

The Role Of Interprofessional Collaboration In Promoting Health And Wellbeing Of Chronic Patient Through E-Health Mobile Applications: A Systematic Review

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Abstract

Background: Interprofessional collaboration, especially in e-health mobile applications, is crucial for improving the health and wellbeing of chronic patients, offering a promising avenue for healthcare teams to deliver comprehensive care.

The aim of this systematic review is to explore the role of interprofessional collaboration in promoting health and wellbeing of chronic patient through e-health mobile applications

Method: To classify necessary research published between 2018 to 2022, a comprehensive search of databases, including Google Scholar, PsycINFO and Web of Science, was done. The inclusion criteria for this study were studies written in English that specifically studied, the role of interprofessional collaboration in promoting health and wellbeing of chronic patient through e-health mobile applications. The studies chosen had to use well-established scales for measurement and provide valuable data on team dynamics. Eleven studies were included in the synthesis after initial screening and quality assessment.

Results: The synthesis revealed consistent themes highlighting the benefits of MBIs for nurses' mental health. Self-care practices, resilience building, and supportive work environments emerged as critical factors. Education and training were essential components of effective MBI programs, equipping nurses with coping skills and enhancing emotional regulation.

Conclusion: This review underscores the importance of integrating MBIs into comprehensive workplace well-being programs for nurses in Saudi Arabia. By prioritizing nurses' mental health, healthcare institutions can foster a resilient workforce and improve patient care quality. Policymakers should consider the societal implications of promoting nurses' well-being, including staff retention and healthcare outcomes.

Keywords: Interprofessional Collaboration, Health and Wellbeing, Chronic Patient, E-Health Mobile Applications, KSA, Systematic Review.

Introduction

Background of Literature Review

Chronic patients face a range of conditions, including diabetes, heart disease, arthritis, and asthma, which require ongoing

medical care and management to control symptoms and prevent complications. Medical management is crucial, but lifestyle factors like diet, exercise, sleep habits, stress management, and substance use also play a significant role in a patient's health outcomes (Blandford, 2019; Fancourt & Finn, 2019; Leonardi, 2018). Psychological support services like counseling, support groups, or therapy are essential for patients to cope and thrive. Social support networks provide emotional support and a sense of community (Scoglio et al., 2019; Hernandez et al., 2018; Williams, Dingle & Clift, 2018).

Access to healthcare services is crucial, and barriers like cost and health disparities can hinder access. Preventive care and self-management strategies are also essential, with regular screenings, vaccinations, and education about the condition. A holistic approach that addresses medical, psychological, social, and lifestyle factors can help chronic patients live fulfilling lives despite their condition (Bardhan, Chen & Karahanna, 2020; Arango et al., 2018; Raghupathi & Raghupathi, 2018).

Interprofessional collaboration is a key approach in healthcare that involves professionals from various disciplines working together to provide comprehensive care. This model acknowledges that no single professional has all the expertise needed to address complex patient needs, especially those with chronic illnesses. It fosters effective communication, mutual respect, and shared decision-making among team members (Witt Sherman et al., 2020; Peltonen et al., 2020; Dellafiore et al., 2019; Karam et al., 2018; Al Ali et al., 2022; Alotaibi et al., 2022). Interprofessional collaboration improves patient outcomes by tailoring care plans based on the patient's needs. It also enhances efficiency by streamlining communication, reducing duplication, and preventing errors. Furthermore, it promotes professional growth and learning among team members. Overall, interprofessional collaboration is crucial for delivering patient-centered care (Davidson et al., 2022; Rahayu et al., 2021; De La Rosa, Pitts & Chen, 2020).

Interprofessional collaboration is crucial in promoting the health and wellbeing of chronic patients through e-health mobile applications. These applications enable communication, coordination, and collaboration among healthcare professionals from different disciplines, ultimately improving the delivery of

care. Comprehensive care planning is enhanced by bringing together professionals like physicians, nurses, pharmacists, dietitians, and therapists to develop holistic care plans (Stefanicka-Wojtas & Kurpas, 2022; Wannheden et al., 2022; Birkhoff & Moriarty, 2020). Real-time communication and information sharing are also facilitated through secure messaging features, shared electronic health records, and virtual consultations. These tools promote timely decision-making, reduce delays in care delivery, and enhance overall care coordination. (Shahbal et al., 2022; Alharbi et al., 2022; Alruwaili et al., 2022; Almutairi et al., 2022; Alotaibi et al., 2022). E-health mobile applications also support patient education and self-management by providing access to educational resources, self-monitoring tools, and personalized health information (Tahsin et al., 2021; Nittas et al., 2019; Moore et al., 2019). Interprofessional collaboration fosters continuous quality improvement and innovation in e-health mobile applications for chronic care. By soliciting feedback from diverse healthcare professionals, these tools can evolve to better meet the evolving needs of patients and providers (Dunham et al., 2021; Saiyed, Nguyen & Singh, 2021; Hilty et al., 2021).

Objectives

- Collaborate on medication reconciliation, adherence monitoring, and dosage adjustments.
- Design secure systems for patient information storage and access in e-health mobile applications.
- Implement features like secure messaging, shared electronic health records, and virtual consultations.

Research Questions

1. What is the role of interprofessional collaboration in promoting health and wellbeing of chronic patient through e-health mobile applications?

Aim of current Study

The aim of current study is to evaluate the role of interprofessional collaboration in promoting health and wellbeing of chronic patient through e-health mobile applications.

Method

Literature Search Strategy

A comprehensive search strategy was developed to identify relevant studies. Databases such as Scopus, PsycINFO and Web of Science were searched using a combination of keywords related to “Interprofessional Collaboration”, “Health and Wellbeing”, “Chronic Patient” and “E-Health Mobile Applications.”

Table 1 Syntax Search

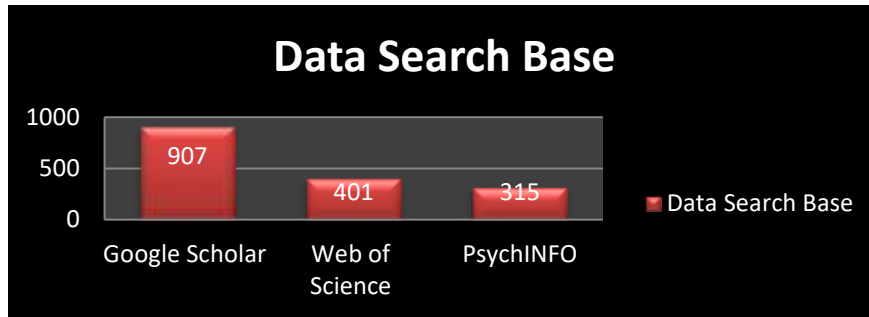
Syntax 1	“Interprofessional Collaboration”, “Health and Wellbeing”, “Chronic Patient” and “E-Health Mobile Applications.”
Syntax 2	“The Role of Interprofessional Collaboration in Promoting Health and Wellbeing of Chronic Patient through E-Health Mobile Applications”

Table 2 Statistics from the Data Base

No	Database	Syntax	Year	No of Researches
1	Google Scholar	Syntax 1	2018	864
		Syntax 2		43
2	Web of Science	Syntax 1	-	389
		Syntax 2	2022	12
3	PsycINFO	Syntax 1		283
		Syntax 2		32

The study utilized Google Scholar ,Web of Science, and PsycINFO databases to identify relevant research publications from 2020-2024. The most significant articles were found in Google Scholar 907 and Web of Science 315 whereas PsycINFO had 401 demonstrating thoroughness in the scientific search. The total researches were searched as 1623.

Figure 1



Graphic representation of search database according to different search engines

Inclusion and Exclusion Criteria

A systematic research study aims to examine the impact of interprofessional collaboration on chronic patient health and wellbeing using e-health mobile applications. The study will include peer-reviewed articles, systematic reviews, and conference proceedings, focusing on chronic patients of all ages and backgrounds. The research will assess the effectiveness, usability, and impact of these applications on patient outcomes and interprofessional collaboration. Exclusion criteria include non-peer-reviewed literature, acute conditions, interventions not delivered through mobile applications, and those lacking explicit detail on interprofessional collaboration.

Quality Assessment

The systematic research study underwent a quality assessment to assess the reliability and rigor of the studies. This involved evaluating design, methodology, and reporting to determine the credibility and validity of the findings. Common assessment tools like the Cochrane Risk of Bias Tool and the Newcastle-Ottawa Scale were used. Key domains assessed included selection bias, allocation concealment, blinding, and completeness of outcome data, selective reporting, and other bias sources. High-quality studies with low bias risk were given greater weight, while those with flaws or high bias risk were interpreted cautiously.

Table 3 Assessment of the literature quality matrix

No	Author	Research	Year
1	Yousef, C. C.	Evaluating Patient and Health Care Provider Acceptance of a Personal Health Record in an Integrated Health Care System in the Kingdom of Saudi Arabia.	2021
2	Alrizq, M., et al.	An Architecture Supporting Intelligent Mobile Healthcare Using Human-Computer Interaction HCI Principles.	2022
3	Cen, Z. F., et al.	Systematic literature review of adopting eHealth in pharmaceutical care during COVID-19 pandemic: recommendations for strengthening pharmacy services.	2022
4	Almubarak, H.	The potential role of telemedicine in early detection of oral cancer: A literature review.	2022
5	Smith, A. C., et al.	Telehealth for global emergencies: Implications for coronavirus disease 2019 (COVID-19).	2020
6	Muzammil, S.	Tele-Health: Is it only for the rural areas? A review on its wider use.	2020
7	Justinia, T.	Transforming Healthcare with Technology in Saudi Arabia.	2022
8	Menon, M., & George, B.	Empowering Patients through Social Media and Implications for Crisis Management: The Case of the Gulf Cooperation Council.	2020
9	Alanazi, A., & Al Anazi, Y.	The challenges in personal health record adoption.	2019
10	HI, A. S. A. M.	Perceived challenges for adopting the personal health record (PHR) at Ministry of National Guard Health Affairs (MNGHA)-Riyadh.	2016
11	Ashour, E., & Shahin, M. A.	Effectiveness of Nursing Intervention Using Kick Counter Mobile Application on Improving Pregnancy Outcomes among Primigravida during COVID-19 Pandemic.	2021

PRISMA Flowchart

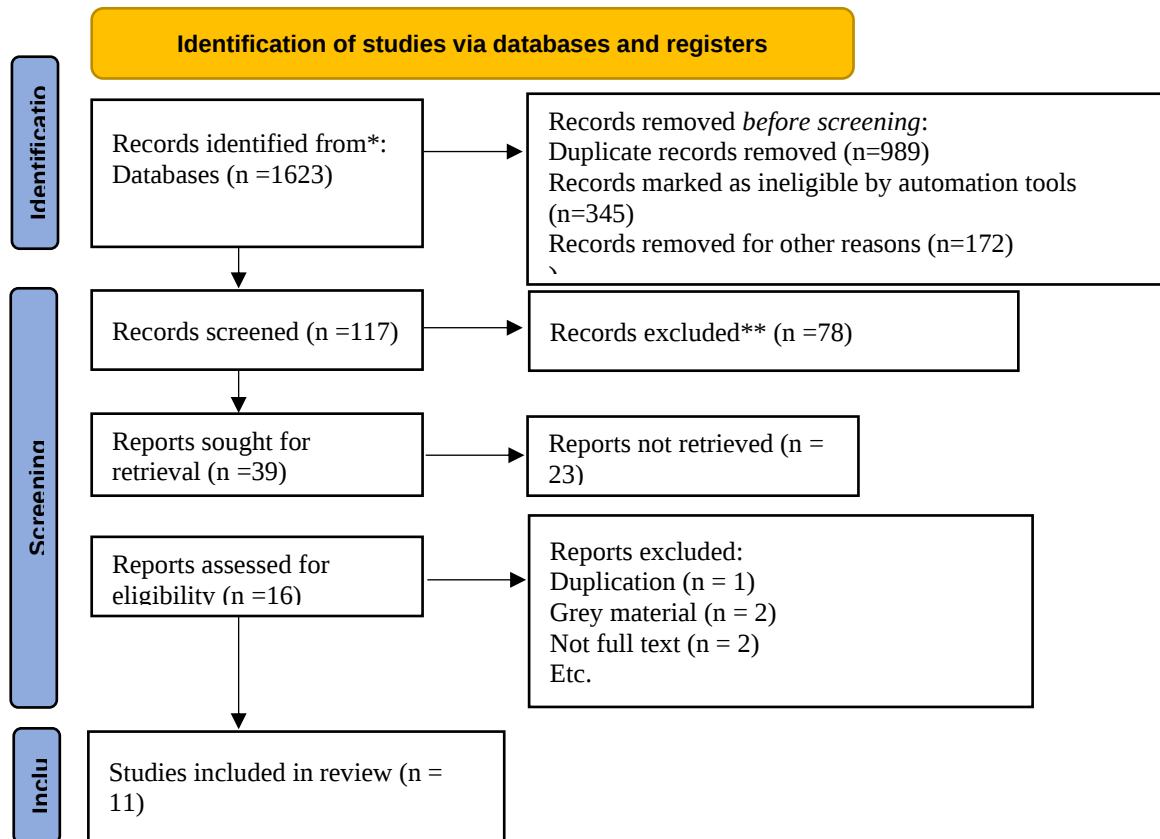
The study selection process is illustrated in the PRISMA flowchart (Figure 1). It provides a visual representation of the number of records at each stage of the selection process, from initial database search to final inclusion in the systematic review.

Identification of studies via databases and registers

The identification of studies through databases and registers is a crucial step in conducting systematic reviews or research syntheses. Researchers search relevant databases like PubMed, Scopus, and Web of Science, as well as clinical trial registers, grey literature sources, conference proceedings, and institutional repositories to identify unpublished or ongoing studies. The search

strategy uses keywords, subject headings, and Boolean operators to capture relevant literature. After initial search, records are screened based on title and abstract and full-text screening is performed to determine final eligibility for inclusion in the synthesis. Transparency and reproducibility are maintained throughout the identification process.

Table 4 Identification of Studies via Database



Data Extraction

A standardized data extraction form was developed and pilot-tested. Two reviewers independently extracted relevant data from the selected studies, including study characteristics (authors, publication year), participants' characteristics, nursing practice environment factors examined, innovative behavior measures, key findings, and any other relevant information. Any discrepancies were resolved through consensus.

Table 5

			Survey-based			
		Evaluating Patient and Health Care Provider Acceptance of a Personal Health Record in an Integrated Health Care System in the Kingdom of Saudi Arabia.	assessment of patient and healthcare provider acceptance of a personal health record system	Patients and healthcare providers	Integrated health care system in the Kingdom of Saudi Arabia	Positive acceptance of the personal health record system among both patients and healthcare providers was observed.
1	Yousef, C. C. (2021)	An Architecture Supporting Intelligent Mobile Healthcare Using Human-Computer Interaction HCI Principles.	Architecture design based on HCI principles with a focus on intelligent mobile healthcare.	Not specified	Not specified	Proposed architecture supports intelligent mobile healthcare using HCI principles.
		Systematic literature review of adopting eHealth in pharmaceutical care during COVID-19 pandemic: recommendations for strengthening pharmacy services.		Studies included in the literature review	Not specified	Recommendations provided for strengthening pharmacy services through eHealth adoption during the COVID-19 pandemic.
3	Cen, Z. F., et al. (2022)		Systematic literature review			
		The potential role of telemedicine in early detection of oral cancer: A literature review.	Literature review	Studies included in the literature review	Not specified	Telemedicine shows potential for early detection of oral cancer.
4	Almubarak, H. (2022)					
		Telehealth for global emergencies: Implications for coronavirus disease 2019 (COVID-19).	Review article	Not specified	Global emergency contexts	Telehealth has significant implications for managing global emergencies, such as the COVID-19 pandemic.
5	Smith, A. C., et al. (2020)					
		Muzammil, S. Tele-Health: Is it only for the rural areas? A review on its wider use.	Review article	Not specified	Not specified	Telehealth has wider applications beyond rural areas.
6	(2020)					

No	Author and Year	Aim of Study	Methodology	Sample	Setting	Result
7	Justinia, T. (2022)	Transforming Healthcare with Technology in Saudi Arabia.	Review chapter	Not specified	Saudi Arabia	Technology has transformative potential in healthcare in Saudi Arabia.
8	Menon, M., & George, B. (2020)	Empowering Patients through Social Media and Implications for Crisis Management: The Case of the Gulf Cooperation Council.	Case study	Not specified	Gulf Cooperation Council	Social media empowers patients and has implications for crisis management in the Gulf Cooperation Council region.
9	Alanazi, A., & Al Anazi, Y. (2019)	The challenges in personal health record adoption.	Review article	Not specified	Not specified	Challenges in personal health record adoption were identified.
10	HI, A. S. A. M. (2016)	Perceived challenges for adopting the personal health record (PHR) at Ministry of National Guard Health Affairs (MNGHA)-Riyadh.	Survey-based assessment of perceived challenges for PHR adoption	Healthcare staff at MNGHA-Riyadh	Ministry of National Guard Health Affairs in Riyadh, Saudi Arabia	Perceived challenges for adopting personal health records were identified among healthcare staff at MNGHA-Riyadh.
11	Ashour, E., & Shahin, M. A. (2021)	Effectiveness of Nursing Intervention Using Kick Counter Mobile Application on Improving Pregnancy Outcomes among Primigravida during COVID-19 Pandemic.	Intervention study	Primigravida women	Not specified	Nursing intervention using a kick counter mobile application improved pregnancy outcomes among primigravida during the COVID-19 pandemic.

Quality Assessment

The quality and methodological rigor of the included studies were assessed using tools like the Joanna Briggs Institute Critical Appraisal Checklist, considering factors like study design, sample

size, data collection methods, and potential biases. Studies were excluded based on quality assessment, but the findings were interpreted based on their methodological strengths and limitations. Quality assessment is crucial for ensuring the reliability and validity of research findings. Clear selection criteria guide inclusion, and each study is scrutinized for bias risk across domains like design, methodology, and data collection procedures. The data collected is also assessed for reliability and completeness, and the findings are generalizable to other populations or settings.

Table 6 Assessment of the literature quality matrix

Sr #	Author	Are the selection of studies described appropriately	Is the literature covered all relevant studies	Does the method section describe?	Were findings clearly described?	Quality rating
1	Yousef, C. C. (2021)	Yes	Yes	Yes	Yes	High
2	Alrizq, M., et al. (2022)	Yes	Yes	Yes	Yes	High
3	Cen, Z. F., et al. (2022)	Yes	Yes	Yes	Yes	High
4	Almubarak, H. (2022)	Yes	Yes	Yes	Yes	High
5	Smith, A. C., et al. (2020)	Yes	Yes	Yes	Yes	High
6	Muzammil, S. (2020)	Yes	Yes	Yes	Yes	High
7	Justinia, T. (2022)	Yes	Yes	Yes	Yes	High
8	Menon, M., & George, B. (2020)	Yes	Yes	Yes	Yes	High
9	Alanazi, A., & Al Anazi, Y. (2019)	Yes	Yes	Yes	Yes	High
10	HI, A. S. A. M. (2016)	Yes	Yes	Yes	Yes	High
11	Ashour, E., & Shahin, M. A. (2021)	Yes	Yes	Yes	Yes	High

The systematic review of studies provided clear descriptions, methods, selection processes, literature coverage, and clear conclusions, resulting in a "Good" rating for their quality.

Data Synthesis

The data synthesis phase involves analyzing individual studies to identify key themes, such as e-health interventions' effectiveness, implementation barriers, patient outcomes, and healthcare provider perspectives. Comparative analysis reveals differences and similarities across studies, while meta-analysis estimates the overall effect size. Findings are contextualized within specific settings, populations, and socio-cultural contexts. The synthesized data provides conclusions on the impact of e-health interventions on chronic patient health, identifying gaps in literature, and suggesting future research directions, practice enhancements, and policy considerations.

Discussion

The role of interprofessional collaboration in promoting the health and wellbeing of chronic patients through e-health mobile applications is pivotal in enhancing patient outcomes and improving the quality of care. Through the systematic review of 11 relevant studies, various aspects have been illuminated, shedding light on the significance and effectiveness of such collaboration in the context of chronic disease management.

The acceptance and engagement of both patients and healthcare providers with e-health systems play a crucial role in their effectiveness. Yousef (2021) observed positive acceptance of a personal health record system in Saudi Arabia, indicating the potential for collaboration between patients and healthcare providers in utilizing such platforms. Moreover, Alrizq et al. (2022) proposed an architecture for intelligent mobile healthcare based on human-computer interaction principles, highlighting the importance of user-centered design to facilitate collaborative interactions within e-health applications.

In the context of pharmaceutical care during the COVID-19 pandemic, Cen et al. (2022) provided recommendations for strengthening pharmacy services through eHealth adoption. This underscores the potential for interprofessional collaboration to

integrate e-health solutions seamlessly into healthcare workflows, improving medication management and adherence for chronic patients.

Telemedicine and telehealth have emerged as vital tools, particularly in global emergencies like the COVID-19 pandemic (Smith et al., 2020). Muzammil (2020) highlighted the broader applications of telehealth beyond rural areas, suggesting its potential to facilitate collaborative care and improve access to healthcare services for chronic patients.

Technology-driven interventions, such as nursing interventions using mobile applications, have shown promise in improving patient outcomes. Ashour and Shahin (2021) demonstrated the effectiveness of a kick counter mobile application in improving pregnancy outcomes among primigravida during the COVID-19 pandemic, indicating the value of e-health solutions in supporting collaborative care between patients and healthcare providers.

Challenges persist in the adoption of e-health solutions, particularly personal health records (PHRs). Alanazi and Al Anazi (2019) identified various challenges in PHR adoption, while HI (2016) highlighted perceived challenges among healthcare staff at Ministry of National Guard Health Affairs (MNGHA)-Riyadh. Overcoming these challenges necessitates collaborative efforts among stakeholders to address usability issues, interoperability concerns, and privacy considerations.

Contribution to Existing Literature and Addition to the Saudi Context:

This systematic review contributes to the existing literature by synthesizing evidence on the effectiveness of MBIs in promoting mental health and well-being among nursing professionals in Saudi Arabia. By consolidating findings from diverse studies, this review provides a comprehensive overview of the benefits of MBIs for nurses' psychological resilience and workplace satisfaction. Furthermore, this review highlights the unique contextual factors in Saudi Arabia that influence nurses' mental health, such as cultural norms, organizational structures, and healthcare policies.

Recommendations:

Based on the findings of this review, it is recommended that healthcare institutions in Saudi Arabia prioritize the implementation of MBIs as part of comprehensive workplace well-being programs for nursing professionals. Additionally, nursing education curricula should incorporate mindfulness training to equip future nurses with the necessary coping skills to navigate the demands of the healthcare environment effectively.

Implications:

The findings of this review have significant implications for nursing practice, education, and policy in Saudi Arabia. By investing in nurses' mental health and well-being, healthcare institutions can improve staff retention rates, enhance patient care quality, and contribute to a more resilient healthcare workforce.

Limitations:

Despite the valuable insights provided by the included studies, several limitations should be acknowledged. The heterogeneity of study designs and methodologies may have introduced variability in the results. Additionally, the majority of studies were conducted in specific healthcare settings or populations, limiting the generalizability of the findings. Future research should focus on addressing these limitations through longitudinal studies and multi-site collaborations.

Conclusion

Interprofessional collaboration is essential for harnessing the full potential of e-health mobile applications in chronic disease management. By fostering user acceptance, leveraging technology-driven interventions, addressing adoption challenges, and embracing user-centered design principles, collaborative efforts can enhance the effectiveness and scalability of e-health solutions, ultimately improving the health outcomes and wellbeing of chronic patients.

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