

Does Patient Counselling Correspond to Medication Adherence in Chronic Diseases? - A Scoping Review

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ABSTRACT

Background: Quality care is essential to minimize the complication or consequences of chronic diseases. The main objective of this scoping review was to identify the role of patient counseling on medication adherence in chronic diseases.



Methods: Scoping review framework, as described by Arksey and O'Malley was used to map out the literature. Databases were searched for published studies from 1 to 30 August 2020 which described medication adherence, factors contributing and role of patient counseling in medication adherence.

Results: Total 21 primary studies, including 29% were randomized controlled trials designs and 76% of studies were conducted in the hospital setting. The medication non-adherence in the chronic disease was between 12-33% in reviewed studies.

Conclusion: Most of the studies identified patient counseling as a major contributing factor for drug adherence in terms of chronic diseases. Similarly, pharmacist's communication with patient is also described as important factor for medication non-adherence in reviewed articles. Thus, efforts must be broadened to improve counseling services within the health system to overcome chronic diseases through addressing drug non-adherence.

Practical Implication: The findings of this review would be relevant for all health professionals, medical persons, and pharmacists to sensitize them about the importance of counseling in terms of overcoming chronic diseases.

Keywords: Medication adherence, chronic diseases, non-communicable diseases, patient counseling

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INTRODUCTION

Chronic disease is defined as a chronic condition or illness which progress slowly, have long duration, do not resolve and limits the working capacity, social life, productivity and quality of life of the people living with the disease.¹ Chronic diseases include cardiovascular disease, cancer, chronic respiratory disease, obesity, mental illnesses, diabetes mellitus etc.² Around 80 % of the premature deaths is contributed by these groups of diseases. These diseases caused many deaths, both male and female of all ages all over the world. Nearly 60% of all deaths and 40% of global burdens of disease are due to chronic disease of which 80 % death occurs in low and middle income countries.³ Similarly, about two-thirds (64%) of all deaths occur due to chronic disease in Southeast Asia.³ Out of the total deaths in the Southeast Asia region, cardiovascular diseases accounted for 25%, chronic respiratory diseases 9.6%, cancer 7.8% and diabetes 2.1%.⁴ Chronic diseases are caused mainly due to change in social determinants, economic transition, environmental change and change in disease pattern.⁵ One of the management strategy of chronic disease is medication adherence by the patients.

Medication adherence is defined as a process where the ratio of the number of drug doses are taken to the number of prescribed doses over a given period of time for the given disease.⁶ Poor medication adherence to chronic diseases is nearly 50% in high income countries.⁷ Medication adherence depends on factors like support from family, friends, or caregivers, access to health care services. Similarly, it also may depends on financial resources, cost of medicines, more numbers of medicine for one disease, frequency of daily doses required, duration of therapy, side effects of medicines.⁸ Various determinants of medication adherence were identified by different studies among which patient counseling is one that has the positive result in medication adherence in chronic disease.¹¹⁻¹⁵ Patient counseling is one of the preventive approaches that should be designed to lower down the death due to chronic diseases. Patient counseling is the process of providing vital information, advice and assistance to the patients. Patients will be made aware of the type of disease they are suffering from, medication therapy that should be used, side effects of the medicines in

patient counselling. In addition, they will be informed about how to manage medication complications and the behaviors that should be maintained by the patients for proper medical adherence.⁹ Providing information to patients and encouraging them to safe and appropriate use of medicines is the main aim of the medication counseling and, hence enhancing therapeutic outcomes i.e. medication adherence.¹⁰

The perception of the patient about the importance of treatment regimen, self-benefit through medication and positive outcomes all depends upon the counseling provided by the health care provider. Patient counseling for appropriate use of medicines is effective. Many studies have suggested that those patients who have got proper counseling from health care providers have adhered to their treatment protocols following better health outcomes compared to those who lack such counseling.^{9,10,16,17}

Evidences showed that if proper counseling approach has been designed and applied, the estimated death of 41 million people due to chronic disease in the world can be prevented.¹⁸ It was found that high income countries like France and Finland adopted the patient counseling strategy for preventing the death due to chronic disease. The strategy was found most useful in improving the medication adherence and reducing the death due to chronic disease.¹⁹ The strong association between patient counselling and medication adherence in chronic disease has highlighted the gap to review the importance of patient counselling in promoting the medication adherence thereby improving the health status of the people living with different chronic disease. The information related to the importance of patient counseling in medication adherence in chronic disease has been poorly documented. The review had tried to address the evidence gap and had generated the information on importance of patient counseling in medication adherence. Thus, this review aimed to identify the importance of patient counseling in medication adherence in chronic disease. The insight reflected through this review can support health care professionals and people to understand the importance of patient counseling in the management of chronic disease. Similarly, the findings of this study would be supportive for the government to incorporate importance of patient

counselling as an important agenda while developing local level planning and strategies.

METHODS

A Scoping review method had been conducted in this review as described by Arksey and O'Malley.²⁰ A rigorous synthesis and mapping of an extensive, complex body of knowledge was done which has provided us the ability to extract findings exclusively related to organizational factors that enable research use. This approach has provided us an opportunity for summarizing findings from different study designs and theoretical backgrounds and permitted us to review large extent of research and a huge range of the different literatures.

Process for searching articles

During the study, we performed database searches for articles related to patient counseling and medication adherence in different databases like MEDLINE, PubMed, Google Scholar and Scopus. The articles were searched for examining the importance of counseling in medication adherence in chronic diseases along with articles describing predictors, promoters, or determinants of medication adherence in chronic disease, and articles examining the role of counseling by pharmacists including other health care providers in medication adherence in chronic disease.

The following research questions were identified:

- can medication adherence in chronic disease be improved through the patient counseling by the pharmacist and other health care providers,
- what are the factors and determinants of medication adherence in chronic disease,
- what are the approaches to medication adherence?

We used the terms compliance, non-compliance, medication adherence, treatment obedience, concordance, counseling, therapeutic education, patient education, chronic diseases while searching for the articles.

Eligibility criteria for studies

The eligibility criteria for this review were the studies (cross-sectional descriptive or analytical or intervention or experimental, randomized controlled trial or cohort study) that examined the factors associated with medication adherence to chronic

diseases (hypertension, diabetes, cancer, asthma, chronic obstructive pulmonary diseases), determinants of medication adherence, the importance of counseling in medication adherence, the role of health care providers in chronic diseases medication adherence, studies whose full text were available, original articles. Also the articles published in the English language between 2005 and 2020 AD were included in this review. Studies without sufficient data and unclear methods, publication in a language other than English, and those articles whose full text were not available were excluded in this review.

Identification and selection of relevant articles

Initially, all the articles related to the topic of the study were collected. A list of all the titles of the searched articles was prepared and the articles were filtered out according to the objective of the study by the three of the reviewer's RB, RB and SG. In the first phase, the articles were filtered according to the title and abstract by RB and RB. In the second stage, the full text of the articles was studied and thus articles were filtered according to the criteria and the objective of the study by RB, RB, SG, NL and SKC. Five of the reviewer's RB, RB, SG, NL and SKC were involved in comparing and tallying the articles according to inclusion and exclusion criteria and in excluding the duplicate articles. TRB was involved in whole process and provided us continuous feedback. Upon disagreement, we all had a discussion meeting where we thoroughly reviewed the inclusion and exclusion criteria. The decision to include the article was made through voting. The disagreements among the reviewer team were addressed through meeting and the discussion with the TRB.

The search for articles was conducted between 1 and 30 August 2020. Collectively, the searches yielded a total of 1048 records, 310 of which were duplicates. Out of the remaining 738 unique citations screened, 462 did not meet the inclusion criteria, so excluded. A further 207 citations did not access the full text, and the other 84 articles either did not describe medication adherence or published in other than the English language were excluded. In total, 21 studies were included (Figure 1).

Extraction of the data from the included studies

The required articles were selected and classified according to the inclusion criteria and the data were extracted from the selected articles and recorded in Excel. The data extracted were classified as the date of publication of the articles, the title of the article, the name of the journal, the country of research, study design, target population, sample size, study settings, tools for data collection, research domains and main results.

Summarizing the findings

The finding of this paper is summarized based on the domain of searched articles. The research articles were related to factors associated with medication adherence in chronic disease, the role of the health care providers in medication adherence in chronic disease, the importance of counseling in medication adherence.

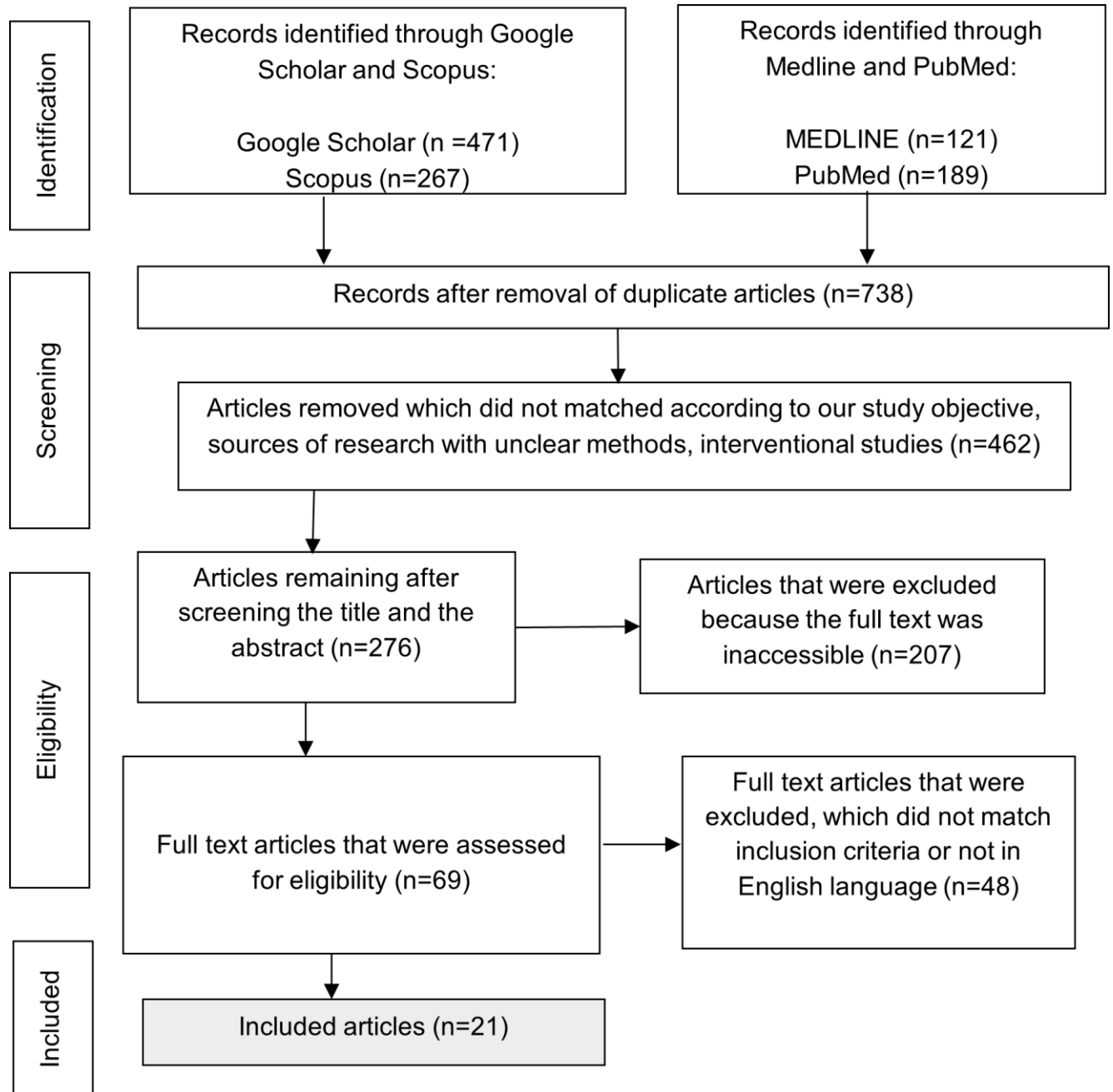


Figure 1: Screening of articles using PRISMA Model

RESULTS

Out of the total (21) articles reviewed, eight articles were from India, three articles were from the USA, two articles were from Nigeria and remaining (eight) from Nepal, Finland, Ethiopia, Zambia and United Arab Emirates. Seven articles for each three review domain 1) importance of counseling on medication adherence on chronic diseases, 2) describing the factors associated with medication adherence and 3) described the role of health care providers in medication adherence were selected for this review purpose.

Nearly one third (29%) of the studies used randomized control design, 14% used

prospective observational study, and other 5% case study, 5% quasi-experimental study design, 5% qualitative and the remaining 5% used survey method. Major non-communicable diseases like hypertension, asthma, chronic obstructive pulmonary diseases, diabetes and cancer were addressed in the included publications. More than three-fourth (76%) of the studies were conducted in the hospital setting, followed by 14% in the pharmacy setting and 10% in private clinics settings. Most of the studies had used self-administered questionnaire as study tools followed by Morisky Medication adherence tools. [Table 2 and [TABLE 1](#)]

Table 2: Methodological Characteristics of Medication Adherence Research Articles

Characteristics	Categories	Number	Percent
Design of studies	Cross sectional	5	24
	Prospective Observational Study	3	14
	Case study	1	5
	Randomized controlled trial	8	38
	Quasi-experimental study	1	5
	Mixed method (Qualitative +Quantitative)	1	5
	Qualitative	1	5
	Survey	1	5
The target population of the studies	Patients	19	90
	Physicians	2	2
The setting of the studies	Hospital	16	76
	Pharmacy	3	14
	Health care clinics	2	10
Sampling methods	Simple Random	6	29
	Systematic Random Sampling	3	14
	Stratified sampling	1	5
	Convenience	5	24
	Randomized trial	6	29

Factors associated with Medication Adherence

The medication non-adherence prevalence in reviewed articles was found to range from 12 percent to 33 percent.²⁷ A factor associated with medication adherence in chronic diseases is one of another review

domain. Poor medication adherence is found to be associated with poor economy status, dissatisfaction with clinic services, and patients receiving medicines from traditional healers.^{21,36} Similarly, one qualitative study suggested good pharmacy services, the

convenience of automated phone and web-based refill tools, mail medication to patient home, automatic refill system, paper mail-in slips including each prescription order remainder by clinic staff about the refills as main contributing facilitators for medication adherence.²²

Another study further described that patient concerns about pharmacy services, communication issues between patient and service providers, lack of education and support on specific medication regimen were the major barriers to medication adherence.²¹ Another qualitative study summarizes a doctor-patient relationship, length of consultation by doctors, enough time for patients to remember necessary details of medication therapy, peer support, medication information as the facilitators for medication adherence.²⁶ Also, side effects of dizziness, missed appointments due to lack of transport, living at a distance of more than 10 km from hospital, taking more numbers of medicines than the prescribed amount at a time were other factors described in one of the seven articles related to this domain.²²

Role of pharmacists and other health care providers in patient Counselling and medication adherence

Health care providers including pharmacists are the persons in the community who have greater influence among people and have the duty to warn people on adverse effects and the potential advantage of taking medicine in chronic disease. Thus, we reviewed 33% of studies related to the role of the pharmacist and health care providers in medication adherence in chronic diseases.

All the articles emphasized that pharmacists and health care providers should play a crucial role in chronic disease management through regular screening, evaluation, health education and proper counseling.^{17,26,27,34,35} Using Pharmacists, one of the health care provider for identifying and addressing patient barriers to medication adherence resulted in a significant increase in medication adherence among hypertensive patients and diabetic patient.^{9,23,24,27,28,32} Some of the studies suggested that pharmacists are the most accessible healthcare provider having great role in the adherence of medication in case of chronic diseases.^{22,35} One of the study highlighted that the health care provider should have sufficient knowledge

about the illness beliefs, effective counseling skills, active listening skills so that they can reach up to the root of the problem of the patients.³⁶ The major role of these health care providers is to verify that patients have sufficient understanding, knowledge about the medication they were prescribed and skills to follow their pharmaco-therapeutic regimens.²⁴

Similarly, the majority of the studies emphasized the role of health care providers in medication counseling includes identifying, preventing, or resolving drug-related issues, suggesting chronic disease patients for the regular taking of medicine in the proper dose and at the proper time.^{10,16,17,34-36} Some study also suggested the role of pharmacists as they should help to verify that drug treatments are effective and appropriate,^{27,29,34} and improved safe medication through prevention, detection and mitigation of interactions about side effects of drugs and safe medication practices, and providing drug-related information to the patients,^{27,30} good counseling and education to the patients and caregivers, that also encourage obedience to drug intake and continue medication.^{9,10,17,28,34}

Importance of patient counseling in medication adherence in chronic disease

The importance of patient counseling in medication adherence in chronic disease is one of the research domains we formulated for the study. In all the interventional study design (randomized control trial) most of the health care providers and pharmacists utilized baseline assessment and treatment follow-up. Almost all of the pharmacists and health care providers used patient education leaflets containing the information about the drug, adverse effects of the drug and what to do in the event of missing the medication and extensive verbal counseling methods for providing knowledge to patients at baseline and follow-up were done after a few weeks to months.^{10,27,34,37} All the studies showed that patient counseling had a greater impact on medication adherence.^{9,16,24-27,30,31,33,34} The majority of the studies suggested that counseling provided by pharmacists and health care providers had improved the status of medication adherence among the patients suffering from chronic disease.^{9,16,24-26,30,31,34} All seven articles demonstrated the positive impact of patient counseling on medication

adherence.^{9,16,24–26,30,31,34} Similarly, all the reviewed articles showed that the knowledge, attitude and practice of the patient regarding medication adherence has improved after counseling,^{10,17} medication adherence scores in the intervention group after counseling on dosage form, side effects of the medicines, when how much to take and the consequences of the disease if not taken medicines properly by the pharmacist and health care providers.^{9,10,16,17,30,32}

DISCUSSION

The scoping review shows that patient counseling by health care providers have greater role in medication adherence among people with chronic disease. This review included all together 21 articles majority being descriptive cross-sectional. All the articles indicated positive association among medication adherence in chronic disease and patient counseling. Patients with chronic disease need to know more about their illness and awareness about the disease they are suffering from and the complications they will get if there is no medication adherence.^{2,14} Health care providers are in that position who can play a vital role in helping patients to cope with the chronic condition they are suffering and make informed decisions for management and medication by patient education.^{10,17,38,39}

Based on the above results of the review, the factors of medication non-adherence can be categorized into provider-related factors, patient-related factors, and health system-related factors. Provider-related factors that the studies highlighted were barriers to communicating with patients and their caregivers, complex dosing regimens, and limited coordination of care among multiple providers.^{12,21,23,24,40,41} Patient-related factors that hinder medication adherence were poor wealth status, peer support, lack of transportation, living at a distance for more than 10 km from hospital, taking more numbers of medicines than the prescribed amount at a time, using the traditional treatment, and lack of education,^{12,23,24,40} getting medicine free of cost, not having regular follow up, ethnicity, cost of medicine, social support, fear of side effects of the medicines are also documented by other studies.^{24,36} Similarly, health

system-related factors include limited access to an appropriate provider for prescriptions or refills, restricted drug coverage, high costs, unclear medication labeling and instructions,^{19,24} limited availability of culturally appropriate patient education materials, inadequate provider time to review benefits, risks and alternative to prescribed medications.^{24,26} Elements of medication should be done appropriately by competent staff of governmental and non-governmental hospitals as well as medical institutions, pharmacies and dispensaries.^{12,23,24,26}

Most of the articles in the review suggested the role of health workers in supporting chronically diseased person for proper medication adherence as they are very close to people and can have an influencing role in patient counseling and improvement in medication adherence.^{34,35,42} The medication done by patients should achieve therapeutic goals, prevent, or reduce drug-related issues, reduce deaths, and improve the health of the patient. Drug health cannot be isolated from other elements such as efficient coordination, collaboration, and timely communication should be there for proper medication by people.⁴³ There are very few medical staff in the public sector and the demand for services is frequently high in poor resource settings. At the primary health care level, dispensing is just one of many drug tasks performed by pharmacy personnel (or more commonly nurses).^{19,44} Choosing the customers as targeted and offering drug care activities should be based on an assessment of cost-effectiveness, feasibility, and relevance at all level.^{19,22,26,44}

Drug dispensing and patient counseling should be suitable for human resources who worked for drugs and should follow the highly structured protocol specifications.^{19,22,26} Such protocols should be prepared at each level of the health care system and the monitoring responsibility should be of the national level health care system. Proper counseling during prescribing the medicines and medicine dispensing is important for medication adherence and this training for the health care providers is very essential.^{26,29,30,33,36} All health care providers, covering different health care services are essential for achieving common goals in the public and private sector health services.^{34,35} Health care providers provide medication care through a

systematic process. An individual's needs can be assessed by competent health workers to prevent or manage issues that may affect the expected benefits of medications, and strengthen follow-up care.^{9,10,16,17,21,30,36} Medication adherence in chronic diseases depends on the competency of healthcare professionals and proper counseling by the pharmacists during dispensing the medicines.⁴⁵ Personalized drug use reviews can be done through integrated approach by pharmacist and other healthcare professional to identify drugs related problems and prepare a care plan, usually with or get approval from other members of the medical team.⁴⁶ Drug care plans usually describe each drug-related issue and its priorities, care goals for treatment, suggested measures or required interventions, and monitoring and follow-up plans.⁴⁷

This scoping review article highlighted the importance of patient counseling, factors associated with medication adherence and the role of health care providers in medication adherence in chronic disease. The review might have limitations such as it was only possible to include limited studies due to resource constraints. This review is conducted searching publication in English. Consequently, some information published in other languages may have been missed. Similarly, the search term used might have excluded other studies that may have the resources we needed. Varieties of methodological approaches used in the searched literature made the review challenge. However, the review summarizes the scientific foundation of the studies, identifies the extent of the importance of patient counseling in chronic disease, and suggested some evidence, information for the research community, policy makers and health care providers. Though it had become difficult for us to identify all the studies worldwide and summarizes all

the aspects of medication adherence, it will suggest some insight into the subject area.

CONCLUSION

Proper patient counseling was identified as a major reason for drug adherence. Similarly, patient and prescriber communication or health care workers-patient relationship with proper counseling, the severity of symptoms, the total number of daily medication were major factors of medication non-adherence in chronic diseases in most of the studies. Medication adherence is critical for improving the outcomes of chronic diseases and reducing health care costs. With the increasing complexity of treatment options and the surge in the number of patients with chronic diseases, the role of pharmacists has expanded beyond just dispensing, which includes counseling on the adverse reaction of medicines and contraindication monitoring, including evaluating and launching new drugs to optimize patient prognosis. Thus, efforts must be broaden to improve these factors within the health system to overcome the non-communicable diseases effectively.

Practical Implication

The findings of this review would be relevant for the health professionals, pharmacists, medical persons, community level health workers, health educators and patient of chronic diseases. This review results and conclusion may help local level policy makers and program designers for addressing the patient counseling for improving drug adherence in terms of chronic diseases.

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