

Comprehensive management of osteoarthritis and hypertension in an elderly patient: a family medicine case study

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ABSTRACT

Introduction: Osteoarthritis (OA) and hypertension are common chronic degenerative diseases in the elderly, often affecting physical function and quality of life. This case study aimed to assess a holistic management plan for an elderly male patient using the principles of family medicine.

Method: This was a descriptive case study involving a 76-year-old male patient presenting with bilateral knee and ankle pain for three years and newly diagnosed hypertension. Data were collected through anamnesis, physical examination, home visits, and family assessments. Interventions included pharmacological treatment and structured non-pharmacological management with educational counseling based on patient-centred and family-focused care.

Results: Pharmacological therapy included meloxicam, vitamin B12, and amlodipine. Non-pharmacological strategies focused on lifestyle modification, OA-targeted exercises, and disease education for the patient and family. Post-intervention, the patient reported reduced pain (VAS score reduced from 7 to 2), improved blood pressure (from 159/90 mmHg to 140/83 mmHg), and enhanced disease knowledge (pre-test 60% to post-test 90%). Family support and environmental factors also improved. No adverse effects or complications were observed during the intervention.

Conclusion: A comprehensive family medicine approach combining medical therapy and targeted education effectively improved clinical symptoms and patient understanding in managing OA and hypertension in the elderly. These findings highlight the importance of family involvement and continuous health education at the primary care level.

Keywords: Degenerative; Hypertension; Family Medicine; Osteoarthritis.



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INTRODUCTION

Degenerative diseases are non-communicable (NCDs), chronic, and related to genetic, environmental, and behavioural factors. Degenerative diseases affect a person's quality of life and productivity. These degenerative diseases include hypertension and Osteoarthritis (OA) (Owoyemi *et al.*, 2025). Osteoarthritis is a chronic disease characterized by damage to joint cartilage, which causes bones to rub against each other, causing stiffness, pain, and impaired movement (Pennings *et al.*, 2025). It is estimated that around 15-20% of the world's population suffers from hypertension, or around 1.28 billion adults aged 30-79 years worldwide suffer from hypertension; most (two-thirds) live in low-income and middle-class countries. In Asia, there were 38.4 million people with hypertension in 2000, and it is estimated that it will become 67.4 million people in 2025.4 The prevalence of hypertension in Indonesia in 2018 based on the Badan Riset Kesehatan Dasar (RISKESDAS), with a population of around 260 million, increased by 34.1% compared to 2013. Hypertension is the third cause of death, reaching 6.7% of the population of deaths at all ages in Indonesia (Edwards *et al.*, 2025).

Based on RISKESDAS (2018), hypertension prevalence in Lampung Province for adults aged ≥ 18 years was 24.7%, decreasing slightly to 15.10% (890,912 people) by 2020. The highest hypertension rates were recorded in East Lampung, Bandar Lampung, and Central Lampung. The European Society of Cardiology (ESC) guidelines recommend managing blood pressure to targets below 150/90 mmHg. Regarding osteoarthritis, WHO estimates its prevalence to be 10%-15% among individuals aged 65-75. RISKESDAS 2018 reported a 7.3% national prevalence of joint disease in Indonesia, rising to 18.6% within the 65-74 age group, specifically 7.61% in Lampung Province. A heavy physical workload is one of the most common occupational risk factors for knee OA (Tseng *et al.*, 2025). Other risk factors include frequent exposure to biomechanical stressors such as bending the knees, kneeling or squatting, standing for long periods (≥ 2 hours per day), walking ≥ 3 km/day, climbing stairs regularly, lifting heavy loads (≥ 10 kg), jumping, and vibration (Oeding *et al.*, 2023).

Hypertension and osteoarthritis are degenerative diseases that can be controlled with a healthy lifestyle. If degenerative diseases are not controlled early, they will impact complications that can reduce the quality of life of sufferers (Forman *et al.*, 2023). Therefore, a family medicine approach is needed to identify risk factors and clinical problems and appropriately manage patients (Cross *et al.*, 2024). Implement family doctor services based on evidence-based medicine in patients by identifying risk factors, clinical issues, and patient management based on a patient problem-solving framework with a patient-centred and family approach (Zhou *et al.*, 2023).

Patient Mr K, a 76-year-old man, came to the PHC on December 28, 2023, complaining of pain in both knees and ankles. Complaints are felt especially when standing and walking for a long time and have been thought for the past three years. The pain is felt to come and go, which gets worse in the morning, accompanied by leg stiffness for <30 minutes. The pain worsens if there is a change in the patient's body position, such as when sitting or standing (Mozaffarian *et al.*, 2025). Complaints are supposed to be reduced by resting. The pain had been getting worse one week before seeking treatment, so the patient felt worried and came to the health centre to reduce and treat the complaint (Zafar *et al.*, 2025). Complaints are accompanied by dizziness and tingling in both hands, which have come and gone since a month ago (Singh *et al.*, 2025). The patient denied experiencing nausea, vomiting, night sweats, fever, or weight loss, with normal bowel

and bladder function. He has a one-month history of hypertension, is regularly monitored at the health centre, and manages it with amlodipine 10 mg daily. Mr. K, a farmer with his wife who has Type 2 Diabetes Mellitus, engages in light-to-moderate daily activities such as farming and household chores. His recent knee and ankle pain have limited his ability to work consistently, making daily tasks more difficult. He rarely exercises separately, perceiving farming as sufficient physical exertion, and smokes 1-2 cigarettes daily but denies alcohol use. He expresses concern that his health issues could worsen, impacting his livelihood and family support, and lacks an understanding of disease management, risk factors, and potential complications.

RESEARCH METHODOLOGY

Study Design. Using a family medicine approach, this study utilized a descriptive case study design focusing on the holistic management of osteoarthritis (OA) and hypertension in a 76-year-old male patient. Subject The participant in this case, study was a 76-year-old male patient who presented with chronic bilateral knee and ankle pain for the past three years and newly diagnosed hypertension. The patient was recruited through a primary healthcare centre (Puskesmas). **Data Collection** Primary data collection included anamnesis, which includes a comprehensive patient history, symptoms, lifestyle habits, and previous medical conditions through direct interviews (autoanamnesis) and family member reports (alloanamnesis). **Physical Examination:** A thorough clinical assessment was performed to evaluate the patient's general and local joint conditions. **Home Visits:** Three structured home visits assessed the patient's living environment, familial support, and adherence to therapeutic recommendations. **Family Assessment:** Genograms, APGAR family scoring, and SCREEM scores were utilized to evaluate familial relationships, support systems, and resources.

Secondary Data: Patient medical records were reviewed to confirm medical history and previous treatments. **Intervention** The intervention plan included **Pharmacological Therapy:** Meloxicam (2 x 7.5 mg/day) for OA pain management. Vitamin B12 supplementation (1 x 1 tablet/day). Amlodipine (1 x 10 mg/day) for hypertension management. **Non-Pharmacological Therapy:** Patient and family education sessions regarding disease understanding, risk factors, symptom control, dietary management, and lifestyle modifications. Implement structured OA-targeted exercises, including stretching and cycling. Emphasis on a comprehensive lifestyle strategy (CERDIK approach: regular health checks, eliminating cigarette smoke, routine physical activity, appropriate diet, adequate rest, and stress management).

Evaluation. Effectiveness was assessed quantitatively and qualitatively through Pre-and post-intervention Visual Analog Scale (VAS) scores for pain. Blood pressure measurements before and after intervention. Knowledge assessment through pre-and post-intervention questionnaires. Changes in lifestyle and family support were evaluated through structured interviews and family assessment tools. **Ethical Considerations.** Ethical standards were maintained throughout, ensuring informed consent, confidentiality, and patient dignity.

Data Analysis. Data were analyzed descriptively to present changes in clinical parameters, patient knowledge, and family support post-intervention. Qualitative data on patient and family experiences were summarized to evaluate the effectiveness of the holistic intervention. This comprehensive methodology aimed to demonstrate the utility and efficacy of a family medicine approach in managing chronic diseases such as OA and hypertension at a primary healthcare level.

RESULT

Mr. K, a 76-year-old male, visited the Health Center on December 28, 2023, complaining of intermittent knee and ankle pain lasting three years, worsened by prolonged standing and positional changes, and accompanied by morning stiffness (<30 minutes). Symptoms improved with rest but intensified over the past week, prompting him to seek care. He denied nausea, vomiting, night sweats, fever, and weight loss and reported normal bowel and urinary functions. Mr K had a history of bilateral ankle swelling one year ago, effectively treated with Furosemide 40 mg daily. He was diagnosed with hypertension one month ago and regularly takes amlodipine 10 mg daily. He works as a farmer, living with his wife, who has had Type 2 Diabetes Mellitus for 10 years. Due to knee and ankle pain, his daily activities, including walking to his rice fields, have become more difficult, limiting his work and causing him to miss farming tasks occasionally.

Every day, the patient often eats vegetables for economic reasons. The patient likes vegetables with coconut milk, so he eats vegetables with coconut milk almost every day. Occasionally, the patient eats side dishes in the form of fried fish or salted fish. The patient said that he does not consume alcohol, but the patient smokes 1-2 cigarettes per day. During treatment, the patient felt that he had never received complete education regarding his illness. So, the patient did not know how to overcome the causes of the recurrence of the pain he was suffering from. The patient was worried that his illness would get worse and hinder his work, which was his main livelihood and burden his family. The patient did not understand the risk factors for the disease, the importance of controlling the disease, and the risks of the disease that could arise as long-term complications.

Physical Examination

Mr K appeared moderately ill, fully conscious, with blood pressure 159/90 mmHg, pulse 80 bpm, respiratory rate 20 breaths/minute, temperature 36.5°C, weight 57 kg, height 158 cm, and normal BMI (22.83). General examination was regular. Both knees showed tenderness and crepitation but no deformity, swelling, or redness. Both ankles were normal, without tenderness or crepitation. Strength and joint movement (ROM) in all extremities were normal.

Gait Examination

Abnormal

Fall Risk Examination (Get Up and Go)

Walking : Limping (+), Using assistive devices (-)

When sitting: Appears to be holding the edge of a chair or other objects as support when sitting (+)

Score: 2 (High risk)

VAS Score (Visual Analog Scale)

Mr. K's VAS score can be seen in Figure 1.

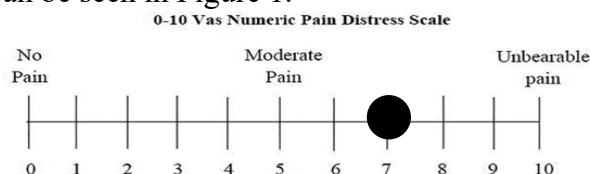


Figure 1. *Visual Analog Scale*

Mr. K's Visual Analog Scale score was 7 (seven) and can be interpreted as moderate pain.

Family Data

Mr. K, a 76-year-old farmer, lives with his wife in a nuclear family structure at the elderly family stage (Duvall stage VIII). They have seven children (one deceased) and fifteen grandchildren, all living separately but maintaining daily communication. Family decisions are made collaboratively, led by Mr K. Financially supported by farming, they have government health insurance and regularly use community health services. Although the family actively supports his health care, they lack knowledge about Mr. K's medical conditions.

Family APGAR Score

The family functions of Mr. K can be seen as follows:

Table 1. FAMILY APGAR Mr K's Family

	APGAR	Score
<i>Adaptation</i>	I feel satisfied that I can ask my family for help when I face problems	2
<i>Partnership</i>	I feel satisfied with the way my family discusses things with me and shares problems with me	2
<i>Growth</i>	I feel satisfied that my family accepts and supports my desire to start a new activity or goal in my life	2
<i>Affection</i>	I feel satisfied with the way my family expresses affection and responds to my feelings, such as anger, sadness, and love	2
<i>Resolve</i>	I feel satisfied with the way my family and I share time	2
Total		10

Based on the APGAR scoring results, the final total score was 10, so it can be concluded that Mr. K's family function has a functional family relationship.

Family SCREEM

The family's pathological function can be assessed using the SCREEM score, with the assessment results in Mr K as follows.

Table 2. Family SCREEM

	When someone in the family is sick	Strongly agree	Agree	Disagree	Disagree
S1	We help each other in our family	√			
S2	Friends, friends, and neighbours around us help our family.		√		
C1	Our culture gives our family strength and courage		√		
C2	The culture of helping and caring in our community is very helpful for our families.		√		
R1	The faith and religion that we practice are very helpful in our family.		√		
R2	Religious leaders or religious groups helped our family.		√		
E1	Our family's savings are enough for our needs.			√	
E2	Our family's income meets our needs.		√		
E'1	Our knowledge and education are sufficient for us to understand information about diseases.		√		
E'2	Our knowledge and education are enough for us to treat the illness of a family member.		√		

M1	Medical assistance is readily available in our community.	√
M2	Doctors, nurses, and/or health workers in our community are helping our families.	√
Total		26

Based on the SCREEM scoring results, the final total score was 25, so it can be concluded that Mr K's family function has adequate family resources.

Initial Holistic Diagnostics

Mr. K visited primarily due to worsening knee and ankle pain over the past three years, seeking relief and routine blood pressure checks. Clinically, he was diagnosed with osteoarthritis (ICD: M19.9; ICPC: L90) and grade 1 hypertension (ICD-10: I10; ICPC-2: K86). Internally, he lacked comprehensive disease education and understanding regarding osteoarthritis symptoms, risks, and management. His lifestyle involved limited exercise and a diet often high in coconut milk and salted fish. Externally, the family's approach to healthcare was curative rather than preventive, with insufficient knowledge and no nutritional counseling from health workers. Functionally, Mr. K maintained daily activities, though at a reduced intensity, due to his illness.

Intervention Plan

The intervention for Mr K included pharmacological treatments (to manage pain and hypertension) and non-pharmacological methods, focusing on education and counseling about disease management, risk factors, healthy lifestyle, and appropriate osteoarthritis-specific exercises. Conducted through three visits, initial data collection, a home-based intervention, and a follow-up evaluation, the approach emphasized patient-centred care and active family involvement.

Therapy Targets Based on Initial Holistic Diagnosis

Table 2. Therapy Targets

Holistic Diagnosis	Therapy Target
Osteoarthritis	Relieve symptoms, especially knee pain
Patient perception of the disease is still lacking	Explaining the disease suffered by the patient
Lack of patient knowledge about the disease they are experiencing	Explaining osteoarthritis: o Definition o Symptoms o Risk factors o Control
Patient's worry and fear of the disease	Explaining the disease suffered so that fear and worry are reduced

Pharmacological therapy given based on patient center is Meloxicam 2 x 7.5 mg tablets, Vitamin B12 1 x 1 tablet, Amlodipine 1 x 10 mg tablet. Non-pharmacological therapy given is:

Education to patients about osteoarthritis (OA) related to risk factors such as age and activity level that must be considered for complications and disease management plans, Education about the disease suffered by patients with intervention media in the form of posters,

Informing things related to physical activities that can be done by osteoarthritis (OA) sufferers, such as simple physical exercises that patients can do at home, namely by doing stretching exercises and cycling 2x a week,

Educate patients continually to apply CERDIK: Regular health checks, Eliminate cigarette smoke, Routine physical activity, Appropriate diet, Adequate rest, Manage stress, and

Educate patients about the importance of consuming antihypertensive drugs regularly.

The therapy given is based on family focus, namely:

Family education related to osteoarthritis, including risk factors, symptoms, control efforts, lifestyle changes with physical activity, and diet using posters,

Explaining to family members to be able to supervise the patient's diet and physical activity,

Explaining to family members the importance of routine check-ups at health services and changing curative treatment patterns in the family,

Providing education and counseling to the patient's family regarding the disease and long-term complications of the disease suffered by the patient using posters,

Explaining the need for attention and support from all family members to carry out treatment and a healthy lifestyle and

Educating the family about how to use medication, types of treatment, and family support in monitoring body weight and preventing the recurrence of osteoarthritis symptoms.

The therapy provided is based on community orientation, namely:

Motivating patients to routinely participate in PROLANIS activities such as gymnastics, healthy walks, and others,

Educating health workers always to provide recommendations for routine check-ups to the health centre when the medicine runs out, not only when the patient has complaints and

Educating health workers to provide education to patients regarding a diet that is suitable for patients, as well as seven principles of proper treatment,

Final Holistic Diagnostics

Based on the personal aspect, the patient's concerns have decreased with increased knowledge of the disease suffered. The patient has learned about the diseases, namely hypertension and osteoarthritis. The patient also knows this disease can only be controlled by regular treatment and a healthy lifestyle. Most of the patients' expectations are met because the patients' complaints have improved. Based on the clinical aspect, the patient suffers from osteoarthritis (ICD: M19.9; ICPC: L90) and grade 1 hypertension (ICD-10: I10; ICPC-2: K86). Based on the internal risk aspect, there is an increase in knowledge about the definition of symptoms of the disease, the importance of controlling risk factors, and how to prevent osteoarthritis. In addition, knowledge is obtained about the proper diet, appropriate physical activity, and related complications of hypertension and osteoarthritis. The patient also knows the supporting examinations that can be done outside the health centre. Based on the external risk aspect, the patient's family will always try to support the patient in having routine check-ups at the health service, increasing the family's understanding of the definition, risk factors, and control of osteoarthritis suffered by the patient. Based on the examination, the patient has a functional level of 2 (two), namely, the patient can do light daily work inside and outside the home.

DISCUSSION

Mr. K, a 76-year-old patient, presented with chronic knee and ankle pain lasting three years, worsening in the mornings and aggravated by prolonged standing or position changes. Symptoms were accompanied by intermittent dizziness and tingling sensations, but no other significant complaints. He was recently diagnosed with hypertension,

managed with daily amlodipine. A holistic family medicine approach addresses biological, psychological, and social aspects, emphasizing family involvement and adherence to therapy (Hajek *et al.*, 2025).

The clinical diagnosis of OA was established based on the 1986 American College of Rheumatology criteria, and the diagnosis of OA can be established if the clinical criteria score meets ≥ 3 of 6 criteria. This is in accordance with the patient's clinical data, namely age > 50 years, crepitus, joint stiffness for less than 30 minutes, and not warm to the touch when palpated. Supporting examinations on this patient have not been carried out. However, supporting examinations that can be carried out are x-rays to help confirm the diagnosis, determine the degree of osteoarthritis, and find out if there are other pathologies. Ultrasound examinations can be performed to determine hypertrophy and inflammation in the synovial joints. MRI and CT-Scan examinations are rarely performed. However, this examination can help identify predisposing factors for osteoarthritis, such as trauma to the anterior cruciate ligament and meniscus, and detect OA in deeper joints that cannot be done with an ultrasound examination. (Zhang, 2020). Based on a study in the journal, osteoarthritis patients can complain of 2 types of pain: pain that is felt continuously and pain that comes and goes. One of the characteristics of pain distinguishing osteoarthritis (OA) from other arthritis is that in osteoarthritis patients, the pain will be felt worse in the morning with a duration of < 30 minutes. So, the complaints, location, and characteristics of pain the patient feels can lead to osteoarthritis. (Ding *et al.*, 2023).

From the results of the physical examination, the general condition appeared moderately ill, compos mentis consciousness, blood pressure 159/90 mmHg, Pulse 80x/minute; Respiratory rate 20x/minute; Temperature 36.5°C; body weight: 57 kg; height: 158 cm, BMI: 22.83 (Normal). Physical examination found that the eyes were not sunken, the conjunctiva was not anemic, the sclera was not icteric, the ears were normal with discharge (-/-), hyperemic (-/-), the nose was typical with discharge (-/-), hyperemic (-/-). Neck, JVP was not increased. Thoracic examination of the lungs and heart showed an impression within normal limits. The abdominal examination also revealed an impression within normal limits. Local physical examination of the right and left the genu region and the right and left pedis region in the form of look, feel, and move found edema (-/-), crepitation (+/+), and muscle strength of the lower extremities (5/5). Clinical manifestations of physical examination for osteoarthritis patients include tenderness, reduced range of motion of the joints, and crepitation. It will be found in the region if there is inflammation, swelling, redness, and heat. These abnormalities can be seen in the early stages of osteoarthritis but are more visible if osteoarthritis has entered an advanced stage (Fu *et al.*, 2025). The diagnosis of hypertension in patients is established based on the patient's physical examination, having a blood pressure of 159/90 mmHg. The diagnosis of hypertension can be established if the blood pressure examination shows systolic blood pressure ≥ 140 mmHg and diastolic blood pressure ≥ 90 mmHg (Kongsa *et al.*, 2024).

The management that can be given is non-drug and drug. Non-drug management is carried out using poster media that discusses overcoming hypertension and osteoarthritis by knowing the importance of risk factors, diet, physical activity, and control of the patient's disease (Chen *et al.*, 2024). The patient's family also accompanies and listens to what is conveyed to the patient. The patient's and family's knowledge about hypertension and osteoarthritis is a means to help patients carry out disease management (Suprpto *et al.*, 2023). In addition, non-pharmacological therapy, which is also recommended for

other osteoarthritis sufferers, involves physical activity on the knee joints. The types of physical activity are home exercise, range of motion exercise (ROM), and strengthening exercise, which means strengthening exercises such as walking and cycling. The purpose of this physical activity includes improving joint function, increasing the range of motion of the joints, increasing muscle strength, protecting joints from damage by reducing stress on the joints, preventing disability, increasing physical fitness, and improving the quality of life of sufferers (Suprpto *et al.*, 2024).

The recommended duration for exercise in osteoarthritis sufferers is 2x a week for at least 12 weeks. This provides significant results compared to exercising 3 times a week for 6 weeks. The drug management obtained from the Phc is Amlodipine 1x10 mg, which is taken at night, and Meloxicam 2x 7.5 mg, which is taken in the morning and evening. Vitamin B-complex is taken in the morning. The initial management of hypertensive patients with diabetes based on JNC 8 is thiazide, ACE-I, ARBs, or Calcium Channel Blockers (CCB). Initial treatment should include thiazide or CCB. If the target blood pressure is not achieved within one month after starting therapy, the initial drug dose should be increased, or a second drug should be added (thiazide diuretic, CCB, ACE inhibitor, or ARB; but do not combine ACE inhibitor with ARB). Blood pressure should be monitored, and the treatment regimen should be adjusted until the target blood pressure is achieved. In patients, antihypertensive drugs are given, namely Amlodipine, which is a CCB group with a dose of 10 mg. According to JNC 8, the target blood pressure that must be achieved in patients aged >60 years after lifestyle modification and pharmacological management is SBP <140 mmHg and DBP <90 mmHg. Based on the results, the patient's blood pressure has not been controlled. The administration of antihypertensive drugs must consider cardiorenal protection, side effects, and patient needs (Syaharuddin *et al.*, 2024).

NSAIDs (Non-Steroidal Anti-Drugs) are drugs recommended for the treatment of osteoarthritis. The primary mechanism of NSAIDs as analgesics and anti-inflammatories is to inhibit prostaglandin biosynthesis. The result of converting arachidonic acid to prostaglandins is the emergence of pain and inflammatory reactions. In the bone healing process, prostaglandins play an important role in bone metabolism through the activity of osteoblasts and osteoclasts. If various reasons, including NSAIDs, inhibit cyclooxygenase-2 production, then the role of prostaglandins in bone metabolism will also be disrupted. 18 In addition to NSAIDs, acetaminophen is also the first line for the treatment of osteoarthritis (Linggi *et al.*, 2024).

During the first home visit on December 28, 2023, initial introductions and a detailed patient and family anamnesis were made. Information gathered included the family's health history, revealing hypertension in the patient's older sibling, highlighting genetic predisposition. The patient's living environment was assessed, and potential disease risk factors were identified. (Wibowo *et al.*, 2025). Fairly good knowledge about hypertension suffered by the patient, regularity in taking medication every day, and checking blood pressure regularly at home or the health centre once a month. Meanwhile, the patient's knowledge of osteoarthritis is lacking; the patient does not know the definition of the disease, symptoms of the disease, risk factors, and how to control osteoarthritis (Wijayanti *et al.*, 2025). On January 2, 2024, the second home visit included reassessing symptoms and vital signs, revealing occasional knee pain improvement (BP: 145/89 mmHg, pulse: 82 bpm, respiration: 20/min, temperature: 36.7°C). A patient-centred and family-focused educational intervention was provided using posters covering osteoarthritis and hypertension (symptoms, risk factors, management, medication

adherence, and lifestyle modifications). Before the intervention, Mr. K's knowledge was low (pretest score: 60%). He and his family received instruction and demonstrations of specific osteoarthritis exercises for at least 30 minutes daily and guidance on maintaining clean, healthy living behaviors. The family was also educated about the importance of emotional support from the family for the patient's recovery (Suprpto and Kamaruddin, 2025).

On December 4, 2023, the evaluation showed significant improvement in Mr. K's symptoms, including reduced knee pain (VAS score: 2) and less morning stiffness. He regularly attended check-ups, adhered to medication, and adopted healthier lifestyle habits such as daily osteoarthritis exercises (stretching three times daily for 30 minutes) and walking each morning. Physical examination revealed improved vital signs: BP 140/83 mmHg, pulse 85 bpm, respiratory rate 20/min, and temperature 36.5°C.

Table 3. Changes in patients and patient families

Variable	Pretest	Posttest	Changes
Mr. K's Knowledge	60%	90%	Increased knowledge by 30%
Family Knowledge	80%	90%	Increased knowledge by 10%

Evaluation of knowledge, attitudes, and actions towards the disease in patients and families was carried out by asking patients to answer 10 pretests and posttests, the same as the second visit. The results showed an increase in the value of the pretest and posttest. In the pretest results, Mrs. M got a score of 60 and a posttest of 90, which was very good. This shows that the patient already knows everything about the disease she is currently suffering from.

CONCLUSION

Internal factors were obtained in the form of a 76-year-old patient, a lack of knowledge regarding the definition, symptoms, risk factors, control of the disease suffered and complications, reducing food intake to be sufficient, and doing regular physical activity. External factors include a lack of family knowledge regarding the definition, risk factors, and control of the disease suffered by the patient and the curative family treatment pattern. Interventions have been carried out using a family approach using poster media. Education to patients and families about hypertension and osteoarthritis starts with the definition, causes of the disease, risk factors for the disease, therapy, and prevention. Education about eating patterns following nutritional needs, physical activity, and treatment is not only when there are complaints. After the intervention with a family approach, the patient had an increase in knowledge about hypertension and osteoarthritis, as evidenced by the rise in the pretest-posttest score of 30 points and dietary arrangements according to nutritional adequacy based on food recall and Mr. K's compliance in following the recommended therapy, both pharmacological and non-pharmacological treatment is good.

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Conflict of Interest

There are no potential conflicts of interest relevant to this article.

REFERENCES

Chen, Z.-W. *et al.* (2024) 'Evaluations of secondary hypertension and laboratory data in

- the elderly population', *Journal of the Formosan Medical Association*. doi: <https://doi.org/10.1016/j.jfma.2024.07.020>.
- Cross, M. *et al.* (2024) 'Global, regional, and national burden of gout, 1990–2020, and projections to 2050: a systematic analysis of the Global Burden of Disease Study 2021', *The Lancet Rheumatology*, 6(8), pp. e507–e517. doi: [https://doi.org/10.1016/S2665-9913\(24\)00117-6](https://doi.org/10.1016/S2665-9913(24)00117-6).
- Ding, E. Y. *et al.* (2023) 'Accuracy, Usability, and Adherence of Smartwatches for Atrial Fibrillation Detection in Older Adults After Stroke: Randomized Controlled Trial', *JMIR Cardio*, 7. doi: <https://doi.org/10.2196/45137>.
- Edwards, S. *et al.* (2025) 'The associations between multimorbidity, healthcare resource utilisation and costs in individuals with Alzheimer's disease dementia', *Aging and Health Research*, 5(2), p. 100234. doi: <https://doi.org/10.1016/j.ahr.2025.100234>.
- Forman, D. E. *et al.* (2023) 'Impact of Geroscience on Therapeutic Strategies for Older Adults With Cardiovascular Disease: JACC Scientific Statement', *Journal of the American College of Cardiology*, 82(7), pp. 631–647. doi: <https://doi.org/10.1016/j.jacc.2023.05.038>.
- Fu, S.-H. *et al.* (2025) 'Long Dosing Intervals of Parenteral Antiosteoporosis Medications and the Decrease in Societal Fracture Risk: An 11-Year Nationwide Population-Based Cohort Study', *Mayo Clinic Proceedings*, 100(1), pp. 68–79. doi: <https://doi.org/10.1016/j.mayocp.2024.05.002>.
- Hajek, A. *et al.* (2025) 'Multimorbidity clusters and their contribution to well-being among the oldest old: Results based on a nationally representative sample in Germany', *Archives of Gerontology and Geriatrics*, 130, p. 105726. doi: <https://doi.org/10.1016/j.archger.2024.105726>.
- Kongsa, A. *et al.* (2024) 'Perceptions of Medication Adherence among Elderly Patients with Hypertension in Bangkok: A Qualitative Study', *The Open Public Health Journal*, 17(1). doi: <https://doi.org/10.2174/0118749445280796240206102656>.
- Linggi, E. B. *et al.* (2024) 'Knowledge and Attitude Can Increase Participation in Elderly Posyandu Visits', *Window of Health: Jurnal Kesehatan*, pp. 451–460. doi: <https://doi.org/10.33096/woh.v7i4.1399>.
- Mozaffarian, D. *et al.* (2025) 'Nutritional priorities to support GLP-1 therapy for obesity: a joint Advisory from the American College of Lifestyle Medicine, the American Society for Nutrition, the Obesity Medicine Association, and The Obesity Society', *The American Journal of Clinical Nutrition*. doi: <https://doi.org/10.1016/j.ajcnut.2025.04.023>.
- Oeding, J. F. *et al.* (2023) 'Understanding risk for early dislocation resulting in reoperation within 90 days of reverse total shoulder arthroplasty: extreme rare event detection through cost-sensitive machine learning', *Journal of Shoulder and Elbow Surgery*, 32(9), pp. e437–e450. doi: <https://doi.org/10.1016/j.jse.2023.03.001>.
- Owoyemi, T. *et al.* (2025) 'Everyday living with osteoarthritis in the global South: A qualitative focus group inquiry in Nigeria', *Osteoarthritis and Cartilage Open*, 7(1), p. 100555. doi: <https://doi.org/10.1016/j.ocarto.2024.100555>.
- Pennings, N. *et al.* (2025) 'Obesity management in primary care: A joint clinical perspective and expert review from the Obesity Medicine Association (OMA) and the American College of Osteopathic Family Physicians (ACOF) - 2025', *Obesity Pillars*, 14, p. 100172. doi: <https://doi.org/10.1016/j.obpill.2025.100172>.
- Singh, P. K. *et al.* (2025) "Family Matters": A multilevel analysis of household-level

- clustering of overweight and obesity among adults in India', *Public Health*, 246, p. 105814. doi: <https://doi.org/10.1016/j.puhe.2025.105814>.
- Suprpto *et al.* (2024) 'Building Nurse Competency Strategy at Public Health Center in Indonesia: A Descriptive Qualitative Approach', *The Malaysian Journal of Nursing*, 15(03), pp. 62–70. doi: <https://doi.org/10.31674/mjn.2024.v15i03.008>.
- Suprpto, S. *et al.* (2023) 'Human resource development and job satisfaction among nurses', *International Journal of Public Health Science (IJPHS)*, 12(3), p. 1056. doi: <https://doi.org/10.11591/ijphs.v12i3.22982>.
- Suprpto, S. and Kamaruddin, M. I. (2025) 'Integration of digital technology by health analysts in health information systems: Systematic Review', *Journal Interdisciplinary Health*, 1(1), pp. 34–43. doi: <https://doi.org/10.61099/jih.v1i1.105>.
- Syahrudin, S. *et al.* (2024) 'Public health nurses' caring behaviour can increase homecare patients' satisfaction', *Jurnal Ilmiah Kesehatan Sandi Husada*, 13(2), pp. 214–222. doi: <https://doi.org/10.35816/jiskh.v13i2.1207>.
- Tseng, T.-H. *et al.* (2025) 'Simplifying Sarcopenia Screening: A Community-Based Evaluation of Screening and Assessment Combinations', *Journal of the American Medical Directors Association*, 26(8), p. 105703. doi: <https://doi.org/10.1016/j.jamda.2025.105703>.
- Wibowo, W. *et al.* (2025) 'Disease Perception and Duration of Suffering with Self-Care Management in Patients with Diabetes Mellitus', *Jurnal Ilmiah Kesehatan Sandi Husada*, 14(1), pp. 64–72. doi: <https://doi.org/10.35816/jiskh.v14i1.1248>.
- Wijayanti, Y. T. *et al.* (2025) 'Perception of Nursing Students on Clinical Teaching and Learning of Public Health Nurses: A Descriptive Qualitative Approach', *Malaysian Journal of Nursing*, 16(04), pp. 142–151. doi: <https://doi.org/10.31674/mjn.2025.v16i04.014>.
- Zafar, N.-U.-A. *et al.* (2025) 'From root to Recovery: The role of herbs in polycystic ovary syndrome management', *Steroids*, 218, p. 109606. doi: <https://doi.org/10.1016/j.steroids.2025.109606>.
- Zhou, Q. *et al.* (2023) 'Exploration of the oxidative-inflammatory potential targets of Coicis Semen in osteoarthritis: Data mining and systematic pharmacology', *Biocell*, 47(7), pp. 1623–1643. doi: <https://doi.org/10.32604/biocell.2023.028331>.