Patient Counselling and Medication Therapy Management: Impact on Treatment Outcomes

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ABSTRACT

Background: Medicines are central to the prevention and treatment of acute and chronic diseases, yet their benefits may be compromised by inappropriate prescribing, drug-related problems, poor adherence, limited health literacy, and inadequate follow-up. Patient counselling and medication therapy management (MTM) are pharmacist-led or pharmacist-integrated services intended to optimize medicine use and improve outcomes. **Objective:** This study examines the contribution of patient counselling and MTM to adherence to treatment, health outcomes, drug safety, healthcare utilization, and person-centered measures. **Methods:** Relevant peer-reviewed evidence syntheses, healthcare studies, professional standards, and consensus publications were considered, with emphasis on pharmacist counselling and MTM interventions across ambulatory, community, and hospital settings. This is a narrative synthesis rather than a systematic review; no formal protocol, exhaustive search, or pooled analysis was undertaken. **Results:** Studies generally find that pharmacist counselling can support adherence, while MTM can improve appropriateness of drug therapy, address drug drug-related problems, and help control some chronic conditions. Meta-analyses have reported reductions in readmissions, emergency visits, and adverse drug events, although findings vary by intervention, population, outcome definition, and study quality. Findings for mortality, overall quality of life, and costs are more mixed. **Conclusion:** Individualized counselling combined with structured medication evaluation, collaborative care, and follow-up can strengthen the safe and effective use of medicines. Implementation should be person-centered, outcomes-focused, and supported by documentation, communication with prescribers, and evaluation using clinically meaningful measures.

Keywords: Patient counselling; Medication therapy management; Pharmacist; Adherence to treatment; Drug-related problems; Treatment outcomes; Pharmaceutical care.

1. INTRODUCTION

Pharmacotherapy is a cornerstone of modern healthcare. Medicines can relieve symptoms, prevent complications, slow disease progression, and improve survival. However, the realization of these benefits depends on more than selecting an appropriate drug. Patients must understand why a medicine is prescribed, how it should be used, what effects to expect, and what to do when difficulties arise. Prescribers and pharmacists must also ensure that regimens are appropriate, effective, safe, and feasible for the individual. In routine practice, these requirements are not always met, particularly among people with multimorbidity, polypharmacy, limited health literacy, or fragmented care [1-3]. Medication-related problems may arise from untreated indications, unnecessary therapy, inappropriate drug selection, suboptimal dosage, adverse effects, interactions, duplication, or inability to obtain or use a medicine as intended. Some problems are preventable through better communication and medication assessment; others require monitoring and timely modification of therapy. The consequences can include treatment failure, avoidable emergency visits, hospitalization, increased expenditure, and diminished confidence in healthcare [2,4].

Patient counselling involves a purposeful conversation in which healthcare professionals explain treatment in ways patients can understand, support informed decisions, and help them use medicines safely. MTM extends beyond counselling: it involves assessing the full regimen, finding and prioritizing drug drug-related problems, agreeing on an action plan, communicating recommendations, and checking the results. Counselling is therefore an essential component of MTM,

but MTM also includes health assessment, medicine reconciliation, coordination, and follow-up [5,6]. Pharmacy practice has increasingly moved beyond dispensing to include direct, ongoing patient care. Professional statements describe pharmaceutical care as a person-centered responsibility for achieving defined drug-related outcomes. This evaluation considers their effects on treatment outcomes, how those effects may arise, and what helps or hinders implementation [1,5].

2. EVIDENCE APPROACH

This narrative synthesis draws on foundational publications, professional guidance, evidence syntheses, meta-analyses, and healthcare studies on patient counselling and MTM. Topics were organized around intervention components and outcomes relevant to pharmacy practice. Publications were selected for relevance, methodological contribution, or their role in defining practice. Because this was not a protocol-driven evidence synthesis, databases, screening procedures, risk-of-bias assessment, and quantitative synthesis were not conducted according to a prespecified protocol. The conclusions should be interpreted as a narrative overview of the published findings [6].

3. PATIENT COUNSELLING: CONCEPT AND CORE PRINCIPLES

Good counselling goes beyond handing a patient a leaflet or reciting instructions. It is a two-way interaction that explores the individual's knowledge, beliefs, preferences, barriers, and capacity to follow the treatment plan. The pharmacist should use plain language, avoid unnecessary jargon, invite questions, and confirm understanding through teach-back. Counselling should be respectful, culturally sensitive, and adapted to language, age, sensory impairment, cognition, and social circumstances [7,8].



Figure 1. Pharmacist-led patient counselling on medicine use, dosage, and precautions.

3.1 Essential information during counselling

Counselling should cover the medicine's name and purpose; dose, route, timing, and duration; administration with or without food; expected benefits and time to response; common and clinically important adverse effects; warning signs requiring urgent attention; relevant interactions; missed-dose instructions; storage; and monitoring requirements. Information should be prioritized rather than overwhelming the patient. For complex regimens, a written medicine schedule or medicine list can reinforce verbal instructions.

3.2 Communication strategies

Open-ended questions such as "How do you take this medicine at home?" can reveal discrepancies more effectively than yes-or-no questions. Teach-back asks the patient to explain the instructions in their own words and is a practical method to identify misunderstanding. Motivational interviewing techniques may help explore ambivalence, elicit individual goals, and support behavior

change without blame [8,9]. Demonstration and return-demonstration are useful for inhalers, insulin pens, injections, eye drops, and devices. Follow-up counselling should revisit the most important messages and assess whether the treatment plan remains feasible.

3.3 Adherence barriers and individualized counselling

There is rarely a single reason for nonadherence. It may be intentional, such as stopping therapy because of perceived lack of benefit or fear of adverse effects, or unintentional, such as forgetting doses, misunderstanding instructions, or being unable to obtain medication. Financial constraints, regimen complexity, depression, cognitive impairment, low health literacy, and cultural beliefs may contribute. Counselling is most likely to be useful when the actual barrier is identified and matched to an intervention for example, simplification with the prescriber, reminder tools, affordability support, or adverse-effect management [10,11].

4. MEDICATION THERAPY MANAGEMENT: FRAMEWORK AND SERVICE COMPONENTS

MTM offers a structured, person-centered way to improve how medicines are used and the outcomes they achieve. Professional consensus and practice models emphasize a comprehensive medicines assessment, a personal medicine record, a drug therapy action plan, intervention or referral, and documentation with follow-up [5, 6]. The precise model varies according to setting, scope of practice, and available resources.

4.1 Comprehensive medicines assessment

A comprehensive assessment covers prescription and nonprescription medicines, as well as vitamins, herbal products, and supplements. The pharmacist evaluates each medicine for indication, effectiveness, safety, and the individual's ability to use it as intended. The assessment should include allergies and previous adverse reactions, duplicate therapy, drug–drug and drug–disease interactions, dose appropriateness, renal or hepatic considerations, monitoring, and adherence. A medicine list based solely on prescriptions may be incomplete; patient interview, caregiver input, clinical records, and pharmacy history can help reconcile actual use.

4.2 Identification and prioritization of drug drug-related problems

The pharmacist should classify drug drug-related problems and prioritize them according to urgency, potential harm, health-related risk, and the individual's preferences. Potential issues include an untreated condition, unnecessary medication, ineffective selection, inadequate dose, excessive dose, adverse reaction, interaction, or failure to receive therapy. The pharmacist should distinguish problems that can be resolved through education from those requiring prescriber assessment, laboratory monitoring, or referral. Recommendations should be specific and actionable.

4.3 Medication action plan and communication

The action plan turns the medication assessment into practical steps the patient can follow. It may include changes agreed with the prescriber, monitoring tasks, adherence strategies, symptom tracking, and follow-up dates. A personal medicine record supports continuity between clinicians and settings. Recommendations must be communicated promptly to the responsible prescriber, and changes should not be made outside the pharmacist's authorized scope or collaborative arrangements.

4.4 Follow-up and continuity

MTM should be viewed as an ongoing process, not a one-time appointment. Follow-up determines whether recommendations were accepted, whether the patient can implement them, and whether outcomes are improving. The frequency depends on risk, medication changes, disease control, and patient needs. Follow-up may be face-to-face, by telephone, or through secure digital services. Transition points hospital admission, discharge, specialist visits, and changes in care setting—are particularly important because medication discrepancies can emerge [12,13].

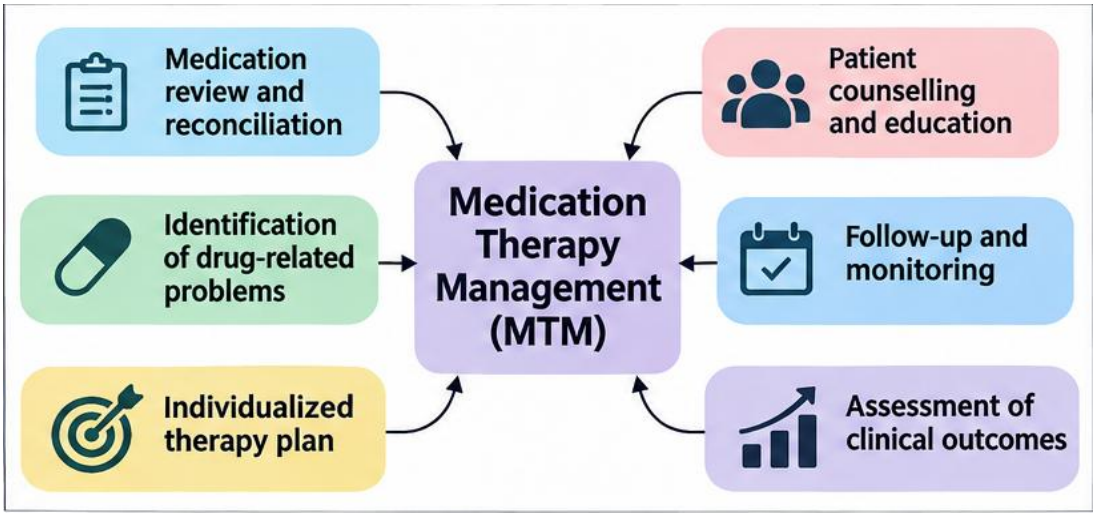


Figure 2. Integrated pathway for patient counselling and medication therapy management.

5. IMPACT ON MEDICATION ADHERENCE

Adherence is an important link between treatment plans and outcomes: many medicines work only when taken consistently and correctly. Pharmacist counselling can improve understanding of the regimen, address concerns about adverse effects, and help patients establish practical routines. In a pooled analysis of randomized trials, pharmacist intervention counselling was associated with higher odds of adherence than no counselling (pooled OR 4.41; 95% CI 2.46–7.91), although the authors noted very low overall methodological quality and variation among interventions [14]. Another meta-analysis reported that pharmacist counselling was associated with improved adherence and lower 30-day readmission, while emphasizing limitations in the research base [15].

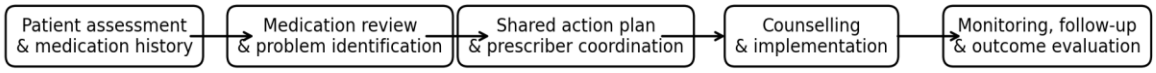


Figure 3. Core components and workflow of Medication Therapy Management (MTM).

Adherence data need to be interpreted carefully. Self-report is convenient but may overestimate adherence because of recall and social desirability bias. Refill-based measures, pill counts, electronic monitoring, and disease-specific biomarkers capture different aspects of medicine use and are not interchangeable. A patient may possess medication without taking it, or may take medication correctly but remain uncontrolled because the regimen is ineffective. Adherence should therefore be assessed alongside treatment response, individual experience, and treatment appropriateness. Interventions are more effective when tailored to the cause of nonadherence and when they include repeated contact. One-time information provision may not address persistent behavioral, economic, or regimen-related barriers. Practical approaches include simplified dosing schedules, synchronization of refills, reminder aids, caregiver involvement with consent, and collaboration to reduce unnecessary medicines or dosing burden [10,14].

6. IMPACT ON CLINICAL TREATMENT OUTCOMES

6.1 Chronic disease control

MTM may support improved control of diabetes, hypertension, and dyslipidemia by identifying gaps in therapy, optimizing medication selection and dosing, improving adherence, and ensuring appropriate monitoring. An evidence synthesis focused on pharmacist-provided MTM for these conditions included eight studies and found statistically significant improvements in at least one condition-specific clinical outcome in most included studies. Such results support integration of pharmacists into chronic disease teams, while recognizing that study designs and endpoints differed. In diabetes, counselling can reinforce administration technique, hypoglycemia recognition, glucose monitoring, lifestyle recommendations, and the importance of follow-up. In hypertension, medication assessment may identify missed doses, adverse effects, inappropriate combinations, or the need for treatment intensification in collaboration with the prescriber. For dyslipidemia, pharmacists can address concerns about statin-associated symptoms, reinforce long-term risk reduction, and assess lipid monitoring. Clinical improvements are not attributable to counselling alone when interventions also include medication adjustment, laboratory monitoring, or broader team-based care [15-16].

6.2 Hospital readmissions and emergency visits

Hospital transitions create substantial risk for medication discrepancies, omissions, duplications, and misunderstanding. Counselling at discharge, medicine reconciliation, communication with community providers, and timely follow-up can help patients navigate changes. A meta-analysis of pharmacist counselling randomized trials reported a relative reduction in 30-day readmission of approximately 24%, with an estimated number needed to treat of 4.2 in the pooled analysis; however, effects may vary with patient population and service intensity [15]. A broader meta-analysis of MTM services comprising 81 studies and 60,753 participants reported lower readmission (OR 0.78; 95% CI 0.73–0.83) and emergency department visits (OR 0.88; 95% CI 0.81–0.96) [17]. These estimates are encouraging but should not be interpreted as universal effects. Heterogeneity in care settings, intervention components, usual care, and follow-up can influence observed results.

6.3 Adverse drug events and drug safety

Medication assessment and counselling can reduce preventable harm by detecting potentially inappropriate medicines, interactions, contraindications, duplicate therapy, and monitoring gaps. Patients can be taught to recognize selected warning symptoms and seek timely assistance. MTM may also improve safe administration through clarification of dose, route, timing, and device technique. The 2023 meta-analysis found reductions in all-cause adverse drug events (OR 0.68; 95% CI 0.56–0.84) and serious adverse events (OR 0.51; 95% CI 0.33–0.79), though heterogeneity was present [17]. Safety counselling should be balanced: it must not exaggerate common minor effects or create unnecessary fear that leads to discontinuation. The pharmacist should explain which effects are expected, which require contacting a clinician, and which constitute an emergency. Patients should be encouraged to report symptoms rather than independently stop high-risk medicines unless they have been given specific instructions.

6.4 Medication appropriateness and drug drug-related problems

MTM can improve appropriateness of drug therapy by matching therapy to indications, goals, comorbidities, and patient circumstances. An evidence synthesis of outpatient MTM found improvement in appropriateness of drug therapy and some adherence outcomes, but research findings were insufficient for many health outcomes. The number of problems identified is not itself proof of improved health: meaningful evaluation should assess whether high-priority problems were resolved, whether recommended changes were implemented, and whether health outcomes followed [18].

6.5 Mortality and quality of life

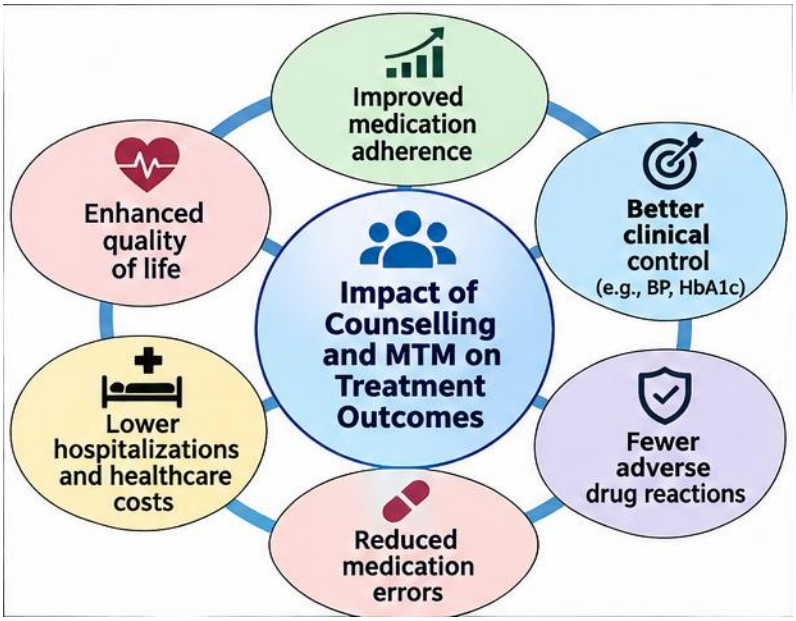


Figure 4. Patient-centered and health outcomes associated with counselling and MTM.

Evidence for mortality reduction is less definitive than data on intermediate outcomes. In the 2023 meta-analysis, mortality was not significantly affected (OR 0.91; 95% CI 0.83–1.01) [17]. Quality-of-life outcomes have also varied. Some counselling meta-analyses have reported improvement, while earlier MTM evidence syntheses found no consistent benefit across broad health-related quality-of-life measures [14,18]. Quality of life may be influenced by disease burden, duration of follow-up, and the instrument used; pharmacy programs may improve a individual's experience even when global scores do not change.

Table 1. Potential effects of counselling and MTM on treatment outcomes.

Outcome domain	Mechanism of benefit	Evidence interpretation
Medication adherence	Improved understanding; barrier resolution; regimen support	Generally favorable; outcome measures and intervention intensity vary
Disease control	Medication optimization, monitoring, adherence	Benefits reported in selected chronic diseases; not uniform
Readmission / ED use	Reconciliation, discharge counselling, follow-up	Meta-analyses suggest reductions; heterogeneity remains
Medication safety	Problem detection, interaction review, education	Likely to reduce some preventable medication harm
Appropriateness	Review of indication, effectiveness, safety, feasibility	Improvement demonstrated in selected measures
Mortality	Indirect effect through better treatment and safety	No consistent significant reduction demonstrated
Quality of life	Symptom control, reduced burden, confidence	Mixed findings; depends on population and measurement
Healthcare costs	Avoided utilization, optimized therapy	Potential savings, but economic research findings are context-dependent

7. MECHANISMS LINKING COUNSELLING AND MTM TO OUTCOMES

Counselling and MTM can influence outcomes through several connected pathways. First, the services improve medication knowledge and practical skills, reducing errors in administration. Second, they identify and address drug-related problems, including unnecessary or ineffective therapy. Third, they can improve adherence by responding to patient-specific barriers. Fourth, they strengthen communication across care teams and reduce discrepancies during transitions. Fifth, structured monitoring enables earlier detection of nonresponse or toxicity. These pathways are interdependent: adherence support has limited value if the regimen is inappropriate, and therapy optimization may fail if patients do not understand or accept the plan. A collaborative approach is central. Pharmacists can contribute pharmacotherapy expertise, while prescribers retain responsibility for diagnosis and prescribing decisions within their scope. Nurses, caregivers, and other professionals may reinforce education and monitoring. Shared decision-making helps ensure that treatment goals reflect patient priorities, including symptom relief, functional status, treatment burden, and preferences [19].

8. APPLICATION ACROSS CARE SETTINGS

8.1 Community pharmacy

Community pharmacies provide repeated, accessible contact and can identify adherence concerns during refill encounters. Counselling can focus on new prescriptions, chronic therapy, devices, high-risk medicines, and over-the-counter products. Structured MTM programs may be particularly useful for people with multiple chronic conditions or complex regimens. Privacy, staffing, reimbursement, and access to clinical records can limit the depth of services.

8.2 Hospital and ambulatory care

In hospitals, pharmacists can conduct medicine reconciliation, assess inpatient regimens, counsel before discharge, and communicate medication changes to outpatient clinicians. Ambulatory clinics offer opportunities for longitudinal disease management and laboratory-based monitoring. Coordination is important so that individuals receive consistent messages and avoid conflicting advice.

8.3 Telepharmacy and digital counselling

Telephone, video, and digital platforms can extend services to people with mobility barriers or limited access to pharmacists. Remote counselling may support follow-up, adherence assessment, and checking home measurements. Remote services also need safeguards for privacy and documentation, and must account for accessibility, internet connectivity, and individuals' digital skills. They should complement—not automatically replace—face-to-face assessment when physical examination or device demonstration is needed.

9. CHALLENGES AND LIMITATIONS

In practice, a number of obstacles can make these services difficult to deliver. Time constraints and workload can restrict comprehensive assessments. Pharmacists may lack access to complete diagnoses, laboratory results, or medication histories. Fragmented records and weak communication with prescribers can delay action on identified problems. Reimbursement and staffing models may not adequately support cognitive services. Patients may be reluctant to disclose nonadherence, use of traditional remedies, or financial difficulties if they anticipate judgment. The available research has limitations that should be kept in mind. MTM interventions are complex and differ in content, provider, frequency, duration, and setting. Trials may be underpowered for mortality or hospitalization, and observational studies can be affected by selection bias and confounding. Outcomes are measured inconsistently, and the comparator "usual care" changes over time. Publication bias and high statistical heterogeneity are concerns in some meta-analyses [17,18]. Consequently, a positive pooled estimate does not guarantee the same effect in every care model. Another challenge is distinguishing the effect of counselling from the effect of medication changes, additional monitoring, or team-based care. Future studies should describe intervention components clearly, measure implementation fidelity, and use clinically relevant endpoints. Economic analyses should include service costs, patient costs, and

downstream utilization rather than focusing only on medication expenditure.

10. STRATEGIES FOR EFFECTIVE IMPLEMENTATION

A practical service should define the target population, eligibility criteria, workflow, documentation standards, and referral pathways. Priority may be given to people with polypharmacy, recent discharge, high-risk medicines, poor disease control, recurrent drug-related utilization, or suspected adherence difficulty. A consistent assessment framework can guide the service, while the conversation itself should be tailored to each patient. Implementation strategies include: (1) protected counselling time and private consultation space; (2) access to accurate medication and clinical information; (3) clear communication channels with prescribers; (4) staff training in communication, teach-back, motivational interviewing, and health assessment; (5) patient-friendly written materials in appropriate languages; (6) follow-up plans based on risk; and (7) routine service evaluation. Documentation should record identified problems, recommendations, decisions, individual goals, and follow-up results. Useful quality indicators include the proportion of patients receiving a complete medication assessment, medication discrepancies resolved, high-priority recommendations accepted, adherence changes, disease-specific measures, adverse drug events, readmissions, patient-reported experience, and time to follow-up. Indicators should be feasible and selected according to the service's purpose. Service quality should not be judged simply by counting interventions.

Table 2. Suggested indicators for evaluating an MTM service.

Level	Example indicator	Measurement approach
Process	Medication reviews completed	Number completed / eligible patients
Process	Recommendations communicated	Documented recommendations with prescriber communication
Process	Follow-up completed	Patients reached within planned interval
Intermediate	Drug drug-related problems resolved	Resolved priority problems / identified priority problems
Intermediate	Adherence	Validated questionnaire, refill measure, or appropriate monitoring
Clinical	Disease-specific control	HbA1c, blood pressure, lipid levels, or relevant clinical target
Safety	Medication-related harm	Adverse events and preventable medication incidents
Utilization	Readmissions or ED visits	Defined time window and consistent data source
Patient-centered	Understanding and satisfaction	Teach-back assessment or validated patient-reported measure

11. FUTURE DIRECTIONS

Further studies should compare well-described MTM models and identify which elements are most useful for particular patient groups. Pragmatic randomized trials and well-designed implementation studies can assess effectiveness in routine practice. Research should examine person-

centered outcomes, treatment burden, health equity, and the value of services in under-resourced settings. Standardized outcome definitions and transparent reporting would improve comparability. Technology may support medicine reconciliation, interaction screening, reminder systems, and follow-up prioritization. Artificial intelligence and clinical decision-support tools may help identify patients at risk or organize medication data, but their recommendations require professional oversight and reliable input data. Digital tools should not replace care relationships, individual preferences, or professional judgment. Implementation must address privacy, bias, and equitable access. In settings such as India, counselling and MTM could be adapted to multilingual populations, variable health literacy, high out-of-pocket expenditure, and differing access to electronic health records. Use of local-language instructions, affordability discussions, coordination with treating clinicians, and feasible follow-up channels may be particularly important. Context-sensitive program design is needed rather than assuming that models developed in other healthcare systems will transfer unchanged [20].

11.1 Special populations and high-risk medicine use

Older adults often experience multimorbidity, age-related changes in pharmacokinetics and pharmacodynamics, sensory or cognitive limitations, and extensive medicine lists. MTM for older adults should assess whether each medicine remains indicated, whether the dose is appropriate for renal function and frailty, and whether the regimen contributes to falls, confusion, bleeding, hypoglycemia, or other preventable harms. Counselling should be paced, use large-print or simplified schedules when helpful, and include caregivers with the individual's permission. Deprescribing discussions should be collaborative and should explain both the rationale for reducing therapy and the plan for monitoring after changes. Patients with multiple chronic conditions may receive prescriptions from several clinicians. A consolidated medicine record and shared medication goals can reduce duplication and conflicting instructions. The pharmacist should ask about medicines obtained from different pharmacies, samples, traditional or herbal products, and self-directed dose changes. When treatment burden is high, the team may consider dosing simplification, prioritization of therapies with the greatest expected benefit, and alignment of medication timing with daily routines.

High-alert medicines warrant focused counselling and monitoring. Examples include anticoagulants, insulin and other glucose-lowering agents associated with hypoglycemia, opioids, immunosuppressants, and selected medicines requiring narrow therapeutic monitoring. Counselling should emphasize critical administration details, interaction risks, monitoring schedules, and clear escalation instructions. For anticoagulants, individuals should understand bleeding warning signs and the importance of informing clinicians before procedures or starting interacting medicines. For insulin, education should include device technique, storage, glucose monitoring, and hypoglycemia response. These interventions must be adapted to the prescribed regimen and clinician-provided plan [20-22].

11.2 Patient-centeredness, health literacy, and shared decisions

Patient-centered care recognizes that treatment success is defined not only by laboratory values but also by the individual's priorities and daily experience. A person may value symptom relief, independence, reduced pill burden, affordability, or avoidance of particular adverse effects. Even a clinically appropriate regimen may be difficult to maintain if it does not fit the individual's daily life. Counselling should therefore elicit goals and preferences before proposing solutions, and MTM should document agreed goals alongside medication problems.

Health literacy is not a fixed attribute of an individual; it is also shaped by how clearly healthcare systems communicate. Universal communication precautions plain language, limited key messages, visual aids, and teach-back can benefit patients across literacy levels. Written information should complement conversation rather than replace it. In multilingual settings, translated materials and interpreters can improve comprehension, while clinicians should avoid assuming that a family member can accurately interpret complex medication instructions. Cultural beliefs about medicines should be explored respectfully and incorporated into the care plan when safe. Shared decision-making can improve acceptance of recommendations. Patients should receive a balanced explanation of

expected benefits, possible harms, alternatives, and areas of uncertainty. If the patient declines a recommendation, the reason should be explored and documented rather than treating the decision as noncompliance. This approach supports trust and may identify a more acceptable alternative [23-24].

11.3 Economic and healthcare-system outcomes

MTM may influence healthcare expenditure through several pathways: preventing avoidable adverse events, reducing acute care utilization, improving selection of cost-effective therapy, and limiting unnecessary medicines. Yet economic results depend on the intervention cost, patient population, health-system prices, and whether savings accrue to the payer, provider, or patient. Some studies report reduced medication-related expenditure or hospitalization costs, whereas other evaluations find neutral or uncertain effects. A service-level economic assessment should distinguish direct costs of pharmacist time, technology, and follow-up from downstream costs such as emergency visits, admissions, laboratory tests, and medication acquisition. Cost-effectiveness analyses should use a transparent perspective and time horizon and, where feasible, include quality-adjusted life years or other person-centered outcomes. Short follow-up may fail to capture the long-term benefits of improved chronic disease management. Economic findings from one country or reimbursement system should not be transferred directly to another without considering local conditions [22-24].

11.4 Measuring outcomes and interpreting evidence

Outcome assessment should be planned before the service begins. Process indicators show whether the service was delivered, but they do not establish whether patients benefited. Intermediate outcomes such as adherence, appropriateness of drug therapy, or resolution of drug drug-related problems can provide useful indications of mechanism. Clinical endpoints should be selected according to the condition and intervention, for example blood pressure, glycated hemoglobin, lipid levels, symptom control, or validated safety outcomes. Patient-reported outcomes can capture treatment burden, confidence, understanding, and perceived involvement.

Published results are easier to interpret when the comparison group and intensity of the intervention are considered. A pharmacist service compared with minimal usual care may produce a larger effect than the same service compared with an established multidisciplinary program. Similarly, a single counselling encounter is not equivalent to repeated MTM with medication adjustment and monitoring. Statistical significance should be considered alongside effect size, confidence intervals, practical importance, and feasibility. Consistent reporting of the service components, training, contact frequency, and follow-up duration would improve the ability to reproduce and scale effective models [21-24].

11.5 Role of the pharmacist within interprofessional care

Pharmacists contribute a medication-focused perspective to interprofessional teams. Their recommendations are most effective when integrated into established clinical workflows and communicated in a timely, concise manner. Each recommendation should clearly state the problem, relevant context, suggested action, and how it should be monitored. Respectful communication and shared accountability help avoid fragmented care. Collaborative practice agreements, where permitted, can facilitate timely medication adjustments while maintaining clear governance and scope of practice. The patient remains a central member of the team. Caregivers may assist with medication organization, administration, or monitoring, especially when patients have functional limitations. Their involvement should be consented to and should preserve patient autonomy. At each encounter, clinicians should verify who actually manages medicines at home and whether the plan is realistic [24].

12.CONCLUSION

Patient counselling and MTM work best as complementary parts of therapy optimization. Counselling improves individuals' understanding, skills, and participation, while MTM provides a structured process for assessing medication regimens, identifying and resolving drug drug-related problems, coordinating recommendations, and monitoring results. Evidence is most consistent for

improved adherence and selected measures of appropriateness of drug therapy; meta-analyses also suggest potential reductions in readmissions, emergency visits, and adverse drug events. Effects on mortality, broad quality-of-life outcomes, and costs remain less certain and depend on the population and program design. Sustainable implementation requires individualized care, interprofessional collaboration, continuity, documentation, and evaluation of meaningful outcomes.

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