Combining Lifestyle Counseling with Pharmacist-Led Medication Synchronization to Improve Blood Pressure Control in Hypertensive Patients

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Received: 13-05-2025; Revised: 07-06-2025; Accepted: 21-06-2025; Published: 07-07-2025

Abstract

Many people taking antihypertension medication fail to follow the recommended dosages, a situation that results in more heart problems and higher medical expenses. Following the prescriptions given by doctors is very important for lowering high blood pressure risks. Medication synchronization is an approach that simplifies picking up drugs by arranging each person's refill schedule on the same date. Although other studies show that synchronization helps patients stick to their medication, there is not enough proof to judge its effects on blood pressure.

This study's goal is to examine if patients who take part in a medication synchronization program supervised by pharmacists have better control of their blood pressure.

Design: The researchers will use a prospective, longitudinal cohort design and look at how the blood pressure of two groups compared: one which receives medication synchronization and one which follows regular medication pick-up processes. To participate, patients have to take at least two antihypertensive medicines and should have gone to the pharmacy for six months straight to get their prescriptions filled. Blood pressure will be measured in research subjects for 10 months after the beginning of the study. Analyses that use inverse-probability-of-treatment weighting will take care of any confounding factors and missing data present in the data.As of the time of writing, enrolling patients is almost done, while their last blood pressure readings and medication reports are being collected. Data analysis will be carried out once every patient visit is finished.At the end, the protocol describes research targeting a relationship between medication synchronization and results for people with hypertension. Based on the findings, it will be decided whether a future randomized controlled trial is needed to check how much this intervention helps blood pressure and heart health.

Keywords: ***Community pharmacy; medication synchronization; hypertension control; pharmacist intervention; blood pressure outcomes; medication adherence; pharmacy practice.***

1. Introduction

Hypertension is still one of the leading hazards to people's health around the world, impacting many individuals and acting as the primary cause of heart attacks and strokes. The fact that many cheap and reliable antihypertensive treatments are available in healthcare centers does not stop the condition from being poorly managed in many patients. More than 75 million adults in the United States have hypertension, but just around half are able to get their blood pressure under control to reach the required limits. The fact that fewer people get treatment and fewer people control their blood pressure well shows that taking medicine regularly remains a problem. Studies have shown that about half of all patients who get prescribed antihypertensive medication do not stick to the course. Not following treatment is not only caused by people lacking attention; there are several factors involved, such as problems in the system, patients' behavior, and everyday life(1).

Many cases of not taking medicines on time happen because healthcare systems lack cooperation. Patients are frequently confused by their medication schedules, deal with poor communication between different providers, and do not get much help after leaving the hospital. Many times, someone with hypertension might not realize how serious it is, since the condition doesn't usually bring about clear symptoms. Having many drugs to take, lots of pills each day, side effects, pricey treatments, and getting to appointments can make things even harder for patients to follow their treatment plans. All of these obstacles limit the drugs' ability to prevent problems such as heart failure, disease of the kidneys, and stroke. Thus, increasing how well patients follow treatment plans is vital for improving people's health and lowering healthcare costs.

Therefore, drug stores in communities have become important places for carrying out strategies to help patients

follow their prescribed treatment plans. Medication synchronization is one of the best strategies because it supports better prescription management for patients with long-term illnesses. There's nothing complex about it: patients only have to make one trip to the pharmacy to get their month's supply of all maintenance medicines by matching their refill dates. Also referred to as the appointment-based model (ABM), it might help greatly improve both ease and interest for customers(2). Patients can avoid visiting the pharmacy many times and won't face the issue of having too many medicines and not enough of another. Thanks to the model's structure, there are regular opportunities for patients to talk, be watched over, and receive useful interventions from their pharmacists.

Even though medication synchronization appears to improve compliance, more research is needed to confirm if these changes have obvious effects on patients' health. Most studies have not given much attention to evaluating the outcomes of synchronization programs for people with hypertension. Once, doctors discovered that 4 mmHg is the typical SBP drop among patients at a pharmacy who followed a synchronization plan for four months. The finding was affected by the fact that all participants got their blood pressure checked and learned about it whenever they visited the pharmacy, so reductions were seen in all groups. Plus, the participants' mean SBP of 138 mmHg was quite low to start, so the treatment could not lead to major changes. These results stress the importance of doing more studies to see if coordinating blood pressure can have a positive effect without educational or clinical help.

The Federal Study of Adherence to Medications in the Elderly (FAME) studied the way a pharmacy care program affected both adherence and results for the elderly. FAME patients got information, had their drugs put into blister packs, and had pharmacist meetings every two months. The researchers found that patients on the new program took their medication as prescribed and experienced much improved blood pressure. Although this was not specifically a medication synchronization study, the FAME trial points out that pharmacy-led measures might help patients reach better adherence and health outcomes. Another point is that many interventions aimed at adhering to medicines include several components, so straightening out the effect of just synchronizing pills is challenging.

Since more people are using synchronization services and managing hypertension is important, there is an obvious need to examine whether taking part in a synchronization program shifts blood pressure levels. With this study, we are looking at patients who take two or more antihypertensive medicines and keep filling them at a community pharmacy. The study analyzes the differences in results between those who use synchronization and those who pick up medications on their own to examine if synchronization is an effective and cheap way to improve the results of hypertensive patients.

Apart from its main objective, the study is designed to look into additional goals that help us see the benefits of synchronization in a new light. They must also review whether the effects differ due to such things as patients' ages, genders, financial and education levels, ethnicities, health habits, alcohol use, problems with drugs, complex medication routines, and how they say they stick to taking their medication. Learning about such variables can guide synchronization programs to achieve the greatest benefits for people from various age groups.

To sum up, this study provides the essential data for a future randomized trial by examining issues of feasibility and the expected impact of the treatment. Because more attention is being given to pharmacy-based care and the number of people with hypertension is increasing, this research is both required and beneficial. It lets clinicians manage medication adherence issues, which is one of the main obstacles in looking after chronic patients(3). If synchronized, these programs can be vital for pharmacists as they take part in improving patient health rather than just giving out drugs.

2.Methods

In order to thoroughly study the effect of medicine synchronization on hypertensive patients, this analysis is carried out as a modern cohort study over time. It looks at the progress of two groups of patients by studying them for 10 months in the setting of a community pharmacy. The point is to find out if using an appointment-based system for giving medications can significantly reduce blood pressure in systole and diastole compared to the usual care you get at a pharmacy. Individuals will be free to pick the type of appointment they want: synchronization or the standard medication pick-up. Though people sometimes choose themselves into research groups, improved statistical techniques will be used to fix this problem and match groups like those affected by the cause.

Adult customers of Toledo, Ohio's local independent pharmacies are eligible to join if they meet the required criteria. The study only includes people aged 18 or above, who have hypertension and are currently taking at least

two antihypertensives. Besides the other requirements, patients should be filling four prescriptions a month for more than six consecutive months at the same pharmacy(4). Also, those chosen as subjects must have high blood pressure at the start of the study (above 140 mmHg for systolic and above 90 mmHg for diastolic) and should give a reachable phone number to remain in contact during the study. Results are kept reliable by excluding participants who have had recent strokes or myocardial infarctions and those taking part in other conflicting clinical trials.

TABLE 1 Demographic and Baseline Characteristics of Study Participants

Characteristic	Group 1: Synchronization (n=35)	Group 2: Usual Care (n=35)
Age (years)	Mean ± SD	Mean ± SD
Gender	Male: X%, Female: Y%	Male: X%, Female: Y%
Race	White: A%, Black: B%, Other: C%	White: A%, Black: B%, Other: C%
Height (cm)	Mean ± SD	Mean ± SD
Weight (kg)	Mean ± SD	Mean ± SD
Smoking Habits	Smoker: X%, Non-smoker: Y%	Smoker: X%, Non-smoker: Y%
Alcohol Consumption	Yes: X%, No: Y%	Yes: X%, No: Y%
Blood Pressure (mmHg)	Systolic: X ± SD, Diastolic: Y ± SD	Systolic: X ± SD, Diastolic: Y ± SD
Medication Adherence	PDC: X%	PDC: Y%
Health History	Hypertension: X%, Diabetes: Y%	Hypertension: X%, Diabetes: Y%
Current Medications	Medication: A, B, C, D	Medication: A, B, C, D

People participating in the study will be placed into two study groups. Group 1 includes people who choose the medication synchronization service offered in advance at the pharmacy. In difference, Group 2 is made up of participants who don't use the synchronization services and keep picking up their medication in their usual ways. Applications are accepted by using the company's software and conspicuous flyers around the pharmacy. Anyone who fulfills the study's requirements is contacted and invited to a session where study investigators go over all the details with them(5). In this session, the study's reasons, possible advantages and disadvantages, and responsibilities of participants are discussed. Volunteers are given a consent form to fill out prior to the collection of their data, in accordance with the expectations from the IRB at the University of Toledo.

Collection of data will happen in pharmacies as well as through planned phone calls. After joining the study, all subjects take part in a baseline visit where all their required physical and demographic data are collected. The data collected covers blood pressure tests while sitting, the patient's height and weight, smoking and alcohol habits, basic social information (such as gender, race, education, income), health history, and the medication currently taken. The next appointments will be made for months 1, 4, 7, and 10. During every visit, the doctor checks blood pressure and weight once more, inquires about sticking to medications, and checks how the patient is living. Every three months, phone calls will be used to record any changes in patients' health, their satisfaction with the pharmacy, and what medications they are taking now.

TABLE 2 Study Visit Schedule and Key Measurements

Visit	Time Point	Blood Pressure Measurement (mmHg)	Weight (kg)	Medication Adherence (PDC)	Health Status (Changes/Comments)	Additional Assessments

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Visit	Time Point	Blood Pressure Measurement (mmHg)	Weight (kg)	Medication Adherence (PDC)	Health Status (Changes/Comments)	Additional Assessments
Baseline Visit	Month 0	Systolic: X, Diastolic: Y	X kg	PDC: X%	-	Height, Smoking, Alcohol, Health History
Follow-up Visit 1	Month 1	Systolic: X, Diastolic: Y	X kg	PDC: X%	Medication changes, side effects	Satisfaction with Pharmacy
Follow-up Visit 2	Month 4	Systolic: X, Diastolic: Y	X kg	PDC: X%	Medication adherence review	Satisfaction with Pharmacy
Follow-up Visit 3	Month 7	Systolic: X, Diastolic: Y	X kg	PDC: X%	Medication adherence review	Satisfaction with Pharmacy
Follow-up Visit 4	Month 10	Systolic: X, Diastolic: Y	X kg	PDC: X%	Final health status evaluation	Final survey on pharmacy services

Those who are part of the synchronization program, the standard intervention approach is based on the ABM implementation guide from the American Pharmacists Association Foundation. Pharmacists ensure that patients' chronic prescriptions are all refilled on the same day every month. They may first allow both a quick refill as well as a full refill to help gather all the medications together. Shortly after that, a couple of days before the scheduled sync, the provider holds a pre-call to go over new information on treatments, changes, or any other details (6). During the scheduled pick-up, every patient collects their prescription for the whole month and receives brief instruction from a pharmacist on medication use, protection against side effects, controlling blood pressure, and living a healthy lifestyle. With regular meetings, both the logistics and important clinical steps for the project are organized, so the intervention can be expanded and fit into the pharmacy staff's routines.

If we want to examine the benefit of synchronization on clinical results, then blood pressure values (systolic and diastolic) will be our main outcome measures. Additional results are measured as adherence to medication, assessed by PDC from what is recorded by pharmacies, and satisfaction with the level of pharmacy services. Details about medications will be found in the pharmacy's records and will show the drugs taken, the dates of filling, the amount, the length of days, and the cost. All data will be made anonymous using codes, and the code sheets will be held safe by being stored in a locked office to maintain confidentiality of the participants. REDCap, which is a secure platform from the University of Toledo, will be used to manage the research's electronic data.

There will be 70 participants to guarantee that the results will be statistically powerful. While using a standard deviation of 14 mmHg, the sample can detect a minimum difference of 9.5 mmHg in systolic pressure with a two-headed alpha of 0.05 and 80% power. IPTW will be applied since the study is observational and people can select the intervention group. Through IPTW, the marginal structural model (MSM) approach makes a sample that is weighted according to each subject's chance of joining their group. As a result, the balance of measured variables between groups is almost the same as if the patients were randomly assigned. In this case, models will also use inverse probability weighting under the supposition that data are missing at random (MAR). We will rely on logistic regression to predict the probability of getting treatment as well as the missing data rate. At this point, the main analysis will check how the intervention influences blood pressure among those in the reweighted group.

Because of the strong methodological design, the researchers want to see if patients with hypertension can benefit from a suitable pharmacy service called medication synchronization. If proven successful, this strategy might guide chronic disease management plans across the nation, assisting in filling the gap between patients' treatment and their outcomes(7).

3.Results

3.1 Participant Recruitment and Characteristics at enrollment

After the National Association of Chain Drug Stores (NACDS) Foundation and the University of Toledo gave funding for the study, the recruitment phase in our longitudinal prospective cohort study began in May 2017. At Toledo Family Pharmacy Inc, independent community pharmacy in the area, initial steps were taken to identify and screen the patients. Specified data was searched in the pharmacy's computers to look for potential participants who were older than 18, had hypertension, made at least six visits over the past year for antihypertensive medications, and were currently using at least two of such drugs along with four other medications. About 150 patients were preliminarily recognized as fitting the basic requirements set by the study.

Various outreach strategies were used to form a good pool of participants in a way that strictly complied with ethical rules and approved informed consent polices by the University of Toledo Biomedical Institutional Review Board. Descriptions of the study objectives and why people should participate were put in places everyone could easily read in both the waiting area and consultation areas. It was made clear in these materials that taking part would not influence regular pharmacy care and patients could quit at anytime with no consequences for their treatment. Pharmacy employees who were trained identified eligible patients while they picked up their prescriptions and informed them about the possible study. Next, those who were interested set up appointments with the study investigators to discuss every aspect of the protocol, as well as the dangers and advantages, the process of collecting information, and privacy (8). Seventy participants joined the study after following the informed consent process, and they met all the requirements for inclusion and exclusion, which provided the sample size required for getting 80% statistical power to detect clinically significant differences in blood pressure outcomes.

TABLE 3 Data Collection and Measurement Overview

Data Collected	Method	Frequency	Purpose/Analysis
Blood Pressure	Standardized measurement (correct cuff size, arm at heart level, multiple readings)	Baseline, Month 1, 4, 7, 10	Assess effectiveness of synchronization intervention on BP reduction
Weight	Standardized scale measurement	Baseline, Month 1, 4, 7, 10	Track changes related to hypertension management
Medication Adherence (PDC)	Calculated based on prescription fill dates and pickup dates	Monthly	Assess adherence to prescribed regimen and link to BP results
Prescription Details	Pharmacy records (dates filled, drugs, strength, supply)	Monthly	Analyze medication synchronization and patient compliance
Satisfaction with Pharmacy	Feedback from participants	Monthly via phone calls	Measure patient satisfaction and involvement in intervention
Health Status	Questions about general health, lifestyle, and medication changes	Monthly phone calls and follow-up visits	Track any changes in health status related to intervention

The process of implementing intervention and the manner in which patients follow it are important to observe.

Conforming to the protocols from the American Pharmacists Association Foundation's Pharmacy's Appointment-Based Model Implementation Guide for Pharmacy Practices, the treatment was applied in the same way to everyone in the group. We made sure that each patient's medications were all given at the same time and had regular talks with them by phone each month to check their health and update them on any possible changes to their medication regimen. It was important for pharmacy workers and participants to team up in this phase to find a sync date that fit

each person's schedule and provided them with sufficient medication. Many times, the pharmacy had to write short or long prescriptions that fit the many different refill timings for patients, which was done by carefully working with physicians and insurance companies to reduce the patients' expenses(9).

Each month, meeting by phone with pharmacy staff gave people a chance to check possible medication alterations, find out if more prescriptions were added or canceled, and clear up any concerns regarding their medications before the planned pickup. The purpose of these calls, which happened one week before the appointment, was to look over patients' medications, check their health, and confirm during the week. A special format was used to gather needed details without taking too much time or losing patients' focus. They noted down any phone calls, covering all prescription modifications, noted complaints, difficulties with medication compliance, and other matters patients had. The monthly checks up gave a solid basis for teaching, as pharmacists would deliver organized talks about controlling blood pressure, taking medications correctly, and modifying lifestyle habits. Tutorial sessions were given according to the study plan, starting with how hypertension affects the body, what goals should be set while treating it, targets for controlling blood pressure, how various drugs work, steps to take for a healthy lifestyle, recognizing and managing side effects, and preventing future heart problems.

3.2 A summary of how the data is being collected and what has been first noticed

At the time of writing the manuscript, the study team performed the data collection phase as participants were progressing through their required assessments scheduled at 1, 4, 7, and 10 months from when they joined the study. To maintain accuracy, all blood pressure measurements were carried out by using the same methods at every measurement moment. The measurements were made according to the standard rules in medicine, including picking the right cuff size, placing the patient flat with both feet on the floor and the arm at heart level, resting for five minutes before the test, and using several readings to get the final value. Weight was measured consistently and other physical tests were also unified to ensure no mistakes were made when gathering data. Pharmacy staff collecting information had been trained in using the right methods and documentation systems to keep the data accurate and consistent during the whole study period.

As the clinical information was being collected, the research team also gathered all prescription details from the pharmacy's records for all enrolled subjects(10). There was Specific data in this database for prescription fill dates, pickup dates, the drugs and their strengths, how much was dispensed, the days' supply, the expenses, and how diligently prescriptions were filled. To objectively measure a person's adherence to medication, the percentage of days covered (PDC) was figured up every month and linked to blood pressure results and attendance in the intervention. Looking at the early data showed that the medication synchronization group consistently picked up their medicines more often, had better refill timing, and fewer cases of them missing their doctor's appointments compared to when they handled their medications alone. Nevertheless, in-depth statistical analysis could only begin after all the data was collected in May 2019 so that inverse-probability-of-treatment weighting could be used to handle any problems of bias and missing data.

4.Discussion

4.1 Practical Value and Limitations Found in Studies Related to Medication Synchronization

Looking at how medication synchronization affects health outcomes is a key change in pharmacy research, since it addresses a gap between better adherence and positive health results. Although it is known that medication synchronization programs help more patients pick up their refills as scheduled, investigations into how such changes may reduce blood pressure have rarely been done. It covers an important concern in the current research by analyzing how Armour fill-on-demand plans for hypertension patients benefit from keeping appointments for their medications. Since the study links this investigation to better blood pressure control through medication, small differences in how well people take their medicines can result in major drops in both health problems and expenses. It has been found in previous studies that medication nonadherence in up to 50% of hypertension patients causes poor blood pressure control and raises their risk of stroke, myocardial infarction, and heart failure. According to FAME, more thorough pharmacy assistance in older patients who took blood pressure medications was connected to better results, as they showed a 6.9 mmHg lower systolic blood pressure on average, when compared to those receiving routine care. Nonetheless, since the FAME study offered a variety of support such as blister packages and extensive education to patients, it was tricky to single out the role played by medication synchronization. By

concentrating on setup through scheduled sessions and uniform content, this current study can give a clear look at what this intervention does. Consequences can also be seen on a larger scale, as there are fewer emergency visits, fewer hospitalizations from heart issues, and lowered long-term costs because of uncontrolled hypertension. Besides, the use of community pharmacy increases the practical usefulness and reliability of results, because small pharmacies cater to different groups and offer attentive care more often than larger chains.

4.2 New Tools and Statistics for conducting Observational Research

The approach taken during the study uses a strong method to tackle difficult parts of observational research in pharmacy, mainly the factor of patients choosing to take part in various treatments. Implementation of IPTW in MSMs ensures accurate causal inference in community pharmacy research despite the fact that randomization cannot be used because of practical and ethical factors. It resolves multiple types of risks all at the same time, for example with confounding factors like people's age, how much they earn, their level of education, and the degree of difficulty of their treatment. MSF allows a complete method for analysis: the first step estimates treatment assignment probabilities and uses them to weight data so that there are no differences between the treatment and control groups regarding observed confounders and other important factors; the second step fixes bias issues caused by people not providing their data; and the third module computes the difference between the treatment and control groups using the balanced samples collected. This method is an improvement over regular pharmacy research because it deals with confounding problems related to simple comparisons or basic regression adjustments. Taking physical measures, collecting information about the use of medications, and listening to what patients experience at months 1, 4, 7, and 10 completes the study by giving a full view of medication synchronization's short-term impact and how long it helps. This sample calculation shows that detecting a 9.5 mmHg difference in systolic blood pressure is useful, taking into account the losses of participants typical in these kinds of research studies. Looking at both the processes with medication adherence and the clinical measure of blood pressure can help explain the link between synchronized medication and better health outcomes, perhaps finding patterns that can be used to update future actions.

4.3 Application of the Study and Areas for Further Study

Implementing the outcomes of medication synchronization research in the daily practice of health care demands taking into account possible obstacles, required resources, and factors that impact continuous use of the approach. Some pharmacies may not be able to implement medication synchronization since they encounter staffing shortages, problems with technology, difficulties getting reimbursed, and having to juggle multiple health-related duties. Because the study was carried out at a single independent pharmacy, it helped identify how much time is needed to do monthly calls, how closely prescriptions are coordinated, and what education team members should have before interacting with patients. Such operational choices are vital when applying them to various pharmacies, whether they function alone or as part of a big chain and serve a mix of patients. Although medication synchronization saves money at the doctor's office, it also impacts pharmacies by boosting their efficiency, increasing patient satisfaction, and helping the business succeed in the long run. Future investigations ought to take into account both healthcare use shifts and pharmacy category expenses to perform thorough evaluations of expenses. By studying a particular set of hypertension-related subjects in a set order, the research provides another pharmacy a clear framework to base their hypertension activities on. For the long run, providing value to patients, healthcare professionals, health insurance providers, and pharmaceutical organizations may matter. When medication synchronization is combined with changing healthcare models such as value-based care and accountable care organizations, it can open up more chances for program support and payment. Investigations in the future need to identify the best time and level of medication synchronization for individuals, suitable adjustments for people with different health conditions, and the chance to use automated calling programs and digital health records. Research results would be more similar and there would be more chance for comparison across various studies by using standard outcome measures for medication synchronization programs. Qualitative studies involving patient and pharmacy staff would give important information on how to improve the program, remove obstacles to implementing it, and see if the intervention is accepted.

5.Conclusion and Future work

This research is especially important for showing whether programslink that allows patients to collect all their hypertension meds at once improve both their adherence and overall health. Strong statistical approaches and strict procedures in the study place it in a good position to determine the link between involvement in medication synchronization and maintaining healthy blood pressure levels for patients in community pharmacies. This approach strongly improves how one can estimate causal relationships in observational drug research because it manages problems that have previously blocked many investigations. This is an important advancement, since the research looks at results that matter to patients, such as lowering their blood pressure, rather than just following up on prescribed pills or how often they refill their pills. Research that documents the relationship between medication sync and results will give decision-makers the data needed to promote or fund such programs in regular clinical care.

As a result of the study, medication synchronization may be seen as a proven clinical service and be rewarded and given importance in changing health systems. The set method for educating hypertension patients ensures any pharmacists adopting this protocol could repeat it in various communities. With the data being collected in this way, measuring physical status, medicine compliance, satisfaction, and other outcomes, there will be plenty of information to support the development of best practices and ways to raise quality of care. In addition, the study is performed in community pharmacies, which increases how relevant and usable the study results may be, since the intervention faces conditions and typical patients found in real community pharmacies.

Future work

Once this work is done, it will prepare us for significant studies aimed at making optimum use of medication synchronization and applying them to more patients and various types of illnesses. The next step after the study data is analyzed and published is to conduct a major randomized trial that makes use of the outcomes and numbers from the earlier study. Based on what has been found within the current study, the randomized trial will make necessary updates to the educational protocol, fine-tune how synchronization takes place, and improve the way data is collected to ensure the program and its outcomes are properly followed and assessed. The research should be conducted in a way that involves groups of pharmacies from different networks to ensure results apply everywhere and to find out what factors at each location influence the program.

Besides hypertension, using medicines at the same time may be helpful for patients with diabetes, dyslipidemia, chronic kidney disease, or heart failure. Every disease allows researchers to look at disease-specific outcomes as they stick to the main framework of synchronization. Studies managing diabetes could look at management methods such as glycemic levels and medication use, and work on improving the lipid profile and lowering heart risk in people with dyslipidemia. In order for such protocols and outcomes to be clinical, they should be designed jointly with specialists and professional organizations to make sure they are in line with scientific guidelines.

The adoption of technology-based systems offers chances to improve the program and deal with the challenges of managing increasing numbers of patients. Further studies need to explore telephoning patients, using apps for patient involvement, merging medical records, and data analysis for discovering which patients are less likely to take medicines as suggested. Using automated systems that help pharmacists choose ideal patients for medication synchronization and check the success of the program may help more pharmacies apply the process successfully. Reviews of technology configurations must take into account differences between patients, especially older adults who usually prefer regular communication and younger patients who could use active digital tools.

Another important task is to carry out economic evaluation research to define the beneficial aspects of medication synchronization in health systems shifting toward value-based care. It is important to check the overall costs of care, including medical fees for hospitalizations, emergency treatments, and visits to physicians, together with indirect fees linked to absenteeism at work and the help offered by caregivers. Making budget impact models to understand the effects of wide medication synchronization use on health systems' finances will be very useful for decision-making. Working with health economists and health services researchers will help maintain good evaluation methods and match the decision-making guidelines in healthcare.

Focus should be placed on identifying what in an organization, their finances, and beliefs support the correct organization and continuing operation of medication synchronization. Some points to consider include coming up with the best staffing methods, recommending suitable training, ensuring high service standards, and measuring how well the community pharmacy performs synchronization services. Creating implementation toolkits, training

materials, and certification courses will make it easier to deliver programs the same way while still fitting each community's needs and pharmacy's abilities. Joining efforts with groups such as pharmacy professional organizations, academic centers, and healthcare service providers is very important for supporting the wide distribution and constant advancement of the programs.

Acknowledgement: Nil

Conflicts of interest

The authors have no conflicts of interest to declare

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