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Healthcare Team Education Management for Improving Antihypertensive Medication Adherence Among Older Adults in Manado City, Indonesia

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ABSTRACT

This article analyzes the implementation of stunting management policies in Minahasa Regency. The study uses a descriptive qualitative approach to examine the policy process, the delivery of health services, community empowerment, health-supporting infrastructure, and determinant factors influencing policy performance. Data were obtained through observation, in-depth interviews, and documentation involving local government actors, district and village officials, health workers, community cadres, and community representatives. The analysis follows an interactive qualitative model consisting of data condensation, data display, and conclusion drawing. The findings show that stunting management has been implemented through structured planning, primary-health-service mechanisms based on puskesmas and posyandu, food supplementation, maternal and child health monitoring, community education, and village-level support. However, the implementation has not yet achieved full effectiveness because cross-sector integration remains weak, community participation is uneven, infrastructure and data quality are still limited, and program execution often depends on the capacity and commitment of local implementers. Determinant factors include policy communication, human and financial resources, bureaucratic coordination, implementer disposition, and socio-economic conditions. The article argues that stunting policy implementation requires stronger convergence governance, integrated local data, continuous cadre capacity building, culturally grounded health communication, and a family-centered service model that links specific nutrition interventions with sensitive interventions in sanitation, poverty reduction, education, and local economic empowerment.

Keywords: antihypertensive medication adherence, education management, healthcare team, hypertension, older adults, primary healthcare, relational education model.

INTRODUCTION

Hypertension is one of the most consequential chronic diseases among older adults because it often develops without obvious symptoms while silently increasing the risk of stroke, heart failure, kidney disease, visual impairment, and premature mortality. The burden of hypertension is not only biomedical; it also creates educational, behavioral, family, and service-management challenges. Older adults are expected to take antihypertensive medicines consistently, attend follow-up visits, control food intake, reduce salt consumption, engage in physical activity, and respond to symptoms appropriately. These actions require more than a prescription. They require a learning process through which older adults understand the meaning of long-term therapy and build the motivation to continue treatment even when they feel well.

In primary healthcare, the healthcare team is strategically positioned to transform medical instructions into understandable and actionable health behavior. Physicians explain diagnosis and therapy, nurses screen patients and reinforce healthy routines, pharmacists clarify medicine schedules and side effects, cadres maintain contact with the community, and family members provide day-to-day reminders. Yet the effectiveness of this collaborative educational process depends on how education is managed. When education is spontaneous, fragmented, and dependent on individual initiative, patients may receive incomplete or inconsistent messages. When education is planned, coordinated, implemented, supervised, and evaluated, it becomes an organized learning system that supports adherence.

The empirical context of this article is Manado City, where three primary healthcare centers recorded a substantial number of older adults with hypertension. The preliminary service data used in this study showed 598 older hypertensive patients at Bahu Primary Healthcare Center, 498 at Teling Atas Primary Healthcare Center, and 583 at Bailang Primary Healthcare Center. These figures demonstrate that medication adherence education is not a marginal activity; it is a routine service need that affects hundreds of older adults. Because older adults often experience decreased memory, limited health literacy, anxiety about side effects, and dependence on family support, they require educational strategies that are simple, repetitive, relational, and sensitive to daily life.

Previous studies on antihypertensive adherence frequently emphasize individual determinants such as knowledge, attitude, motivation, belief about medicine, perceived severity, perceived benefit, social support, and family reminders. These determinants remain important, but they do not fully explain how education is organized by the service system. A major gap is the limited analysis of health education as a managerial process. Education in healthcare is often treated as a technical activity of delivering messages, whereas from the perspective of educational management it should be understood as a cycle of needs assessment, planning, organizing resources, directing implementation, controlling quality, and improving outcomes.

This article addresses that gap by analyzing healthcare team education management in improving antihypertensive medication adherence among older adults. The article follows the style of an IJITE-format qualitative article: introduction, theoretical framework, method, findings, discussion, proposed model, conclusion, and references. It integrates tables and figures in the findings and discussion to make the empirical argument clearer and more convincing. The main research question is: how is healthcare team education managed to improve antihypertensive medication adherence among older adults in primary healthcare settings? Five operational

questions guide the analysis: how education is planned, how team coordination is conducted, how education is implemented, how supervision is performed, and what outcomes are produced for older adult adherence. See table 1.

Table 1. Prevalence of older hypertensive patients in the study context.

No	Primary healthcare center	Male	Female	Total
1	Bahu	123	475	598
2	Teling Atas	107	391	498
3	Bailang	112	471	583
	Total	342	1,337	1,679

THEORETICAL FRAMEWORK

Educational Management in Healthcare

Educational management refers to the systematic arrangement of educational resources, actors, activities, and evaluation mechanisms to achieve learning outcomes effectively and efficiently. In classical management, planning, organizing, actuating or leading, and controlling provide a basic structure for institutional action (Fayol, 2016). In education, the same functions are used to define learning objectives, organize human resources, direct teaching-learning processes, and evaluate achievement (Bush, 2018; Mulyasa, 2021; Usman, 2022). In healthcare, educational management becomes especially important because patient education must be linked with clinical pathways, service flow, professional roles, documentation, and quality assurance.

A systems perspective views education as an open system consisting of inputs, processes, outputs, outcomes, and feedback (Hoy & Miskel, 2013). The inputs include healthcare workers, patients, families, educational media, clinical data, and service standards. The process includes assessment, counseling, repetition, family engagement, and follow-up. Outputs include improved understanding and documented education. Outcomes include adherence, controlled blood pressure, and reduced complications. Feedback comes from follow-up visits, monitoring, patient questions, and family reports. This systemic view is useful because medication adherence is not produced by one profession or one counseling session; it emerges from the interaction of multiple components.

Total Quality Management also supports educational management in healthcare because it emphasizes continuous improvement, user orientation, stakeholder involvement, and standardization of processes (Sallis, 2015). For older adults with hypertension, quality education requires clarity, consistency, and continuity. A patient who receives one message from the physician, another from the pharmacist, and no reinforcement from the family may become confused. Quality management therefore requires shared materials, clear role division, standard operating procedures, and routine evaluation.

The need for managed education is further reinforced by Wullur, Pinontoan, and Wullur (2025), who show that leadership style and achievement motivation are related to productivity in training and education participants. Applied to this study, healthcare team education should not be understood only as the delivery of medical information, but as a managed learning process that requires leadership, motivation building, role clarity, and sustained facilitation so that older adults become active learners in medication adherence.

Health Education and Adult Learning

Health education is a planned learning experience designed to improve knowledge, attitudes, skills, and voluntary health behavior (Green & Kreuter, 2020; Notoatmodjo, 2023). It is not merely the transfer of biomedical facts. Effective health education must translate clinical recommendations into language that patients can understand, accept, remember, and practice. For older adults, this translation is central because they may face visual limitations, hearing problems, reduced memory, low formal education, and anxiety about chronic medication.

Andragogy provides a strong theoretical basis for educating older adults. Adult learners are self-directed, bring life experience into learning, prefer practical problem-centered content, and learn best when they understand the relevance of new information to their immediate needs (Knowles, Holton, & Swanson, 2015; Knowles, Holton, & Swanson, 2020). In medication adherence education, this means the educator should not only say, 'take the medicine every day,' but should explain why medicine is needed even when symptoms disappear, how to respond to side effects, how to use a pill schedule, and how family members can help without removing the older adult's autonomy.

Kolb's experiential learning theory adds that learning is strengthened through cycles of experience, reflection, conceptualization, and experimentation (Kolb, 1984). Older adults with hypertension already have concrete experiences: headaches, dizziness, high blood pressure readings, missed doses, side effects, clinic visits, and family reminders. Effective education uses these experiences as entry points. The healthcare worker asks what happened, reflects on the consequences, explains the concept of long-term blood pressure control, and helps the patient try a new routine.

Medication Adherence and Health Behavior

Medication adherence is commonly understood as the extent to which patient behavior corresponds with agreed recommendations from healthcare providers. In chronic disease management, adherence includes taking medication at the correct dose and time, continuing therapy despite silent symptoms, attending control visits, and communicating barriers. Non-adherence may be intentional, such as stopping medicine because of fear of side effects, or unintentional, such as forgetting doses because of memory decline. Both forms require educational rather than merely disciplinary responses.

The Health Belief Model explains adherence through perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action, and self-efficacy (Glanz, Rimer, & Viswanath, 2015). Older adults may not adhere if they perceive hypertension as harmless because it is asymptomatic. They may adhere when education increases awareness that uncontrolled blood pressure can cause stroke or kidney failure, while also reducing barriers such as confusion about dose, fear of dependency, or lack of family support. Cues to action can include pill boxes, family reminders, scheduled control visits, and repeated messages from healthcare workers.

Social Cognitive Theory emphasizes self-efficacy, or the belief that one can perform a behavior successfully (Bandura, 2024). For older adults, self-efficacy grows when education is practical and supportive: patients learn to recognize medicines, organize daily schedules, ask questions, and monitor blood pressure. Family involvement can strengthen self-efficacy when it is encouraging rather than coercive. The Theory of Planned Behavior also explains that attitudes, subjective norms, and perceived control influence intention to adhere (Ajzen, 1991). In the Manado

context, family and community norms can become powerful supports when they reinforce routine medicine taking as responsible self-care.

Health literacy is another essential concept because medication adherence depends on the ability to access, understand, appraise, and apply health information (Nutbeam, 2000; WHO, 2021). Low health literacy does not mean that older adults are unwilling to learn. It means that the education system must adapt: use simple words, large fonts, repetition, visual aids, dialogue, and teach-back. When the educator asks the patient to repeat the schedule in their own words, misunderstanding can be detected immediately.

Relational Care and Family Support

Relational care views healthcare as an interpersonal process in which trust, empathy, respect, and continuity shape patient behavior. In education for older adults, trust is not optional. Many patients decide whether to follow recommendations based on the credibility, warmth, and patience of healthcare workers. Relational care is consistent with patient-centered care, which respects patient values, preferences, and needs (WHO, 2022). It also resonates with phenomenology because older adults interpret medication through lived experience: previous illness, family stories, fear, dependence, and hope.

Family support is crucial because older adults often rely on relatives to buy medicine, accompany clinic visits, prepare food, remind schedules, and interpret information. Studies on older adults with hypertension have repeatedly shown that family support is associated with improved adherence (Nurannisa et al., 2022; Sari et al., 2022). However, family support must be managed carefully. The family should not replace the older adult as the main subject of education; rather, family members should become partners who help the older adult retain autonomy and dignity.

METHOD

This article is based on a qualitative phenomenological study. Phenomenology was chosen because the phenomenon under investigation is not only a measurable behavior but also a lived experience involving meaning, motivation, perception, and interaction. Medication adherence among older adults cannot be fully understood only from attendance records or blood pressure readings. It must also be understood through how older adults interpret hypertension, how they remember or forget medicine, how families support them, and how healthcare workers manage education in routine service encounters (Creswell, 2018; van Manen, 2017).

The study was conducted at three primary healthcare centers in Manado City: Bahu, Teling Atas, and Bailang. These sites were selected because they serve substantial numbers of older adults with hypertension and represent routine primary healthcare contexts where medication education is delivered by interprofessional teams. The participants included older adults with hypertension, family caregivers, physicians, nurses, and pharmacists. The distribution of informants is presented in Table 2. The total participant structure allowed the study to compare perspectives from service providers and service recipients.

Data were collected through focus group discussions with healthcare teams, in-depth interviews with older adults and family caregivers, observation of service flow, and document review. The focus group discussions explored how education was planned, coordinated, implemented, supervised, and evaluated. Interviews with older adults and families explored comprehension, experience with medicine, perceived barriers, family roles, and changes after

education. Observation helped identify the concrete moments when education occurred, such as during screening, examination, drug dispensing, counseling, and follow-up. Document review strengthened contextual understanding of service procedures and educational outputs.

Data analysis followed thematic analysis. The process began with familiarization, reading, and noting important statements. Initial codes were created from meaningful units of data. These codes were grouped into subthemes and then organized into major themes aligned with the five management dimensions. The analysis moved back and forth between data and interpretation to ensure that themes represented the participants' experiences. Trustworthiness was strengthened through triangulation across informant groups and data collection techniques, member checking of key interpretations, and an audit trail of coding decisions (Miles, Huberman, & Saldana, 2014; Braun & Clarke, 2006). See table 2.

Table 2. Distribution of informants by primary healthcare center.

Participant group	Bahu	Teling Atas	Bailang	Total
Older adults	3	3	8	14
Family caregivers	3	3	8	14
Physicians	1	1	1	3
Nurses	1	1	1	3
Pharmacists	1	1	1	3
Total	9	9	19	37

RESULTS AND DISCUSSION

The findings are organized according to five management functions: planning, coordination, implementation, supervision, and results. These themes represent the movement of health education from preparation to impact. Table 3 summarizes the themes, subthemes, and core meanings emerging from the data.

Table 3. Themes and subthemes of healthcare team education management.

Research focus	Theme	Main subthemes	Core meaning
Planning	Healthcare team education planning	Planning educational materials; determining educational targets; deciding time and place	Education is adaptive and responsive to older adult literacy, clinical needs, and service opportunities.
Coordination	Team education coordination	Interprofessional collaboration; coordination barriers	Education is interprofessional but not yet fully integrated into a standardized system.
Implementation	Education implementation	Methods and media; language and communication style; family involvement	Education is contextual, interpersonal, and oriented toward family-supported adherence.

Supervision	Education supervision	Medication adherence monitoring; limitations of supervision	Supervision occurs periodically but is not yet continuous or instrument-based.
Results	Education outcomes	Medication adherence; health condition changes	Integrated education supports gradual behavior change and greater awareness.

Planning of healthcare team education

Educational planning was evident in the way healthcare workers prepared the content and approach before or during routine services. Planning did not always appear as a formal written plan; it was often embedded in team discussion, clinical routines, and professional judgment. Healthcare workers considered the type of medicine, the patient's blood pressure condition, age-related limitations, education level, and the possibility of involving family members. The main planned content included the meaning of hypertension, the importance of daily medication, risk of complications, dose schedule, side effects, diet, control visits, and the need to continue therapy even when the patient felt healthy.

The most important planning principle was simplification. Healthcare workers recognized that older adults require clear, short, repeated, and practical messages. Technical medical terminology was avoided when possible. The use of brochures and posters was planned as supporting media, but verbal explanation remained the primary strategy. Planning also considered service timing. Education was commonly delivered when patients arrived for control, after blood pressure measurement, during physician consultation, and at the pharmacy counter when medicines were dispensed.

The planning process showed sensitivity to older adult characteristics, but it remained partially informal. There was no evidence of a standardized educational plan with uniform learning objectives, adherence indicators, media packages, or follow-up schedules across all sites. As a result, the quality of education depended heavily on the initiative, communication ability, and available time of individual healthcare workers. The planning function was therefore present but still required institutional strengthening.

Coordination of healthcare team education

Coordination among physicians, nurses, pharmacists, cadres, and families was a central element of the educational process. The service flow itself created a natural coordination pathway. Nurses screened patients and measured blood pressure, physicians diagnosed and prescribed treatment, pharmacists explained medicines and schedules, and family members helped patients remember daily routines. In some cases, cadres and older adult service officers supported community-level monitoring. This division of roles indicates that education was not the responsibility of a single profession.

This coordination finding is consistent with Rotty, Ngadiorejo, Sampouw, Tengker, and Kalesaran (2025), who emphasize that service optimization requires leadership that integrates planning, organizing, implementation, and supervision through collaborative roles. In the context of primary healthcare, the same principle means that physicians, nurses, pharmacists, cadres, and families need shared messages, clear role distribution, and continuous communication so that older adults do not receive fragmented education.

The strongest aspect of coordination was complementary messaging. Healthcare workers reported that when one profession did not fully explain a point, another profession could reinforce or complete the information. This is important because older adults may not absorb all messages in one encounter. Repetition by different professionals can function as a cue to action and strengthen perceived importance. Coordination also helped normalize medicine taking as a shared responsibility rather than an isolated patient task.

However, coordination was still limited by lack of formal integration. Communication was often based on habit, personal relationships, and routine interaction rather than documented protocols. Potential barriers included limited time, high patient volume, changes in dosage, and the possibility of overlapping or inconsistent information. Although serious conflict was not dominant, the absence of a shared education checklist or SOP made the system vulnerable. A standardized interprofessional education pathway would help ensure that each patient receives consistent core messages.

Implementation of education

Implementation occurred mainly through verbal education in routine service encounters. Healthcare workers explained medication schedules, reminded patients to control blood pressure, encouraged them not to stop medicine, and emphasized the consequences of non-adherence. Education was also delivered through brochures, posters, and health promotion activities such as older adult programs and community exercise sessions. The dominant method was face-to-face explanation because it allowed immediate adjustment to patient questions and comprehension.

Language and communication style were critical. Healthcare workers tried to use simple words, repeat important points, ask patients whether they understood, and provide opportunities for questions. This dialogic approach is consistent with adult learning because it recognizes patients as active participants. In practice, the quality of communication depended on the educator's patience, empathy, and ability to translate clinical concepts into everyday language. Older adults responded more positively when they felt respected and not blamed for forgetting medicine.

Family involvement was a major implementation strategy. Families were asked to remind older adults to take medicine, accompany them to control visits, and help interpret advice. This involvement was particularly important for patients who frequently forgot doses, had low literacy, or lived with chronic symptoms. Family engagement transformed education from a clinic-based message into a home-based routine. Nevertheless, family involvement also required sensitivity because the older adult should remain the central subject of education, not merely an object managed by relatives.

Supervision and monitoring

Supervision was conducted through periodic monitoring rather than continuous tracking. Healthcare workers asked patients whether they took medicine regularly, checked blood pressure at follow-up visits, observed patient responses, and provided verbal reinforcement. If blood pressure remained high, healthcare workers explored possible non-adherence, diet, stress, or other factors. This approach created an informal feedback loop: patient condition informed further education, and education was adjusted according to the response.

The strength of supervision was its relational character. Monitoring was not described as punishment or coercion but as reminder, encouragement, and concern. Healthcare workers tried to ensure that patients did not feel judged. This is important for older adults because fear of blame

can reduce openness about missed doses. Relational supervision supports honest disclosure and allows healthcare workers to identify barriers such as forgetting, side effects, misunderstanding, or lack of family support.

The main limitation was lack of standardized adherence measurement. Blood pressure readings and patient self-report were useful but insufficient. A patient may have controlled blood pressure despite occasional missed doses, or uncontrolled blood pressure for reasons beyond adherence. Without a structured adherence checklist, pill count, refill record, or validated instrument, evaluation remains approximate. Supervision also depended on patients returning to the health center. Those who missed visits could be difficult to monitor consistently.

Results of education

Education contributed to gradual improvements in knowledge, awareness, and behavior. Healthcare workers observed that older adults became more aware of the risks of uncontrolled hypertension and more attentive to regular medication. Patients who previously thought medicine was needed only when symptoms appeared began to understand that hypertension requires long-term control. Some patients became more diligent in attending control visits and checking blood pressure.

Family caregivers also reported greater awareness of their role. They understood that reminders, accompaniment, and emotional support could help older adults adhere to therapy. The education process therefore produced not only patient-level change but also family-level change. This broader outcome is important because adherence is embedded in daily routines, household communication, and support systems.

The outcomes were described as gradual rather than instant. Education did not eliminate all barriers. Forgetfulness, time constraints, limited family availability, and inconsistent follow-up remained challenges. However, the repeated and relational nature of education helped build a foundation for sustained adherence. From an educational management perspective, the outcome should be seen as progressive internalization: older adults slowly moved from receiving instructions to understanding the meaning of adherence and practicing it more consistently. See table 4 and figure 1.

Table 4. Findings matrix of education management practices

Management function	Observed practice	Strength	Main gap	Implication
Planning	Materials and timing were adjusted to older adult literacy, clinical condition, and routine visits.	Adaptive and patient-sensitive.	Not yet fully written or standardized.	Develop core learning objectives, media packages, and patient education checklists.
Coordination	Physicians, nurses, pharmacists, cadres, and families reinforced one another.	Interprofessional and complementary.	Coordination relies on informal habits.	Create SOPs and shared documentation across professions.

Implementation	Education used verbal explanation, repetition, brochures, posters, and family reminders.	Contextual and relational.	Media and methods vary by provider and available time.	Use teach-back, visual aids, large-font pocketbooks, and family-centered counseling.
Supervision	Monitoring used follow-up visits, blood pressure checks, questions, and verbal reinforcement.	Empathetic and continuous when patients return.	No standardized adherence instrument.	Use adherence checklist, refill monitoring, and follow-up schedule.
Results	Older adults showed better understanding, awareness, control visits, and medicine-taking routines.	Gradual behavior change.	Outcomes are not yet measured systematically.	Evaluate knowledge, attitude, behavior, and clinical indicators together.

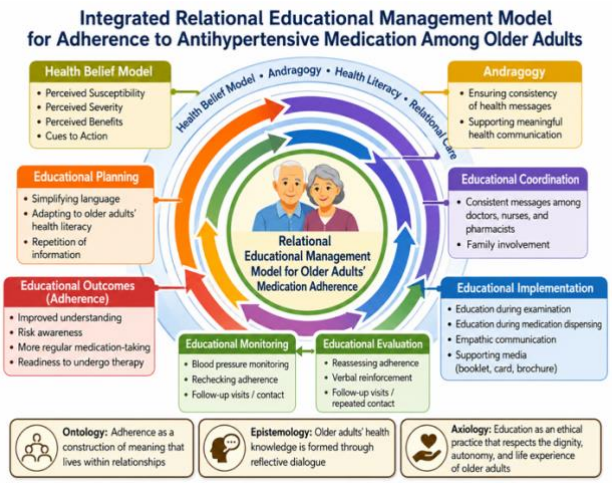

Figure 1. Integrated relational education management model for older adult medication adherence

The findings show that medication adherence education for older adults is most effective when understood as a managed learning process. The healthcare team already performs important educational work: simplifying language, repeating information, involving families, coordinating across professions, and monitoring blood pressure. However, these practices are still not fully institutionalized as an integrated education management system. This confirms the relevance of educational management theory, which argues that effective education requires planning, organizing, implementation, supervision, and evaluation (Bush, 2018; Fayol, 2016).

Planning is the first point of improvement. The empirical data show that healthcare workers know the need to adapt education to older adult literacy. This is consistent with health literacy theory, which emphasizes that communication should be matched to the user's capacity to

understand and apply information (Nutbeam, 2000; WHO, 2021). Yet adaptation should not be left only to individual intuition. A standardized but flexible education plan can include minimum topics, simple wording, visual aids, questions for teach-back, and family instructions. Such planning does not reduce professional autonomy; it supports consistency and equity.

Coordination findings highlight the interprofessional nature of adherence education. Physicians, nurses, and pharmacists are connected in the patient pathway, but their educational tasks can be fragmented if there is no explicit role distribution. A systems perspective helps explain this problem. In an open system, weak coordination between components can reduce the quality of output and outcome (Hoy & Miskel, 2013). For example, if the physician emphasizes diagnosis, the pharmacist explains dose, and the nurse monitors blood pressure without a shared record, no one may know whether the patient truly understands the full adherence routine. A shared education checklist could become a simple coordination tool.

Implementation relies heavily on verbal counseling. This is understandable in primary healthcare because face-to-face explanation is practical, immediate, and culturally familiar. However, older adults benefit from multimodal learning. Andragogy suggests that adults learn best when learning is relevant, problem-centered, and connected to their experience (Knowles et al., 2015; Knowles et al., 2020). Therefore, education should move beyond one-way explanation toward dialogue: asking what patients believe about medicine, exploring why they forget, discussing side effects, and inviting them to repeat their schedule. Teach-back is particularly useful because it transforms the patient from listener to participant.

Family involvement is one of the strongest findings. In chronic illness, medication adherence happens at home, not only at the clinic. Family members can remind, motivate, accompany, and help solve practical barriers. This supports previous findings that family support is linked to medication adherence among older adults with hypertension (Nurannisa et al., 2022; Sari et al., 2022). At the same time, the educational role of families should be guided. Families may unintentionally pressure or criticize older adults, which can create resistance. Healthcare workers should teach families to support adherence with respect, patience, and shared routines.

Supervision findings reveal a tension between relational monitoring and measurement weakness. Relational monitoring is valuable because it builds trust and encourages honest disclosure. It aligns with patient-centered care and relational care, where the patient is respected as a person with experience and dignity (WHO, 2022). Yet quality management also requires indicators. If adherence is evaluated only through informal questions and blood pressure readings, improvement cannot be tracked precisely. A simple adherence monitoring form could include missed doses in the past week, reasons for missed doses, side effects, family reminder availability, medication refill, and next control date.

The outcomes reported in the study should be interpreted as gradual internalization. Older adults became more knowledgeable and aware, but behavior change remained uneven. The Health Belief Model helps explain this process. Education increases perceived severity and benefits, but barriers such as forgetfulness, side effects, low literacy, and limited family support may remain (Glanz et al., 2015). Therefore, adherence education must repeatedly address both motivation and barriers. It is not sufficient to scare patients with complications; education must also make adherence easier and more meaningful.

The integrated relational education management model presented in Figure 6 is theoretically significant because it connects management functions with behavioral and relational theories. The inner cycle represents the management process: planning, coordination, implementation,

supervision, and results. The outer layer shows theoretical supports: Health Belief Model, andragogy, health literacy, and relational care. The philosophical foundation clarifies that adherence is not a mechanical act but a meaning-making process formed through dialogue, experience, and ethical care. This interpretation is important in educational management because learning outcomes are not only cognitive; they include motivation, confidence, identity, and sustained practice.

From the perspective of Total Quality Management, the absence of SOPs and standardized evaluation is a critical weakness (Sallis, 2015). A healthcare center may have committed staff, but without standards the quality of education varies. Standardization should not make education rigid. It should ensure that every older adult receives essential messages while still allowing staff to adapt language and examples. SOPs can specify when education occurs, who provides which information, what media are used, how family is involved, how understanding is checked, and how follow-up is documented.

The study also contributes to the broader field of educational management by showing that healthcare education is a legitimate domain of educational management, not merely clinical communication. In primary care, healthcare workers act as educators, patients act as adult learners, families act as co-facilitators, and the service system acts as the learning environment. This means that improvements in adherence require educational leadership, resource organization, professional development, supervision, and evaluation. Training healthcare workers in communication and adult learning may be as important as providing new medical information.

Proposed Integrated Relational Education Management Model

Based on the findings and theoretical synthesis, the proposed model is an integrated relational education management model for older adult antihypertensive medication adherence. The model is relational because it places trust, empathy, family support, and dialogue at the center of learning. It is integrated because it connects the roles of physicians, nurses, pharmacists, cadres, families, and older adults. It is managerial because it follows a cycle of planning, coordination, implementation, supervision, and evaluation.

The model begins with needs assessment. Healthcare workers identify the patient's literacy level, blood pressure condition, medication schedule, previous adherence problems, family support, perceived barriers, and beliefs about hypertension. This assessment becomes the basis for individualized education. The next stage is planning. The team prepares the core message, chooses simple language, selects media, and decides who should be involved. Planning should be recorded in a brief education checklist.

The coordination stage distributes roles. Physicians explain diagnosis, risk, and therapy goals; nurses reinforce lifestyle and monitoring; pharmacists explain drug names, dose, time, side effects, and what to do when a dose is missed; cadres and family members support reminders and follow-up. The implementation stage uses dialogic education, teach-back, repetition, visual media, and family counseling. The supervision stage monitors adherence through patient report, family feedback, blood pressure, refill behavior, and scheduled follow-up. The evaluation stage reviews changes in understanding, attitude, behavior, and clinical condition. The results then feed back into new planning. See table 5.

Table 5. Operational structure of the integrated relational education management model

Model component	Purpose	Operational action	Expected output

Needs assessment	Identify older adult learning and adherence barriers.	Assess literacy, beliefs, dose schedule, side effects, family support, and blood pressure condition.	Individualized education profile.
Planning	Prepare relevant and simple education.	Set learning objectives, key messages, media, family involvement, and follow-up plan.	Education checklist and selected media.
Coordination	Align interprofessional messages.	Divide roles among physician, nurse, pharmacist, cadre, and family.	Consistent and complementary education.
Implementation	Deliver contextual adult learning.	Use verbal explanation, visuals, teach-back, repetition, problem solving, and family counseling.	Improved understanding and confidence.
Supervision	Maintain adherence over time.	Monitor missed doses, blood pressure, control visits, refill, and family reminders.	Early detection of non-adherence.
Evaluation and feedback	Improve the next cycle.	Review knowledge, attitude, behavior, clinical indicators, and patient feedback.	Continuous improvement of education quality.

Extended Synthesis Of Findings

The first synthesis concerns the relationship between managerial structure and patient learning. The data indicate that older adults do not experience education as a separate program; they experience it as a sequence of encounters with different members of the healthcare team. A patient may first meet a nurse who measures blood pressure, then meet a physician who provides diagnosis and prescription, then meet a pharmacist who explains the medicine, and finally return home with a family member who interprets and reinforces the message. This sequence becomes educational only when each encounter is connected. Without connection, the patient receives fragments. With connection, the patient receives a coherent learning pathway. Educational management is therefore the discipline that turns fragments into a pathway.

The second synthesis concerns the content of education. The most effective content is not the longest content, but the content that answers the patient's practical questions: What is this medicine for? Why should it be taken when there is no symptom? What happens if a dose is missed? What side effects require consultation? When should blood pressure be checked? What food should be limited? Who can help at home? These practical questions show that adherence education must be organized around problems faced by older adults. This is consistent with andragogy, because adult learners are more responsive when learning is connected to immediate life tasks and not presented as abstract instruction (Knowles et al., 2015).

The third synthesis concerns communication. The findings show that healthcare workers already recognize the need for simple language, repetition, and family involvement. However,

communication should be further strengthened through structured techniques such as teach-back, motivational questioning, and empathy-based correction. Teach-back asks the older adult to repeat the medication schedule in their own words. Motivational questioning explores what makes adherence difficult and what support the patient needs. Empathy-based correction avoids blaming statements and replaces them with supportive guidance. These techniques can be trained and supervised, which means communication competence is a management responsibility rather than merely an individual talent.

The fourth synthesis concerns the role of the pharmacist. In adherence education, pharmacists occupy a strategic position because they meet patients at the point where the prescription becomes a concrete daily practice. The pharmacist can clarify the name of the medicine, time of consumption, relationship with meals, possible side effects, and risks of stopping without consultation. When pharmacists document adherence barriers and communicate them to nurses or physicians, the service system becomes more responsive. Therefore, the model should not place pharmacy education at the end of the service flow as a minor activity, but as a key adherence checkpoint.

The fifth synthesis concerns supervision. In many primary healthcare settings, supervision is interpreted narrowly as checking whether patients return to the clinic. The findings suggest a broader interpretation. Educational supervision should include checking understanding, emotional readiness, family support, side-effect experience, medication availability, and actual routines at home. A patient who comes to the clinic but does not understand the medication remains at risk. Conversely, a patient who misses a visit may still be reachable through family or community cadres. Supervision should therefore combine facility-based monitoring with community-sensitive follow-up.

The sixth synthesis concerns ethical dimensions. Older adults have the right to understand their treatment and to be treated with dignity. Education should not be coercive. The goal is not to force obedience, but to cultivate informed commitment. This ethical dimension is important because chronic disease management can easily become paternalistic. A relational education model protects the dignity of older adults by using dialogue, listening to experience, respecting questions, and recognizing that adherence decisions are made within personal and family contexts. In this sense, education is both managerial and moral.

The seventh synthesis concerns sustainability. Short-term counseling may improve awareness temporarily, but sustained adherence requires repeated cues and institutional routines. Sustainability can be supported by pocketbooks, posters, follow-up cards, family reminder sheets, medication schedules, and digital or manual registries. The healthcare team does not need complex technology to begin improvement. A simple standardized education form, used consistently, can already improve continuity. What matters is not the sophistication of the tool but whether the tool is integrated into service flow and reviewed by the team.

The eighth synthesis concerns measurement. The study shows that blood pressure control is used as a practical indicator, but it should be combined with behavioral indicators. A comprehensive evaluation can include four levels: reaction, learning, behavior, and results (Kirkpatrick & Kirkpatrick, 2006). Reaction measures whether older adults feel the education is clear and respectful. Learning measures whether they understand hypertension and medicine schedules. Behavior measures whether they take medication and attend control visits. Results measure blood pressure control and reduced symptoms. This multi-level evaluation aligns with educational management and improves accountability.

The ninth synthesis concerns professional development. Healthcare workers need training not only in hypertension information but also in educational skills. Training should cover older adult learning, health literacy, counseling, family engagement, adherence monitoring, and interprofessional coordination. The best training format is likely blended and practical: short explanations, role-play, case reflection, peer observation, and feedback. This approach is consistent with experiential learning (Kolb, 1984), because healthcare workers learn by practicing and reflecting on realistic patient situations.

The final synthesis is that medication adherence among older adults is a shared outcome of patient understanding, family support, professional communication, and service organization. It cannot be solved only by telling patients to be obedient. It requires a managed ecosystem of education. When planning is systematic, coordination is explicit, implementation is dialogic, supervision is empathetic, and evaluation is continuous, older adults are more likely to develop adherence as a meaningful habit. This is the central contribution of the article to educational management in healthcare.

In practical terms, the model should be implemented first as a pilot service improvement package. The package may include a brief SOP, a one-page education checklist, a family reminder card, a pocketbook with large fonts, and monthly team reflection meetings. During the pilot, the team can identify which messages are most often misunderstood, which patients need additional support, and which parts of the service flow create time pressure. These small-cycle improvements reflect the plan-do-check-act logic of quality management and make the model feasible for busy primary healthcare centers.

Overall, the extended synthesis confirms that the educational management contribution lies in connecting patient education with service governance. It provides a bridge between clinical treatment, adult learning, family support, and quality improvement, allowing primary healthcare centers to treat adherence as a learning outcome that can be planned, supported, monitored, and improved over time.

Implications

The additional citations from the dissertation source base strengthen the article's theoretical coherence. Wullur, Pinontoan, and Wullur (2025) reinforce the motivational and leadership dimensions of education management; Palilingan (2019) supports adaptive learning design; and Rotty et al. (2025) supports collaborative service coordination. Together, these citations show that healthcare team education for medication adherence must combine leadership, learner-centered design, and interprofessional coordination.

For primary healthcare management, the findings imply that medication adherence education should be formalized as a routine service standard. Each older adult with hypertension should receive core education during control visits and medicine dispensing. The health center should provide standardized brochures, large-font pocketbooks, posters, and counseling scripts. Documentation should indicate whether education has been delivered, whether the patient understood it, and what barriers were identified.

For healthcare worker development, training should include adult learning principles, health literacy communication, teach-back, motivational interviewing, family counseling, and adherence monitoring. Training should be practical rather than purely lecture-based. Role-play, case discussion, supervised practice, and reflective feedback can help healthcare workers develop confidence and empathy (Kolb, 1984; Knowles et al., 2015).

For families, the implication is that they need simple guidance on how to support older adults. Family education should include how to remind without blaming, how to organize medicines, how to accompany control visits, how to observe side effects, and how to encourage healthy routines. The family should become a supportive learning environment, not a controlling authority.

For policy and quality assurance, the study suggests the need for SOPs and simple adherence instruments at the primary healthcare level. The SOP should define minimum education content, professional role division, documentation, follow-up, and referral. An adherence monitoring form can help facilities evaluate progress and identify patients requiring additional support.

CONCLUSION

Healthcare team education management plays a crucial role in improving antihypertensive medication adherence among older adults. The study found that education was planned adaptively, coordinated through interprofessional routines, implemented through verbal explanation and family involvement, supervised through follow-up visits and blood pressure monitoring, and associated with gradual improvement in understanding and adherence. However, the system remains limited by informal planning, non-standardized coordination, variable media use, and absence of structured adherence evaluation. The article concludes that medication adherence education should be repositioned as a managed adult learning process. Older adults are not passive recipients of instructions; they are adult learners with experience, beliefs, fears, and practical barriers. Healthcare workers are not only clinicians; they are educators who must plan, coordinate, communicate, supervise, and evaluate learning. Families are not merely companions; they are co-facilitators of adherence routines. The proposed integrated relational education management model offers a practical framework for strengthening primary healthcare education. By integrating Health Belief Model, andragogy, health literacy, and relational care within a management cycle, the model supports education that is structured, contextual, empathetic, and sustainable. Future implementation should develop SOPs, educational pocketbooks, and adherence monitoring instruments, followed by evaluation of their effect on knowledge, behavior, and blood pressure control.

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