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## The Impact of Patient Engagement on Healthcare: A Systematic Review of Unveiling the Benefits of Patient Engagement in Healthcare

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### Abstract

**Background:** Recently, a body of evidence has emerged that patients who participate in the healthcare process have better health outcomes and lower treatment costs. Therefore, healthcare institutions have tended to use strategies for better patient engagement in the healthcare process, by educating them about their health conditions and fully involving the patient in making decisions about their healthcare. **Objectives:** This paper presents a systematic study of the recent literature on determining the outcomes and benefits of patient engagement in the healthcare process, through which we provide a comprehensive review, analysis, and synthesis of research published in the past five years. **Methodology:** We collected relevant literature published between 2018 and 2023 and reviewed the approved issues, research problems, manuscript scopes, research methodologies, and main findings. 28 studies yielded our final extracted cohort. **Conclusions:** Using the objective analysis of the extracted studies, we present a research typology that summarizes the major outcomes and the benefits of patient engagement in the healthcare process of relevant recent research in this field.

**Keywords:** Patient, Engagement, Patient Engagement, Healthcare, Benefit, Impact.

## 1 | Introduction

Patients are the only constant element in their healthcare journey and provide important contextual information for designing good and safe healthcare services [1]. In recent years, patient engagement has emerged as a critical component of the healthcare landscape. Recognized as a dynamic and collaborative



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approach to healthcare delivery, patient engagement focuses on actively involving patients in their own care and decision-making processes. By empowering individuals to become active participants in their health journeys, patient engagement holds the promise of improving healthcare outcomes, enhancing patient satisfaction, and fostering more effective communication between patients and healthcare providers. Patient engagement in medicines research and development benefits patients, researchers, industry, regulatory bodies, payers, and policymakers [2]. Engaging patients in healthcare has become a key component of healthcare in many countries around the world [3].

The traditional model of healthcare, characterized by a passive patient role and a paternalistic provider approach, is evolving. Patients are no longer merely recipients of healthcare interventions but are increasingly seen as informed partners in the decision-making process. The paradigm shift toward patient engagement is driven by several factors, including advances in technology, evolving patient expectations, and a growing body of research that supports its positive impact on healthcare.

This research paper aims to explore the role of patient engagement in the healthcare process and its potential benefits for both patients and healthcare providers. By delving into the various components of patient engagement, examining the impact of technology on patient engagement initiatives, and we can gain a comprehensive understanding of the significance of patient engagement in modern healthcare.

Furthermore, this paper will analyze researches that have effectively incorporated patient engagement strategies, providing valuable insights into best practices for healthcare organizations and professionals.

By shedding light on the multifaceted aspects of patient engagement, this paper aims to contribute to the existing body of knowledge and provide actionable recommendations for healthcare stakeholders. Through a comprehensive examination of the topic, we can unlock the potential of patient engagement to transform the healthcare landscape and improve patient outcomes.

In this study we aim to answer the following research questions:

RQ1: What are the specific benefits of patient engagement on healthcare outcomes?

RQ2: How can technology-enabled patient engagement tools and interventions enhance the healthcare process?

The results of this systematic multi-dimensional review will enable researchers, academics, and technologists in the field of healthcare to understand research and guide their path in future research in this field, we suggest a classification in which we present the benefits of patient engagement in the healthcare process.

## 2 | Related Work

A systematic review of the existing literature on patient engagement provides valuable insights into the current state of knowledge, research gaps, and key findings in this field. The following studies highlight significant contributions to our understanding of patient engagement and its impact on healthcare outcomes.

The authors [36] conducted a systematic review examining the effects of patient engagement interventions on healthcare outcomes. Their analysis included randomized controlled trials and observational studies across various healthcare settings. The review found that patient engagement interventions, such as shared decision-making and self-management programs, were associated with improved treatment adherence, better health outcomes, and increased patient satisfaction.

In a systematic review by [37], the authors focused on patient engagement in the context of shared decision-making. The review encompassed studies across different medical specialties and explored the impact of shared decision-making interventions on patient involvement in treatment decisions and subsequent healthcare outcomes. The findings indicated that shared decision-making interventions increased patient knowledge, improved decision quality, and led to more patient-centered care.

A systematic review by [38] examined the impact of patient engagement on the self-management of chronic conditions. The review included studies that assessed interventions targeting patient engagement in the context of chronic disease management. The findings revealed that patient engagement interventions positively influenced self-management behaviors, such as medication adherence, lifestyle modifications, and regular monitoring, ultimately resulting in improved health outcomes.

The authors [39] conducted a systematic review exploring the effectiveness of technology-enabled patient engagement interventions. The review included studies that utilized digital tools, such as mobile applications, patient portals, and telehealth platforms, to facilitate patient engagement. The findings demonstrated that technology-enabled interventions had the potential to enhance patient engagement, improve access to healthcare information, and facilitate communication between patients and healthcare providers.

Numerous studies have examined the relationship between patient engagement and healthcare outcomes. Research by [40] demonstrated that actively engaged patients exhibited better medication adherence, lower healthcare utilization, and improved health outcomes compared to passive patients. Similarly, a systematic review conducted by [41] highlighted the positive impact of patient engagement on self-management of chronic conditions, preventive care utilization, and patient satisfaction.

The integration of technology has significantly contributed to patient engagement in healthcare. Several studies have explored the role of technology-enabled patient engagement tools and interventions. For instance, a study by [42] evaluated the effectiveness of mobile applications in promoting patient engagement and found that such interventions improved patient knowledge, self-care behaviors, and communication with healthcare providers. Additionally, research by [43] examined the use of patient portals in facilitating access to health information, enhancing patient-provider communication, and increasing patient empowerment.

### 3 | Methodology

Systematic Review process according to the research methodology in [34, 35]. Figure 1 shows the three stages of the methodology. The planning process of the review was aimed at defining the research goals and the expected results. In this study, we have reviewed published about the benefits of patient engagement in the healthcare process.

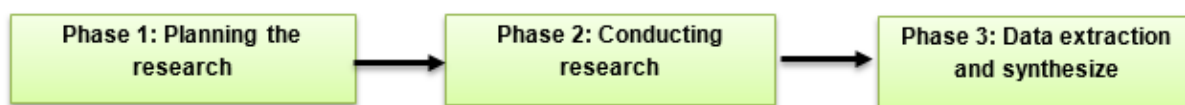


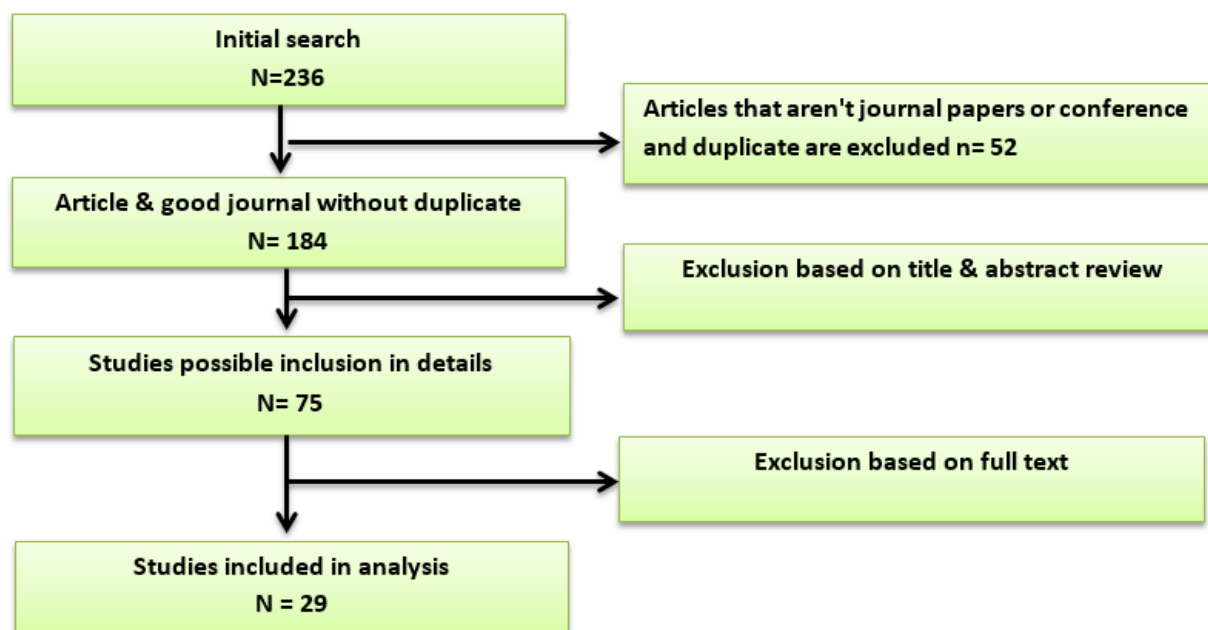
Figure 1. Stages of the methodology.

Our aim from the second stage, conducting the review, was to conduct a comprehensive search of all research results and unbiased literature, based on many research rules, to define a set of articles to be reviewed. These rules include specifying the keywords that will be used to search for articles and specifying the databases to search for. We decided to research three of the most well-known and quality databases in health informatics: PubMed, and Google Scholar. The extent of years of publication has been determined to be covered; we targeted research published between 2018 and 2023.

Then, we defined search terms and keywords that were initially selected based on research and included the benefits of patient engagement. We compiled the outputs of this search into an Excel spreadsheet, to give an initial set of 236 published workbooks used for further analysis as shown in Figure 2. In the next stage, we defined and formulated the criteria for inclusion and exclusion. We reached the following criteria:

- i. The set of documents should only include studies published in the English language.
- ii. The group should also include research articles and conference proceedings.

- iii. We have reviewed titles and summaries using our selection rules related to the content.
- iv. We reviewed the full text using our selection rules related to the content, and 29 articles and procedure papers were used for further analysis by extracting data.



**Figure 2.** Number of articles in each stage based on inclusion and exclusion criteria.

We conducted the research selection process and at the end of this process, we found 28 research articles that meet the search criteria that we set, through which we will try to find the answer to our research questions. Then, we moved on to extracting data for synthesis. The main goal of the data extraction process was to examine the elements in the final group that serve our research goals and research questions and record the features of their interest. The goal of data synthesis is to make a summary of the articles we have come up with, extract the results we need, and combine them to reach our goals.

## 4 | Results

This systematic review aimed to assess the existing literature on the benefits of patient engagement in the healthcare process. A comprehensive search of relevant databases yielded a total of 28 studies meeting the inclusion criteria. The included studies encompassed a variety of study designs, including randomized controlled trials, cohort studies, and qualitative research.

After selecting a group of 28 articles based on the inclusion and exclusion criteria mentioned above, we moved to extracting and synthesizing data, to achieve the goal of this research and to provide answers to the research questions.

Data extraction we collected a set of 28 articles to extract the data. Emphasis was placed on the research problem and objectives. Data extraction helped us conduct an in-depth review of current research to answer research questions correctly and clearly, the articles were reviewed separately. The selected studies were published in our group between 2018 and 2023.

Thematic analysis summary based on the thematic analysis of 28 article studies, we identified five benefits of patient engagement in the healthcare process. Using the aggregate narration approach, we provided a brief description of each theme. Below is a summary of the main results for each issue:

## 4.1 | Health Literacy

Ways to overcome health inequalities through social media and its role in educating patients and involving them in the healthcare process are revealed. New means must be taken to reach patients, to involve them in the health care process, and to educate them about health. Smartphones are available to almost everyone, and as such, social media platforms are a very good and effective way for this to be shared. Where social media has opened the way for patients to engage in peer groups, research studies, and advocacy. Healthcare providers should use these resources to share accurate information and be a trusted and reliable source of medical information. This will assist patients, directing them to accurate sources of information in an easy and accessible manner, with the goal of improving patient health literacy and improving health outcomes.

## 4.2 | Improve Patient Safety

There are trends the patient engagement to the development of best practice reports on the hospital-to-home transition. This indicates that the rate of patient engagement in the healthcare process is increasing over time. More organizations should strive to include patients in the process of developing best practices and to give patients opportunities for active joint engagement. Patient-centered care measures reported globally and highlight recent proactive strategies to increase patient engagement to improve patient safety. Patient engagement has been shown to be an ever-expanding field as organizations increasingly look to engage patients and families in patient safety, quality improvement, and health system design. Significant benefits of system redesign have been found in actively engaging patients and families as they navigate complex healthcare systems to avoid safety issues and medical errors.

## 4.3 | Disease Treatment

There is a special interest in patient engagement and its impact on healthcare outcomes. It achieved results in trying to participate with patients and enhance the surrounding environment, and the emergence of platforms for patient engagement through mobile health portals and applications increases patient involvement in health care. These platforms have improved outcomes and increased patient satisfaction with healthcare services. Benefiting from their experience with their health problems can contribute to increasing the importance of the research process related to enhancing patients' engagement in health care. Patient engagement influences the healthcare process to be more patient-centered and informative, leading to an interest in healthcare process outcomes by the patient and healthcare organizations. Where studies have reported a positive effect on patient engagement in the treatment of some chronic diseases, including: Orthopedic Surgery, Noonan syndrome spectrum disorders, Hepatitis (HCV) infection, Lung cancer, Catheter-associated urinary tract infections, older patients with cardiovascular disease, and many types of cancer.

## 4.4 | Research

Patients can be involved at every step of the research process, from question development, clinical research, and clinical trial design to ongoing research in the clinic. It is also important and remains an important endeavor for patients, scientists, clinicians, and other members of the research team and healthcare providers. There are many opportunities for patient engagement in laboratory and clinical research. Patient researchers can take practical steps to ensure that their engagement is effective and meaningful. So patients in the future can access new treatments to live longer and better lives. They can make valuable contributions to both laboratory and clinical research projects. Recommend that patients be involved in research to help shape research questions and identify patient concerns early in disease progression.

## 4.5 | Pandemic Disease Management

Current incorporation of the patient and public engagement in decision-making on outbreak management. The exchange of knowledge and ideas between the audience and the experts was considered useful for Pandemic disease management. Different practices of Patient Engagement can be of good value, but the

structural implication in the Pandemic disease management decision-making process at the collective level may be low. Most activities related to patient engagement during the pandemic at the clinical level such as virtual consultations. Technology was utilized in all studies to communicate with patients and their families. There categorized five main categories of these engagements: engagement through virtual sponsorship, sharing through other technologies, engagement in service recommendations, factors affecting patient engagement, and lessons learned through patient involvement. There is a need to work on decoding a number of links between patient engagement activities and how they can improve over time and reveal the barriers and facilitators to the sustainability of activities during major disorders such as pandemics.

We have developed a classification of the most important benefits of patient engagement in the healthcare process. Based on the issues studied by the research described above, we have developed the classification of benefits of patient engagement in the healthcare process (see Figure 3). There was no study that looked at all the benefits of patient engagement in the healthcare process examined from 2018 to 2023. The objective of this classification is to provide a comprehensive reference model that helps researchers understand the focus of current issues.

To develop the classification, we first extracted five major benefits of patient engagement in the healthcare process from the research cohort, as described previously. We grouped and categorized relevant and similar studies under one topic.

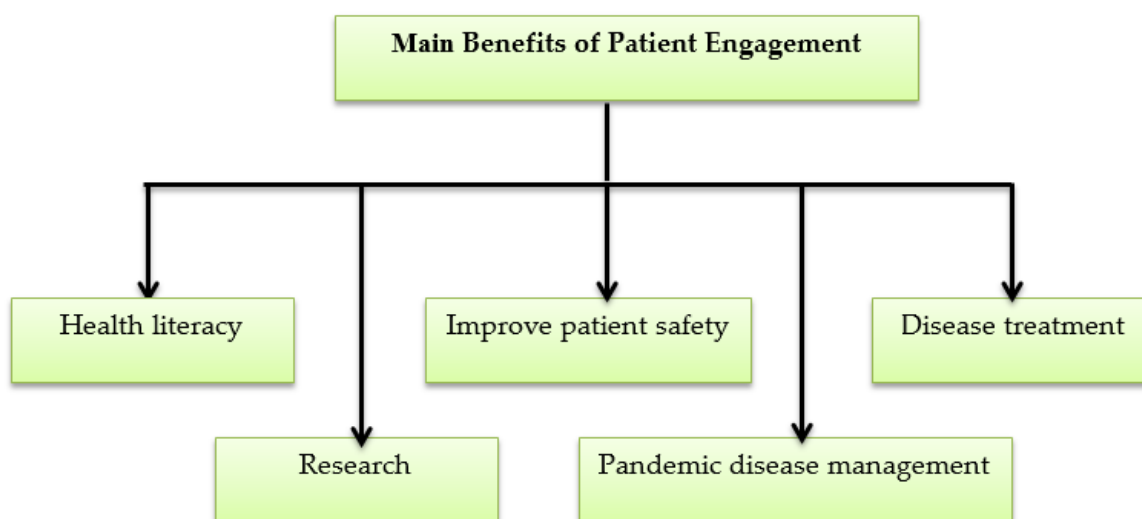


Figure 3. The main benefits of patient engagement in the healthcare process.

In Table 1, we present a summary of the benefits that have been studied through previous studies, with the special citation including the study that investigated this issue.

Table 1. Summary of benefits of patient engagement in the healthcare process with papers.

Benefits of patient engagement	Paper
Health literacy	[4][5][6][7]
Improve patient safety	[7][8][9][10][11][12][13][14][15][16][17]
Disease treatment	[18][19][20][21][22][23][24][25]
Research	[22][26][27][28][29][30]
Pandemic disease management	[31][32][33]



## 5 | Conclusions

The systematic review aimed to assess the existing literature on the benefits of patient engagement in the healthcare process. The findings from the review consistently demonstrated the positive impact of patient engagement across various aspects of healthcare delivery. Active patient engagement was associated with improved healthcare outcomes, enhanced patient satisfaction and experiences, empowerment in self-management, and cost reduction. The evidence from the included studies supports the notion that patient engagement plays a crucial role in promoting positive healthcare outcomes. Patients who are actively involved in their care and decision-making processes are more likely to adhere to treatment plans, manage chronic conditions effectively, and experience improved overall health outcomes. Additionally, patient engagement has been shown to enhance patient satisfaction, trust in healthcare providers, and patient-centeredness of care. Furthermore, patient engagement empowers individuals by providing them with the necessary knowledge and tools to actively participate in managing their health. Patients who are engaged in their healthcare demonstrate increased self-efficacy, confidence in self-care, and better adherence to treatment regimens. This empowerment leads to improved patient experiences, increased involvement in shared decision-making, and alignment of care with patient preferences and values. Notably, the benefits of patient engagement extend beyond individual patient outcomes. The review findings indicate that patient engagement interventions can contribute to cost reduction and optimize healthcare resource utilization. By actively engaging patients, healthcare organizations can potentially reduce healthcare utilization, such as emergency department visits and hospital readmissions, leading to overall cost savings and improved allocation of resources. The findings from this systematic review underscore the importance of continued efforts to integrate patient engagement strategies into healthcare policies, practices, and interventions. By prioritizing patient engagement, healthcare organizations, and providers can foster collaborative partnerships with patients, promote shared decision-making, and ultimately improve the quality and effectiveness of care delivery.

It is recommended that healthcare stakeholders, including policymakers, healthcare providers, and researchers, work together to overcome barriers to patient engagement implementation and further explore innovative approaches to enhance patient engagement in diverse healthcare contexts. By doing so, we can realize the full potential of patient engagement in transforming healthcare and achieving better outcomes for patients.

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## Author Contribution

All authors contributed equally to this work.

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## Data Availability

The datasets generated during and/or analyzed during the current study are not publicly available due to the privacy-preserving nature of the data but are available from the corresponding author upon reasonable request.

## Conflicts of Interest

The authors declare that there is no conflict of interest in the research.

## Ethical Approval

This article does not contain any studies with human participants or animals performed by any of the authors.

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