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## Assessing the Effectiveness of Shared Decision-Making in Enhancing Medication Adherence among Chronic Disease Patients in Primary Healthcare - A Systematic Literature Review

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### ABSTRACT

**Objective:** This study investigated the effect of shared decision-making (SDM) approaches on medication adherence among individuals with chronic diseases receiving primary healthcare from studies conducted between 2012 and 2023. **Method:** A literature review was conducted in PubMed, Scopus, ProQuest, and EBSCO databases, resulting in 220 articles. Only randomized controlled trials (RCTs) were included; the two studies that matched the inclusion criteria were examined. **Result:** Two RCTs in primary healthcare settings examined SDM interventions. The study on hypertension patients found no significant effect of SDM training on medication adherence, while the study on depression patients using a decision aid also found no significant impact on medication adherence. **Discussion:** SDM interventions did not significantly improve medication adherence in chronic diseases such as hypertension and depression. Factors identified include short training duration, the complexity of Adherence, and a need for consistent evidence. **Conclusion:** Suggests that SDM may not significantly affect chronic disease patients receiving primary healthcare medication adherence. However, given the limited number of eligible studies, more research is needed in diverse settings and populations.

**Keywords:** chronic disease, medication adherence, primary healthcare, shared decision-making

### BACKGROUND

Patient compliance with regimens is one of the behavioral issues in medicine that has drawn the most significant inquiry<sup>1</sup>. Medication compliance refers to how closely a patient adheres to a healthcare expert's recommended dose schedule, recommendations, or instructions in the context of a particular ailment or condition<sup>2,3</sup>. Adherence to patient treatment is still a challenging issue in primary health care<sup>4,5</sup>. Adherence issues significantly impact patients and the healthcare system. Nonadherence patients face a higher likelihood of experiencing additional health issues, accelerating the progression of their diseases, increasing their chances of mortality, and incurring more significant healthcare expenses<sup>6</sup>. Nonadherence has diverse underlying causes, making it a problematic issue with a problematic solution. The first step in managing nonadherence and getting the best health results is realizing the necessity for collaboration between healthcare professionals and patients<sup>7</sup>.

Communication is still one of the main problems in various healthcare centers, which is a barrier to increasing

medication compliance<sup>8</sup>. One of the most recent approaches to enhancing medication adherence includes adopting active and passive communication<sup>9</sup>. Enhancing communication between patients and doctors is one of the recommendations made by patients to increase patient adherence to treatment<sup>10</sup>. Health providers should prioritize fulfilling patients' informational requirements and enhancing their knowledge of illnesses and treatments. Treatment and care talks today aim to build relationships with patients that consider their values, goals, and preferences before presenting treatment options. This method of patient communication is known as "Shared Decision Making" (SDM) and is applied in several therapeutic settings, including primary healthcare<sup>11-13</sup>.

The leading cause of death and disability worldwide is chronic disease<sup>14</sup>. Primary health care primarily manages most chronic diseases<sup>15</sup>. Nearly half of patients do not take their prescriptions as directed. Therefore, fully appreciating these drugs' advantages is frequently tricky. This problem of not sticking to prescribed medication regimens is complicated and has many underlying causes, some of which are patient-related, such as not being involved in treatment decisions<sup>16</sup>. SDM is the best approach to treating

chronic diseases.

SDM is used to personalize care during conversations between patients and medical professionals. Patients and clinicians collaborate to comprehend the patient's choices through these dialogues. Together, they consider the possibilities as hypotheses and test them in discussion to determine how to best care for this patient, considering how they would like to care for<sup>17</sup>. SDM is acknowledged as a promising strategy for strengthening doctor-patient communication and collaboration in the pursuit of healing. Several studies have shown that SDM improves patients' Adherence to treatments<sup>18-20</sup>. Therefore, a review of SDM in improving medication adherence in patients in primary health care is necessary. Thus, this review's objective was to investigate the effect of SDM approaches for enhancing medication adherence among individuals with chronic diseases receiving medical care in primary health care. Our research question is: Can SDM successfully improve medication adherence among patients with chronic diseases in primary healthcare compared to usual care?

## RESEARCH METHODS

PRISMA stood for (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) and was used as a protocol for this systematic review<sup>21</sup>. Research questions according to the PICO model, P: Patients with chronic diseases, I: Shared decision making, C: Conventional or usual care, and O: Medication adherence. All potentially eligible studies were considered, and full papers were analyzed to determine whether they met the selection criteria.

Patients with chronic diseases, a focus on SDM between patients and healthcare providers, interventions that included SDM as a component, a comparison with or without usual care, studies that assess or evaluate medication adherence as a primary and secondary outcome, published in peer-reviewed journals, conducted in primary health care settings, published in English, design with randomized controlled trials (RCT), and studies conducted from 2012 to the present were the criteria considered in this review.

Combined methods involved employing the electronic database search. On April 20, 2023, four electronic databases were utilized for the initial thorough search. The literature search used PubMed, Scopus, Proquest, and Ebsco. Searching for relevant journal articles in databases involves utilizing search filters to refine and narrow down the retrieved articles based on specific criteria related to the research topic and objectives. Inclusion criteria were used to sort articles from 2012 to 2023. Shared decision-making, chronic disease, medication adherence, and primary health care were among the topics covered by keyword searches.

The selection of studies involved the participation of the first reviewer (ENHS) and the second reviewer (GFPH). They agreed upon the qualifying criteria for eligibility. The first reviewer performed an initial search, examining all article titles and abstracts using database sorting. The search results were then consolidated in Endnote for sorting and

filtering purposes. The team's second and third reviewers (ASR) conducted independent checks, and subsequently, all three reviewers read the full text of eligible studies. In this systematic review, the team strictly selected and followed the rules of inclusion and exclusion criteria for three RCT studies. The three reviewers independently reviewed a critical appraisal using the Consolidated Standards of Reporting Trials (the CONSORT statement)<sup>22</sup>.

Screening results from the four databases found 220 articles identified with all human subjects. We exclude 203 irrelevant topics, one non-English article, eight articles irrelevant to the research question, 3 study protocols, one quasi-experimental study, and 2 study locations in the Hospital. Thus, only two studies were included in this review, as described in Figure 1.

## RESULTS

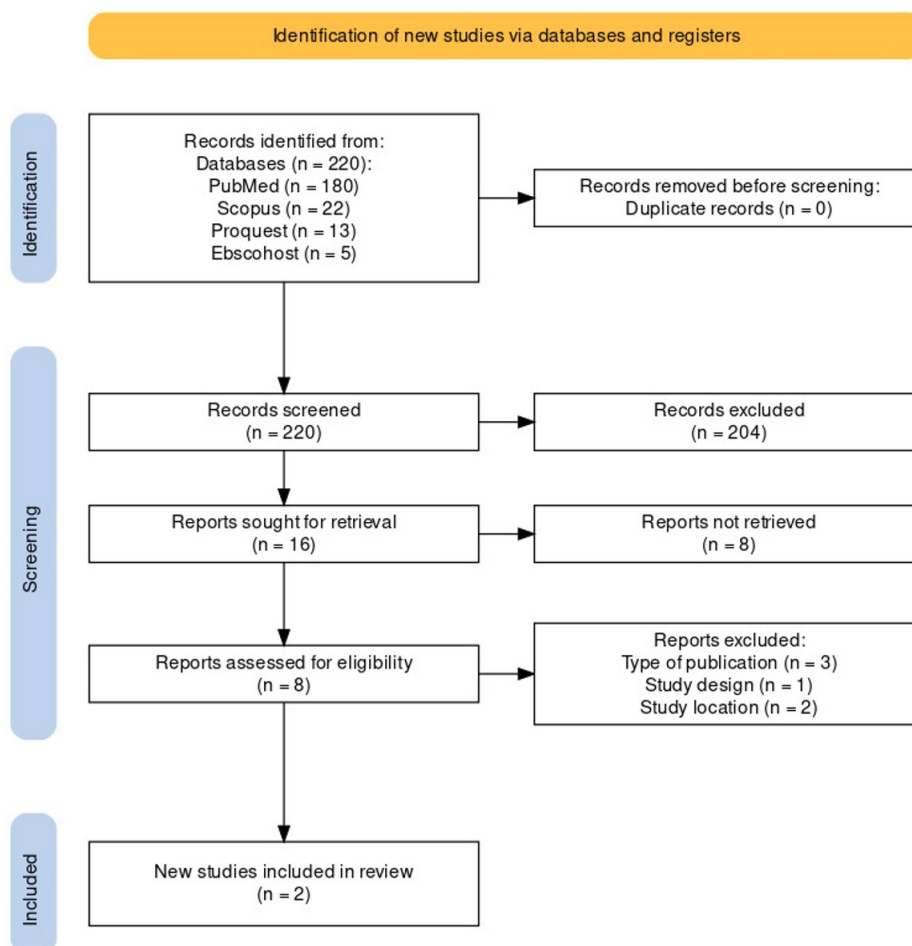
Table 1 summarizes the primary characteristics of the two included studies. Two articles that have been reviewed and meet the specified criteria were published in 2013 and 2015 with an RCT research design.

### Study characteristics

Characteristics of the two included studies are provided in Table 1. All studies used RCT methods with SDM interventions. One study was conducted with hypertension patients and one with depression patients. The interventions of the two studies included all models of SDM. One study used a decision aid called Depression Medication Choice (DMC), and another used an SDM training program. The locations mentioned are similar because both studies were conducted in primary healthcare settings.

In the study by Tinsel et al., medication adherence was measured using the MARS-D<sup>25</sup>. The mean adherence score at the beginning of the study was reported to be very high, indicating that participants had a high level of Adherence to their prescribed medication. The intervention aimed to assess the impact of SDM training for GPs on medication adherence as a secondary outcome. Regarding medication adherence as a secondary outcome, the study found no significant or relevant effect of the SDM training on Adherence to antihypertensive therapy<sup>23</sup>. The mean adherence score was initially high but did not significantly change over time ( $p=0.2084$ )<sup>23</sup>. Although medication adherence was not the primary focus of the study, these findings suggest that SDM training for GPs in the context of hypertension treatment may not directly influence patients' Adherence to medication.

In the second study by LeBlanc et al., the intervention to measure medication adherence was using a decision aid called DMC<sup>24</sup>. The DMC consisted of a series of cards, each highlighting the effect of the available treatment options on issues that are important to patients, such as what you should know, weight change, stopping approach, cost, sexual problems, sleep, and keep in mind<sup>24</sup>. These laminated cards were used during face-to-face consultations between patients and clinicians. The study was conducted in ten primary health care. Regarding medication



**Figure 1. PRISMA flow diagram**

adherence, several measures were taken. Patients reported their medication usage at the time of the appointment and after the clinical encounter. Pharmacy records and medical records were also reviewed for the trial period. Primary medication adherence was calculated as the proportion of patients who filled their prescriptions within 30 days, while secondary Adherence was assessed as the proportion of patients with a percentage of days covered (PDC) greater than 80%. PDC represents the number of days a patient had a supply of each medication divided by the number of days of eligibility for that medication.

The study also found no significant differences in medication adherence rates between the intervention and control groups. There were no significant differences in terms of being on medication at the time of the encounter, being on medication after the encounter, primary Adherence (filled prescription), or secondary Adherence (%PDC >80%)<sup>24</sup>. These findings suggest that the decision aid, DMC, did not significantly impact medication adherence among patients with depression.

Table 1. Summary of study characteristics

Authors, Publication Year, Country	Aim of Study	Study Location	Study Design	Sample Characteristics	Interventions	Measures Outcome	Result
Tinsel et al, 2013 <sup>23</sup> , Germany	Evaluate the SDM training program for GPs within the context of hypertension treatment.	Primary health care associated with the Department of General Practice of the University Medical Centre Freiburg, Germany.	RCT	<ul style="list-style-type: none"> <li>- 36 GPs.</li> <li>- 1,120 patients</li> <li>- The intervention group consisted of 17 GP practices with 552 patients</li> <li>- The control group consisted of 19 GP practices with 568 patients.</li> </ul>	<ul style="list-style-type: none"> <li>- The intervention group consisted of GPs who participated in an SDM training program.</li> <li>- The control group GPs provided usual care without prior SDM training.</li> </ul>	<p>Primary outcomes:</p> <ul style="list-style-type: none"> <li>- Change in patients' perceived participation was measured using the SDM-Q-9 (a questionnaire assessing patient involvement in decision-making).</li> <li>- Changes in systolic blood pressure (24h-mean) are measured by ambulatory blood pressure monitoring.</li> </ul> <p>Secondary outcomes:</p> <ul style="list-style-type: none"> <li>- Change in diastolic blood pressure (24h-mean)</li> <li>- Changes in patients' knowledge about hypertension.</li> <li>- Adherence to antihypertensive therapy is measured using the Medication Adherence Report Scale for Diabetes (MARS-D).</li> <li>- Cardiovascular risk score (CVR) changes.</li> </ul>	<ul style="list-style-type: none"> <li>- No significant or relevant effect of the SDM training on medication adherence as a secondary outcome.</li> <li>- The mean adherence score was very high only at the beginning of the study.</li> <li>- The intervention did not significantly impact medication adherence as measured by the MARS-D scale (<math>p=0,2084</math>).</li> </ul>
LeBlanc et al, 2015 <sup>24</sup> United States	Evaluate the effectiveness and impact of the DMC	Ten primary healthcare practices are in rural, suburban, and urban areas across Minnesota and Wisconsin, United States.	RCT	Three hundred one adult patients with moderate to severe depression were considering treatment with an antidepressant.	The intervention was the use of the DMC.	<p>Primary outcomes:</p> <ul style="list-style-type: none"> <li>- Decision-making quality.</li> <li>- Patient and clinician decisional comfort.</li> <li>- Satisfaction.</li> </ul> <p>Secondary outcomes:</p> <ul style="list-style-type: none"> <li>- Encounter duration</li> <li>- Medication adherence: Measured to assess how patients followed their prescribed medication regimen.</li> <li>- Depression symptoms</li> </ul>	<ul style="list-style-type: none"> <li>- No significant differences between the two groups in terms of medication adherence: On medication at the time of encounter (<math>p=0.93</math>), on medication after the encounter (<math>p=0.15</math>), primary Adherence (filled prescription) - Missing (<math>p=0.19</math>), secondary Adherence - %PDC &gt;80% (of a filled prescription) (<math>p=0.25</math>) and secondary Adherence - %PDC &gt;80% (of all patients) (<math>p=0.67</math>)</li> </ul>

## DISCUSSION

The systematic review of the two RCT studies concluded that SDM interventions did not significantly impact medication adherence in patients receiving treatment for hypertension and depression. These findings differ from previous studies stating that SDM effectively increased medication adherence in patients with mental illnesses and hypertension<sup>26-28</sup>. However, this study is similar to the findings of previous research evidence<sup>29</sup>. Despite the potential benefits of SDM and decision aids, the results suggest that these interventions may not be sufficient to enhance medication adherence in these patient populations.

Several factors could contribute to these findings. Firstly, the SDM training program duration for GPs in this study was relatively short compared to other studies showing positive effects<sup>30,31</sup>. More than short training programs may be required to change physicians' behavior and Adherence to SDM principles significantly<sup>32</sup>. Modifications to the training methods and learning strategies also need attention to improve participation rates and implementation of SDM training programs<sup>33</sup>.

Another thing that should be addressed is the complexity of medication adherence. Medication adherence is a complex behavior influenced by various factors, including patient beliefs, social support, and healthcare system factors<sup>5</sup>. SDM interventions may not directly address these factors, and additional interventions targeting specific compliance barriers may be required to achieve significant improvements.

From our study, we also found a need for more consistent evidence. Previous reviews and studies on SDM interventions and patient participation have yielded mixed results regarding their impact on health outcomes, including medication adherence<sup>26-29,34</sup>. This lack of consistent evidence suggests that contextual factors and individual patient characteristics may influence the relationship between SDM and medication adherence<sup>35,36</sup>. It is essential to acknowledge the bias of the study in this review, as the studies are at risk of bias due to the lack of blinded participants, a substantial loss in follow-up, limited use of decision aids, unobserved patient-physician interactions, co-interventions, and psychotherapy, which may affect outcomes of treatment adherence<sup>23,24</sup>. We also identified limitations in this systematic review: literature searches were limited to the last ten years only, the number of databases was relatively limited, and this study was limited to only evaluating the effect of SDM in patients with chronic diseases treated at primary health care. These limitations highlight the need for further research to address these issues and improve the robustness and generalizability of the study's findings, particularly regarding medication adherence outcomes.

## CONCLUSION

From this study, it can be concluded that SDM does not significantly affect medication adherence for patients with chronic diseases such as hypertension and depression who

are undergoing treatment at primary health care centers. However, this review only involved two eligible studies in America and Germany, so more similar studies are needed to prove the effect of SDM on medication adherence conducted in other places with different populations.

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## Conflict of interests

There is no conflict of interest in this study.

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