

*Case Report*

# Holistic and Comprehensive Management of Knee Osteoarthritis Using a Family Medicine Approach in Primary Health Care: A Case Report

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## Abstract:

Osteoarthritis is a chronic degenerative joint disease and one of the leading causes of pain, functional limitation, and disability among older adults. Knee osteoarthritis is commonly associated with advanced age, female sex, overweight, repetitive joint loading, and inadequate physical activity. In primary health care, osteoarthritis management should not only focus on pain control but also address individual, family, psychosocial, and lifestyle factors through a holistic and comprehensive approach. A 69-year-old woman presented to the general outpatient clinic of Puskesmas Pertiwi, Makassar, with intermittent pain in the left knee for two weeks. The pain worsened during walking and knee movement and improved with rest. She also reported morning stiffness in the affected knee. The patient had a history of hypertension and hypercholesterolemia and was routinely taking amlodipine, simvastatin, and mecobalamin. Physical examination showed stable vital signs and an overweight nutritional status with a body mass index of 28.89 kg/m<sup>2</sup>. No supporting investigation was performed. The patient was clinically diagnosed with osteoarthritis accompanied by hypertension and hypercholesterolemia. A family medicine approach identified several contributing factors, including limited knowledge of osteoarthritis, lack of routine health control, anxiety about disease progression, overweight, frequent stair use, and suboptimal dietary habits. Management included pharmacological therapy, lifestyle modification, weight control education, joint protection advice, routine follow-up, and family involvement to improve adherence and psychosocial support. This case highlights the importance of holistic and comprehensive osteoarthritis management in primary care. A family medicine approach can help identify clinical and non-clinical factors affecting disease progression, improve patient understanding, strengthen family support, and promote sustainable lifestyle changes.

**Keywords:** Osteoarthritis; Knee pain; Family medicine; Primary health care; Holistic care.

## 1. Introduction

Osteoarthritis (OA) is the most common form of arthritis and represents a major cause of pain, functional limitation, disability, and health-service utilization among adults and older people (1)(2)(3). OA affects the whole joint structure, including articular cartilage, subchondral bone, synovium, ligaments, periarticular muscles, and other supporting tissues. Its clinical presentation varies from mild intermittent joint pain to progressive limitation of movement and permanent impairment in daily activities (2)(3).

The global burden of OA continues to increase alongside population ageing, increasing obesity, reduced physical activity, and longer life expectancy (1)(4). The knee is one of the most frequently affected joints because

it bears body weight and is exposed to repetitive mechanical load (3)(5). Women and older adults are consistently reported to have a higher risk of OA, while excess body weight further increases the mechanical burden on the knee joint (5)(6). In Indonesia, joint disorders remain an important public health problem, particularly among older age groups, and require effective management at the primary-care level (7)(8).

Management of OA in primary care should be individualized and comprehensive. International recommendations emphasize patient education, self-management, exercise, weight management, pharmacological therapy when needed, and prevention of unnecessary disability (9)(10)(11)(12). However, in many primary-care settings, clinical management may still focus mainly on drug therapy, while behavioral, psychosocial, family, and environmental factors receive less attention (13)(14). This creates a gap between guideline-based OA management and daily practice, especially for older patients with limited health literacy, comorbidities, and family-related barriers.

A family medicine approach provides an appropriate framework for OA management because it considers the patient as a whole person within the context of family, community, lifestyle, socioeconomic condition, and environment (15)(16). This case report describes the holistic and comprehensive management of an older female patient with knee OA at Puskesmas Pertiwi, Makassar, using a family medicine approach. The objective of this case report is to demonstrate how clinical, psychosocial, behavioral, and family factors can be integrated into OA management in primary care.

## 2. Case Presentation

A 69-year-old woman, identified as Mrs. MP for confidentiality, presented to the general outpatient clinic of Puskesmas Pertiwi, Makassar, on 23 October 2025. The patient was a housewife and small boarding-house manager who lived at Jalan Cendrawasih II No. 10, Makassar. She lived in an extended family setting with her granddaughter. Her education level was elementary school, and her daily needs were supported by boarding-house income and assistance from her children. The patient was covered by the Indonesian National Health Insurance system.

The patient came with a chief complaint of left knee pain for two weeks. The pain was intermittent, worsened when the left knee was moved or when walking, and improved with rest. The patient also complained of stiffness of the left knee, particularly in the morning. There was no fever. Appetite and sleep were reported as good. Urination and defecation were within normal limits.

The patient had a previous history of hypertension and hypercholesterolemia. She routinely consumed amlodipine 10 mg, simvastatin 20 mg, and mecobalamin. She had no known drug allergy and no family history of similar joint disease. The patient usually ate twice daily. Her diet consisted mainly of rice, fish, eggs, chicken, tempeh, tofu, fried foods, and salty foods. Intake of vegetables and fruits was limited. She did not smoke and did not consume alcohol. She rarely performed structured exercise; her physical activity was limited to household work and frequent stair climbing. She also reported activities that required squatting, such as taking care of plants around the house.

From the psychosocial perspective, the patient and her family had limited knowledge regarding OA, its risk factors, recurrence prevention, and the importance of adherence to treatment and lifestyle modification. The patient felt anxious because she feared that her condition could worsen and eventually make her unable to walk.

The patient appeared moderately ill but was fully conscious with a Glasgow Coma Scale score of 15. Her nutritional status was categorized as overweight. Vital signs were stable: blood pressure 122/73 mmHg, pulse rate 83 beats/minute, respiratory rate 20 breaths/minute, and body temperature 37.4 °C. Body weight was 65 kg, height was 150 cm, and body mass index was 28.89 kg/m<sup>2</sup>.

General physical examination showed normocephalic head, symmetrical face, non-anemic conjunctivae, anicteric sclerae, normal ear and nasal findings, no cervical lymphadenopathy, normal jugular venous pressure, normal thoracic shape, normal cardiac examination without murmur or gallop, vesicular breath sounds without rhonchi or wheezing, soft abdomen without tenderness or organomegaly, warm extremities, capillary refill time less than two seconds, no edema, and good skin turgor.

**Table 1.** Summary of clinical and holistic findings

Domain	Findings
Age and sex	69-year-old woman
Main complaint	Intermittent left knee pain for two weeks
Pain pattern	Worse with walking or knee movement; improved with rest
Associated symptom	Morning stiffness of the left knee
Nutritional status	Overweight; body mass index 28.89 kg/m <sup>2</sup>
Comorbidities	Hypertension and hypercholesterolemia
Lifestyle risks	Low structured exercise, frequent stair use, salty and fried foods, limited vegetables and fruits
Psychosocial issue	Anxiety about worsening disease and inability to walk
Family factor	Limited family knowledge regarding OA management and prevention
Health-care access	Uses Puskesmas service and BPJS coverage

No laboratory test or radiological investigation was performed during this visit. Based on the clinical presentation, age, risk factors, and physical assessment, the working clinical diagnosis was osteoarthritis of the knee with comorbid hypertension and hypercholesterolemia (3)(9)(10). The absence of fever and systemic signs reduced the likelihood of acute infectious arthritis in this clinical context (3). However, radiographic evaluation may be considered if symptoms persist, functional limitation worsens, or diagnostic uncertainty remains.

The holistic diagnosis was organized into five domains. The personal aspect consisted of left knee pain, morning stiffness, and anxiety about future walking limitation. The clinical aspect was knee OA with hypertension and hypercholesterolemia. Internal risk factors included overweight nutritional status, frequent stair climbing, squatting activity, low exercise habit, and dietary patterns high in fried and salty foods. External risk factors included limited family understanding of OA and limited routine health-control behavior. The functional aspect showed that the patient remained able to perform self-care and daily activities, although knee pain created discomfort during movement.

The family APGAR score was 7, indicating no major family dysfunction. The SCREEM assessment showed adequate religious, economic, and medical resources, while social, cultural, and educational aspects required intervention because of limited disease knowledge, lifestyle habits, and dietary behavior.

**Table 2.** Family medicine assessment

Assessment component	Result	Interpretation
Family APGAR	7/10	No significant family dysfunction
Social resource	Limited disease knowledge and separate residence from children	Needs family education and communication support
Cultural/lifestyle resource	Fried and salty foods, low fruit and vegetable intake, low exercise	Needs dietary and activity modification
Religious resource	Patient and family accepted medical explanation	Supportive resource
Economic resource	Daily needs adequately fulfilled	Supportive resource
Educational resource	Limited understanding of OA	Needs repeated counseling
Medical resource	Uses Puskesmas and BPJS	Supportive resource

The management plan was divided into pharmacological and non-pharmacological interventions. Pharmacological therapy included continuing routine medication for comorbid conditions: amlodipine 10 mg once daily, simvastatin 20 mg once daily, and mecobalamin once daily. Symptomatic OA treatment included ibuprofen 400 mg twice daily, paracetamol 500 mg twice daily, and vitamin D once daily according to clinical assessment and local practice. The use of analgesics and non-steroidal anti-inflammatory drugs requires monitoring, particularly in older patients and in patients with comorbid conditions (10)(17).

Non-pharmacological management included counseling about OA and its chronic course, education on reducing load on the painful knee, advice to maintain routine medical control, weight-control counseling, dietary advice to reduce salty and fried foods, encouragement to increase vegetables and fruits, and recommendation for

safe low-impact physical activity (9)(11)(12)(14). The patient was advised to avoid excessive stair climbing, prolonged squatting, and repetitive movements that increased knee load (6)(9). Family members were encouraged to remind the patient to take medication, accompany her to health services when needed, and provide emotional support.

The expected outcomes were improved understanding of OA, reduced anxiety, better adherence to treatment, more regular health-control behavior, reduced mechanical load on the knee, improved dietary behavior, and prevention of functional decline. The family was expected to participate actively in reminding the patient about medication, routine control, and lifestyle modification.

After education and counseling, the patient and family were more aware of OA risk factors and the importance of regular control, medication adherence, weight management, and activity modification. The family agreed to provide more support and reminders. In the problem-solving assessment, the patient's routine health-control behavior improved from an initial score of 3 to a final score of 5, while anxiety related to disease progression improved from an initial score of 2 to a final score of 4 after education and reassurance.

**Table 3.** Problem-solving evaluation after family medicine intervention

Problem	Initial score	Intervention	Final outcome	Final score
Irregular health-control behavior	3	Motivation and counseling for routine follow-up at primary care	Patient became willing to control health status more regularly	5
Anxiety about complications and inability to walk	2	Education about OA course, prevention, stress management, and family support	Patient became calmer and more motivated to follow therapy	4

### 3. Discussion

This case illustrates the importance of a holistic approach in managing knee OA in primary care. The patient was an older woman with intermittent knee pain, morning stiffness, overweight nutritional status, low structured physical activity, frequent stair use, and activities involving squatting. These factors are clinically relevant because OA is strongly associated with age, female sex, mechanical joint load, obesity, and repetitive stress on weight-bearing joints (5)(6)(7)(8). Although OA is frequently understood as a cartilage disorder, current evidence indicates that it involves the entire joint organ and surrounding tissues; therefore, management should target symptoms, function, modifiable risk factors, and patient behavior (2)(3).

The diagnosis in this case was primarily clinical because no radiographic or laboratory investigation was performed. In many primary-care settings, OA can be diagnosed based on age, activity-related joint pain, stiffness, functional limitation, and the absence of features suggesting inflammatory or infectious arthritis (3)(10). Imaging may support diagnosis, but radiographic severity does not always correlate with pain intensity or functional limitation (3)(18). In this patient, the absence of fever and systemic symptoms made acute infection less likely. However, persistent or worsening pain, swelling, deformity, trauma history, or diagnostic uncertainty would justify further investigation.

Non-pharmacological management is a core component of OA care. International guidelines consistently recommend education, exercise, weight management, and self-management strategies as first-line interventions (9)(10)(11)(12)(14). In this case, the patient had several modifiable risks, including overweight status, low exercise, repetitive knee loading, and dietary habits. Weight reduction is particularly important because excess body weight increases mechanical stress across the knee joint and contributes to pain and progression of functional limitation (6)(9). Low-impact exercise and muscle-strengthening activities may help reduce symptoms, improve mobility, and maintain independence when performed safely and consistently (9)(19).

Pharmacological therapy may be used to relieve pain and maintain function, but it should be individualized. Paracetamol, non-steroidal anti-inflammatory drugs, topical agents, and other analgesic strategies may be considered depending on clinical condition, comorbidity, contraindications, and patient preference (10)(17). In older adults, oral non-steroidal anti-inflammatory drugs require careful monitoring because of possible

gastrointestinal, renal, and cardiovascular risks (10)(17). Therefore, medication should not replace long-term lifestyle modification, self-management, and functional rehabilitation.

A key point in this case is the role of family support. The patient had limited understanding of OA and anxiety about future disability. Although the family APGAR score showed no significant dysfunction, the SCREEM assessment identified educational and lifestyle-related barriers. Family involvement helped transform management from a purely clinical prescription into a comprehensive plan involving medication reminders, emotional support, dietary change, safer activity patterns, and routine follow-up (13)(14)(15)(16). This is consistent with the principles of family medicine, which emphasize comprehensive, continuous, person-centered, family-oriented, and community-contextual care.

The case also demonstrates the importance of psychosocial assessment. Anxiety may worsen pain perception, reduce motivation for activity, and decrease adherence to care plans (20)(21). Addressing the patient's fear of being unable to walk was therefore clinically relevant. Education about the chronic but manageable nature of OA, combined with family reassurance, helped improve the patient's motivation. In primary care, this type of counseling can be delivered repeatedly and adapted to the patient's health literacy.

The main limitation of this case report is the absence of radiological confirmation and long-term follow-up data. However, the case remains clinically relevant because it reflects a common primary-care scenario in which OA management must be initiated based on clinical assessment, risk-factor identification, and patient-centered intervention. Future case documentation should include pain scoring, functional assessment, radiographic evaluation when indicated, treatment adherence monitoring, and follow-up outcomes over several weeks or months (3)(9)(10).

#### 4. Conclusion

This case report describes a 69-year-old woman with knee osteoarthritis managed through a holistic and comprehensive family medicine approach at a primary-care facility. The case emphasizes that OA management should include not only symptom control, but also education, weight management, activity modification, dietary counseling, psychosocial support, family involvement, and continuity of care. A family-centered approach can improve patient understanding, reduce anxiety, strengthen adherence, and help prevent functional decline in older patients with OA.

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