and self-management.

This mixed-methods study aimed to examine nursing technician and general practitioner perceptions regarding their roles in promoting treatment adherence and self-management among patients with chronic conditions. The specific objectives were to:

1. Assess nursing technicians' and general practitioners' attitudes, practices, and perceived barriers related to patient education and self-management support.
2. Explore nursing technicians' and general practitioners' experiences and perspectives on their roles in promoting treatment adherence and self-management.
3. Integrate quantitative and qualitative findings to gain a comprehensive understanding of the facilitators and barriers to effective patient education and self-management support in chronic disease management.

The findings of this study contribute to the growing body of research on the roles of nursing technicians and general practitioners in empowering patients through partnership and provide insights for enhancing chronic disease management in healthcare settings.

2. Literature Review

The literature review section provides an overview of the existing research on patient education, self-management support, and the roles of nursing technicians and general practitioners in chronic disease management. The review is organized into three main themes: (1) the importance of patient education and self-management support in chronic disease management, (2) the roles and practices of nursing technicians and

general practitioners in delivering patient education and self-management support, and (3) the facilitators and barriers to effective implementation of patient education and self-management support.

2.1. Importance of Patient Education and Self-Management Support in Chronic Disease Management

Patient education and self-management support are widely recognized as essential components of effective chronic disease management (Bodenheimer et al., 2002; Wagner et al., 2001). Patient education refers to the process of providing patients with the knowledge and skills needed to manage their health conditions and make informed decisions about their care (Lorig & Holman, 2003). Self-management support involves collaborating with patients to develop personalized action plans, set goals, and problem-solve barriers to behavior change (Glasgow et al., 2003).

Systematic reviews and meta-analyses have consistently demonstrated the positive impact of patient education and self-management support on various health outcomes, including improved glycemic control in diabetes (Chrvala et al., 2016), reduced hospital admissions in chronic obstructive pulmonary disease (Zwerink et al., 2014), and enhanced quality of life in cardiovascular disease (Jonkman et al., 2016). These interventions have also been shown to increase patients' knowledge, self-efficacy, and treatment adherence (Warsi et al., 2004).

The chronic care model, developed by Wagner et al. (2001), emphasizes the importance of patient education and self-management support as key elements of a proactive, patient-centered approach to chronic disease management. The model highlights the need for healthcare systems to provide patients with the resources and support needed to effectively manage their conditions and collaborate with healthcare providers in decision-making processes.

2.2. Roles and Practices of Nursing Technicians and General Practitioners in Delivering Patient Education and Self-Management Support

Nursing technicians and general practitioners play vital roles in delivering patient education and self-management support in various healthcare settings (Hosseini et al., 2018; Kennedy et al., 2013). As frontline healthcare providers, they have frequent interactions with patients and are well-positioned to assess patients' needs, provide tailored education, and support behavior change (Mulder et al., 2015).

Nursing technicians, also known as licensed practical nurses or vocational nurses, work under the supervision of registered nurses and physicians to provide direct patient care (National Council of State Boards of Nursing, 2021). Their responsibilities often include patient education, medication administration, and monitoring of patients' health status (Hosseini et al., 2018). Studies have shown that nursing technicians can effectively deliver patient education and self-management support interventions, leading to improved patient outcomes and satisfaction (Massimi et al., 2017; Mulder et al., 2015).

General practitioners, also known as family physicians or primary care physicians, are responsible for providing comprehensive, continuous care to patients across their lifespan (American Academy of Family Physicians, 2021). They play a critical role

in managing chronic diseases and coordinating care with other healthcare providers (Kennedy et al., 2013). Research has demonstrated the effectiveness of general practitioner-led patient education and self-management support interventions in improving health outcomes and reducing healthcare utilization (Chodosh et al., 2005; Schillinger et al., 2009).

2.3. Facilitators and Barriers to Effective Implementation of Patient Education and Self-Management Support

Despite the recognized importance of patient education and self-management support, implementing these interventions in practice can be challenging due to various facilitators and barriers (Raaijmakers et al., 2013). Understanding these factors is crucial for developing strategies to optimize the roles of nursing technicians and general practitioners in promoting treatment adherence and self-management.

Facilitators to effective implementation of patient education and self-management support include healthcare provider training and skills (Svavarsdóttir et al., 2015), organizational support and resources (Raaijmakers et al., 2013), and patient-provider communication and collaboration (Mulder et al., 2015). Studies have also highlighted the importance of tailoring interventions to patients' individual needs, preferences, and cultural backgrounds (Hawthorne et al., 2010).

Barriers to effective implementation of patient education and self-management support include time constraints (Raaijmakers et al., 2013), limited resources and funding (Svavarsdóttir et al., 2015), and patients' individual barriers, such as low health literacy, competing priorities, and resistance to change (Mulder et al., 2015). Healthcare providers' lack of knowledge, skills, and confidence in delivering patient education and self-management support has also been identified as a significant barrier (Kennedy et al., 2013).

The literature review highlights the importance of patient education and self-management support in chronic disease management and the crucial roles of nursing technicians and general practitioners in delivering these interventions. However, it also reveals the complex interplay of facilitators and barriers to effective implementation, underscoring the need for further research to understand healthcare providers' perspectives and experiences in this context.

3. Methods

3.1. Study Design

This study employed a mixed-methods design, combining a cross-sectional survey and semi-structured interviews to examine nursing technician and general practitioner perceptions regarding their roles in promoting treatment adherence and self-management among patients with chronic conditions. The mixed-methods approach allowed for a comprehensive understanding of the research problem by integrating quantitative and qualitative data (Creswell & Plano Clark, 2017).

The cross-sectional survey aimed to assess nursing technicians' and general

practitioners' attitudes, practices, and perceived barriers related to patient education and self-management support. The semi-structured interviews sought to explore their experiences and perspectives on their roles in promoting treatment adherence and self-management, providing deeper insights into the survey findings.

3.2. Participants and Sampling

The study participants included nursing technicians and general practitioners working in various healthcare settings, such as primary care clinics, community health centers, and hospital outpatient departments. A convenience sampling method was used to recruit participants for the survey, while purposive sampling was employed for the semi-structured interviews.

For the survey, a total of 150 nursing technicians and 50 general practitioners were recruited. The inclusion criteria were: (1) licensed nursing technicians or general practitioners, (2) working in a healthcare setting that provides care for patients with chronic conditions, and (3) willing to participate in the study.

For the semi-structured interviews, 20 nursing technicians and 10 general practitioners were selected from the survey participants based on their willingness to participate in the interviews and their demographic characteristics (e.g., age, gender, years of experience) to ensure a diverse sample.

3.3. Data Collection

3.3.1. Cross-Sectional Survey

The cross-sectional survey was developed based on a review of the literature and expert consultation. The survey consisted of three main sections:

1. Demographic information: age, gender, professional role, years of experience, and practice setting.
2. Attitudes and practices related to patient education and self-management support: perceived importance, frequency of delivery, and specific strategies used.
3. Perceived barriers to effective implementation of patient education and self-management support: time constraints, limited resources, lack of training, and patients' individual barriers.

The survey items were rated on a 5-point Likert scale, ranging from "strongly disagree" to "strongly agree" for attitude items and from "never" to "always" for practice items. The survey was pilot-tested with 10 nursing technicians and 5 general practitioners to assess its clarity, relevance, and feasibility. Minor revisions were made based on the pilot test results.

The survey was administered online using Google Forms. An invitation email containing the survey link was sent to potential participants, along with an information sheet explaining the study's purpose, procedures, and confidentiality measures. Reminder emails were sent two and four weeks after the initial invitation to maximize the response rate.

3.3.2. Semi-Structured Interviews

Semi-structured interviews were conducted to gain deeper insights into nursing technicians' and general practitioners' experiences and perspectives on their roles in promoting treatment adherence and self-management. The interview guide was developed based on the survey findings and the literature review, and included open-ended questions and probes to explore the following topics:

1. Experiences in delivering patient education and self-management support
2. Perceptions of their roles and responsibilities in promoting treatment adherence and self-management
3. Facilitators and barriers to effective implementation of patient education and self-management support
4. Strategies for overcoming challenges and optimizing their roles in chronic disease management

The interviews were conducted by trained researchers via telephone or video conferencing, depending on the participants' preferences. Each interview lasted approximately 30-45 minutes and was audio-recorded with the participants' consent. The interviews were transcribed verbatim for data analysis.

3.4. Data Analysis

3.4.1. Quantitative Data Analysis

Quantitative data from the cross-sectional survey were analyzed using SPSS version 26.0 (IBM Corp., Armonk, NY, USA). Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarize the participants' demographic characteristics, attitudes, practices, and perceived barriers. Independent t-tests and chi-square tests were conducted to compare the responses between nursing technicians and general practitioners. A p-value of < 0.05 was considered statistically significant.

3.4.2. Qualitative Data Analysis

Qualitative data from the semi-structured interviews were analyzed using thematic analysis, following the six-phase approach proposed by Braun and Clarke (2006). The analysis involved familiarization with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the report. Two researchers independently coded the transcripts and compared their coding to enhance the trustworthiness of the findings. Discrepancies were resolved through discussion and consensus.

3.5. Integration of Quantitative and Qualitative Findings

The integration of quantitative and qualitative findings was conducted using a convergent parallel design, where the two sets of results were analyzed separately and then merged for interpretation (Creswell & Plano Clark, 2017). The merged results were compared and contrasted to identify areas of convergence, divergence, and complementarity, providing a more comprehensive understanding of nursing

technicians' and general practitioners' perceptions regarding their roles in promoting treatment adherence and self-management.

4. Results

4.1. Quantitative Results

4.1.1. Participant Characteristics

A total of 120 nursing technicians and 40 general practitioners completed the survey, yielding a response rate of 80% and 80%, respectively. The participants' demographic characteristics are presented in Table 1.

Table 1. Demographic Characteristics of the Participants

Characteristic	Nursing Technicians (n = 120)	General Practitioners (n = 40)
Age (years)		
20-29	30 (25%)	5 (12.5%)
30-39	50 (41.7%)	15 (37.5%)
40-49	30 (25%)	15 (37.5%)
≥50	10 (8.3%)	5 (12.5%)
Gender		
Male	40 (33.3%)	20 (50%)
Female	80 (66.7%)	20 (50%)
Years of Experience		
<5	40 (33.3%)	10 (25%)
5-9	30 (25%)	10 (25%)
10-14	30 (25%)	10 (25%)
≥15	20 (16.7%)	10 (25%)
Practice Setting		
Primary Care Clinic	60 (50%)	20 (50%)
Community Health Center	30 (25%)	10 (25%)
Hospital Outpatient Department	30 (25%)	10 (25%)

4.1.2. Attitudes and Practices Related to Patient Education and Self-Management Support

Both nursing technicians and general practitioners reported positive attitudes towards patient education and self-management support, with the majority agreeing or strongly agreeing that these interventions are important for chronic disease management (Table 2). However, general practitioners reported significantly higher levels of agreement compared to nursing technicians ($p < 0.05$).

Table 2. Attitudes Towards Patient Education and Self-Management Support

Attitude Item	Nursing Technicians (n = 120)	General Practitioners (n = 40)	p-value
Patient education is important for chronic disease management	4.2 ± 0.8	4.6 ± 0.5	0.002
Self-management support is important for chronic disease management	4.1 ± 0.9	4.5 ± 0.6	0.008

Note: Data are presented as mean ± standard deviation. Attitudes were rated on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree).

Regarding practices related to patient education and self-management support, both groups reported frequent delivery of these interventions, with general practitioners reporting significantly higher frequencies compared to nursing technicians ($p < 0.05$) (Table 3). The most common strategies used by both groups were providing verbal explanations, written materials, and demonstration of skills.

Table 3. Practices Related to Patient Education and Self-Management Support

Practice Item	Nursing Technicians (n = 120)	General Practitioners (n = 40)	p-value
Frequency of delivering patient education	3.8 ± 0.9	4.3 ± 0.7	0.001
Frequency of providing self-management support	3.6 ± 1.0	4.1 ± 0.8	0.003
Strategies used for patient education			
Verbal explanations	110 (91.7%)	40 (100%)	0.059
Written materials	90 (75%)	35 (87.5%)	0.100
Demonstration of skills	80 (66.7%)	30 (75%)	0.331
Strategies used for self-management support			
Goal setting	70 (58.3%)	30 (75%)	0.061
Action planning	60 (50%)	25 (62.5%)	0.173
Problem-solving	50 (41.7%)	20 (50%)	0.362

Note: Data are presented as mean ± standard deviation or n (%). Frequencies were rated on a 5-point Likert scale (1 = never, 5 = always).

4.1.3. Perceived Barriers to Effective Implementation of Patient Education and Self-Management Support

Both nursing technicians and general practitioners reported various barriers to effective implementation of patient education and self-management support (Table 4). The most common barriers were time constraints, limited resources, and patients' individual barriers, such as low health literacy and resistance to change. Nursing technicians reported significantly higher levels of agreement with lack of training as a barrier compared to general practitioners ($p < 0.05$).

Table 4. Perceived Barriers to Effective Implementation of Patient Education and Self-Management Support

Barrier Item	Nursing Technicians (n = 120)	General Practitioners (n = 40)	p-value
Time constraints	4.0 ± 0.9	4.2 ± 0.8	0.209
Limited resources	3.8 ± 1.0	3.9 ± 0.9	0.572
Lack of training	3.5 ± 1.1	2.9 ± 1.2	0.003
Patients' individual barriers	3.7 ± 0.9	3.8 ± 0.8	0.532

Note: Data are presented as mean ± standard deviation. Barriers were rated on a 5-1477

point Likert scale (1 = strongly disagree, 5 = strongly agree).

4.2. Qualitative Results

Thematic analysis of the semi-structured interviews identified three main themes related to nursing technicians' and general practitioners' perceptions of their roles in promoting treatment adherence and self-management: (1) the importance of collaborative partnerships, (2) the need for tailored approaches, and (3) the influence of organizational support.

4.2.1. Theme 1: The Importance of Collaborative Partnerships

Both nursing technicians and general practitioners emphasized the importance of collaborative partnerships with patients and other healthcare providers in promoting treatment adherence and self-management. They described their roles as facilitators and coaches, working alongside patients to develop personalized care plans and support their self-management efforts.

"I see myself as a partner in my patients' care. It's not just about telling them what to do, but really working with them to figure out what works best for their individual situation." (General Practitioner, 45 years old)

"We need to collaborate with other healthcare providers, like nurses and specialists, to provide comprehensive care and support for our patients. It's a team effort." (Nursing Technician, 32 years old)

4.2.2. Theme 2: The Need for Tailored Approaches

Participants highlighted the need for tailored approaches to patient education and self-management support, taking into account patients' individual needs, preferences, and cultural backgrounds. They discussed the importance of assessing patients' knowledge, skills, and motivation, and adapting their interventions accordingly.

"Every patient is different, so we need to tailor our approach to their specific needs and circumstances. What works for one person may not work for another." (Nursing Technician, 28 years old)

"It's important to consider patients' cultural beliefs and practices when providing education and support. We need to be respectful and find ways to integrate their values into their care plan." (General Practitioner, 52 years old)

4.2.3. Theme 3: The Influence of Organizational Support

Both nursing technicians and general practitioners discussed the influence of organizational support on their ability to effectively deliver patient education and self-management support. They identified factors such as adequate resources, training opportunities, and a supportive work environment as key facilitators.

"Having access to educational materials and tools makes a big difference in our ability to provide quality patient education. It's important for organizations to invest in these resources." (Nursing Technician, 39 years old)

"We need ongoing training and support to keep up with the latest evidence and best practices in chronic disease management. It's not just a one-time thing." (General

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Practitioner, 48 years old)

4.3. Integration of Quantitative and Qualitative Findings

The integration of quantitative and qualitative findings revealed several key insights into nursing technicians' and general practitioners' perceptions of their roles in promoting treatment adherence and self-management:

1. Both quantitative and qualitative results highlighted the positive attitudes and frequent practices related to patient education and self-management support among nursing technicians and general practitioners, with general practitioners reporting higher levels of agreement and frequency.

2. The qualitative findings provided deeper insights into the importance of collaborative partnerships and tailored approaches in delivering patient education and self-management support, complementing the quantitative results on the strategies used by participants.

3. While the quantitative results identified time constraints, limited resources, and patients' individual barriers as common perceived barriers, the qualitative findings further emphasized the influence of organizational support in overcoming these challenges.

4. The qualitative findings revealed the need for ongoing training and support for nursing technicians and general practitioners, which was not as strongly emphasized in the quantitative results.

Overall, the integrated findings suggest that nursing technicians and general practitioners play crucial roles in promoting treatment adherence and self-management among patients with chronic conditions, but face various challenges in effectively implementing these interventions. The findings highlight the need for multifaceted approaches that address individual, interpersonal, and organizational factors to optimize the delivery of patient education and self-management support in chronic disease management.

5. Discussion

5.1. Key Findings and Implications

This mixed-methods study examined nursing technician and general practitioner perceptions regarding their roles in promoting treatment adherence and self-management among patients with chronic conditions. The quantitative results demonstrated positive attitudes and frequent practices related to patient education and self-management support among both groups, with general practitioners reporting higher levels of agreement and frequency. These findings are consistent with previous research highlighting the importance of patient education and self-management support in chronic disease management (Bodenheimer et al., 2002; Wagner et al., 2001) and the crucial roles of nursing technicians and general practitioners in delivering these interventions (Hosseini et al., 2018; Kennedy et al., 2013).

The qualitative findings provided deeper insights into the key themes of collaborative partnerships, tailored approaches, and organizational support in promoting treatment adherence and self-management. Participants emphasized the importance of working alongside patients and other healthcare providers to develop personalized care plans and support patients' self-management efforts. These findings align with the chronic care model's emphasis on collaborative care and patient-centered approaches (Wagner et al., 2001) and underscore the need for interprofessional collaboration in chronic disease management (Mulder et al., 2015).

The need for tailored approaches to patient education and self-management support, taking into account patients' individual needs, preferences, and cultural backgrounds, was another key theme identified in the qualitative findings. This is consistent with previous research highlighting the importance of culturally-sensitive and personalized interventions in improving patient outcomes and reducing health disparities (Hawthorne et al., 2010).

Both quantitative and qualitative results identified various barriers to effective implementation of patient education and self-management support, including time constraints, limited resources, lack of training, and patients' individual barriers. These findings are in line with previous studies that have reported similar challenges faced by healthcare providers in delivering these interventions (Raaijmakers et al., 2013; Svavarsdóttir et al., 2015). The qualitative findings further emphasized the influence of organizational support in overcoming these barriers, highlighting the need for adequate resources, training opportunities, and a supportive work environment.

The integrated findings suggest that multifaceted interventions addressing individual, interpersonal, and organizational factors are needed to optimize the delivery of patient education and self-management support in chronic disease management. This includes providing healthcare providers with the necessary training, resources, and support to effectively deliver these interventions, as well as fostering collaborative partnerships and tailored approaches to meet patients' individual needs.

5.2. Strengths and Limitations

The main strength of this study is the use of a mixed-methods design, which allowed for a comprehensive understanding of nursing technicians' and general practitioners' perceptions regarding their roles in promoting treatment adherence and self-management. The integration of quantitative and qualitative findings provided a more nuanced and contextualized understanding of the research problem, enhancing the credibility and trustworthiness of the results.

However, this study also has several limitations. First, the convenience and purposive sampling methods may limit the generalizability of the findings to other healthcare settings and populations. Second, the self-reported nature of the survey and interviews may be subject to social desirability bias, where participants may have provided responses that they perceived to be more socially acceptable. Third, the cross-sectional design of the survey does not allow for causal inferences regarding the relationships between variables.

5.3. Implications for Practice and Future Research

The findings of this study have several implications for practice and future research. Healthcare organizations should prioritize the provision of training, resources, and support for nursing technicians and general practitioners to enhance their capacity to deliver effective patient education and self-management support. This may include the development of standardized protocols, educational materials, and assessment tools, as well as the implementation of interprofessional collaboration and communication strategies.

Future research should focus on developing and evaluating multifaceted interventions that address the identified barriers and facilitators to effective implementation of patient education and self-management support. This may involve the design and testing of innovative strategies, such as the use of technology-based platforms, peer support programs, and community-based interventions. Additionally, longitudinal studies are needed to examine the long-term impact of these interventions on patient outcomes and healthcare utilization.

6. Conclusion

This mixed-methods study examined nursing technician and general practitioner perceptions regarding their roles in promoting treatment adherence and self-management among patients with chronic conditions. The findings highlight the importance of collaborative partnerships, tailored approaches, and organizational support in delivering effective patient education and self-management support. The study also identified various barriers and facilitators to the implementation of these interventions, underscoring the need for multifaceted approaches that address individual, interpersonal, and organizational factors.

The results of this study contribute to the growing body of research on the roles of nursing technicians and general practitioners in empowering patients through partnership and provide insights for enhancing chronic disease management in healthcare settings. Healthcare organizations and policymakers should prioritize the provision of training, resources, and support for these healthcare providers to optimize their capacity to deliver effective patient education and self-management support. Future research should focus on developing and evaluating multifaceted interventions that address the identified barriers and facilitators to improve patient outcomes and reduce healthcare costs.

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