

CHAPTER II

LITERATURE REVIEW

2.1 Osteoarthritis

2.1.1 Definition

Osteoarthritis is a joint disorder characterized by degeneration of articular cartilage, thickening of the subchondral bone, and the formation of osteophytes around the joint margins. This condition is also accompanied by mild, nonspecific inflammation of the synovial tissue. While it can affect any joint in the body, osteoarthritis most commonly occurs in weight-bearing joints such as the knee and hip (Rahmi, 2018).

Osteoarthritis is the most common type of rheumatic disease in older adults, triggered by metabolic disorders and causing changes in the body's muscular and skeletal systems. The most common symptoms reported by sufferers include joint pain and stiffness. Pain tends to occur when the joints are overused, while stiffness usually occurs due to limited movement, especially in the morning after waking or after prolonged rest (Ariyanti et al., 2021).

2.1.2 Classification

According to (Pratama, 2019) Osteoarthritis is classified into two types, namely:

a. **Primary osteoarthritis**

Primary osteoarthritis, also known as idiopathic osteoarthritis, is a condition with an unknown cause and is not associated with systemic disease, inflammation, or local changes in the joints.

b. Secondary osteoarthritis

Secondary osteoarthritis occurs due to various factors such as excessive joint use in work activities, intense sports, history of injury, systemic disease, inflammation, trauma to the joints, congenital disorders, lifestyle, and immune reactions that can trigger the onset of osteoarthritis.

The method for classifying the severity of osteoarthritis uses the Kellgren & Lawrence system which consists of five levels:

- 1) Stage 0: Radiographs do not show osteoarthritis.
- 2) Stage 1: There is almost no narrowing of the joint space and there may be osteophytes
- 3) Stage 2: The presence of osteophytes and possible narrowing of the joint space on anteroposterior weight-bearing radiographs, at this stage mild pain begins to be felt in the joint, especially after activity.
- 4) Stage 3: Several osteophytes are visible, there is narrowing of the joint space, sclerosis, and possible bone deformity, at this stage the pain is often more intense especially when doing certain movements.
- 5) Stage 4: There are large osteophytes, narrowing; the joint space is very obvious, severe sclerosis and deformity of the bone, at this stage the pain is very noticeable even when resting.

2.1.3 Etiology

The exact etiology or cause of this degenerative joint disease is not yet fully understood, but several factors can potentially trigger the condition. These factors include (Engel, 2017):

a. Age

As a person ages, the risk of developing osteoarthritis of the knee increases. This occurs because the weight-bearing knee joint experiences frequent friction and pressure, causing the cartilage lining the bones in the knee joint to gradually wear down and become more susceptible to degeneration.

b. Obesity

Being overweight contributes to an increased risk of developing osteoarthritis in the knee joint. Excessive body weight places additional stress on the joint's structures. As the mechanical stress the knee joint must withstand increases, the potential for bone tissue damage also increases.

c. Hereditary or congenital factors

Inherited factors such as the cartilage an individual has, the level of joint laxity, and irregularities in the joint surface also play a role in triggering osteoarthritis in the knee.

d. Trauma to the joints

Trauma, impact, or injury that occurs to the knee joint can cause damage to the bone structure and other components that form the joint, thereby disrupting its normal function.

e. Daily work and activities

Types of work and physical activities that involve repeated or excessive use of the knee joints are one of the factors that can trigger the onset of osteoarthritis in the knee.

f. Hormonal factors and metabolic diseases

The degenerative process in the knee joint can be influenced by hormonal changes that occur in postmenopausal women. Furthermore, people with diabetes mellitus are also at higher risk of developing knee osteoarthritis.

2.1.4 Pathophysiology

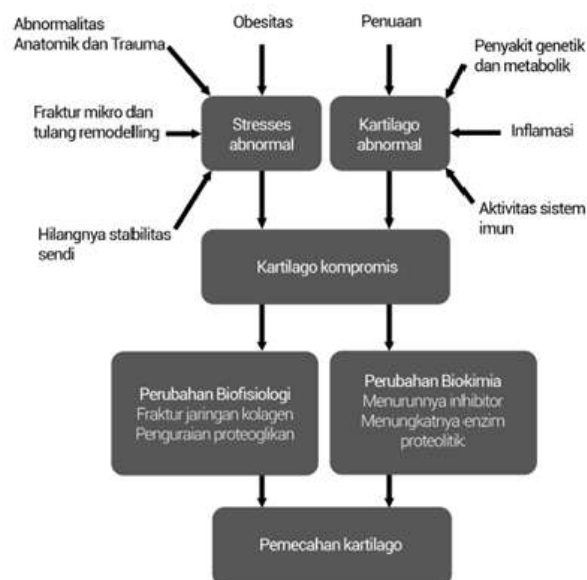


Figure 2.1 Pathogenic Factors Of Osteoarthritis

The matrix composition of proteoglycans and collagen in articular cartilage is crucial for supporting the joint's function as a mechanical load-bearing organ. Osteoarthritis occurs primarily due to the degradation of matrix components, which damages the extracellular matrix of articular cartilage, disrupting its normal function (Zaki, 2013). Changes in proteoglycans cause cartilage to become less resilient to the pressure and load experienced by the joint. This

decrease in cartilage strength is accompanied by inappropriate changes in collagen and damage to chondrocytes. Consequently, changes occur in the molecular composition and matrix of articular cartilage, which then leads to impaired matrix function (Sembiring, 2018).

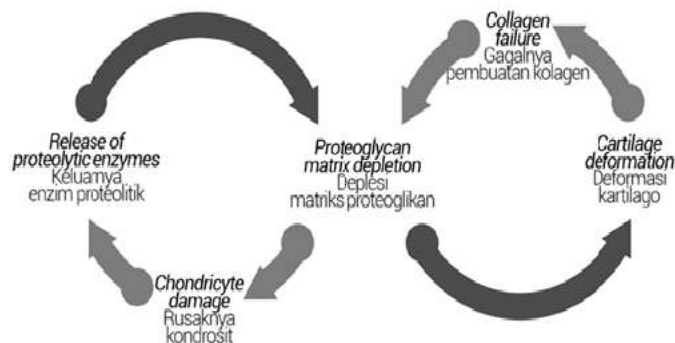


FIGURE 2.20A PATHOPHYSIOLOGY SCHEME

The initial biochemical changes in degenerative joint disease typically begin in the articular cartilage, where proteoglycans are lost from the matrix, causing the cartilage to soften (chondromalacia) and lose its normal elasticity as a shock absorber. Furthermore, decreased collagen levels make the joint more susceptible to friction. This condition causes the tangential layers of cartilage to undergo accelerated deterioration, while the vertical layers begin to separate, which can trigger fissuring and fibrillation (Zaki, 2013). Osteoarthritis is characterized by changes in cellular and metabolic activity in the cartilage, with an increase in cell number and the separation of older chondrocytes through mitosis. This condition causes chondrocytes to produce proteoglycans and collagen more rapidly. However, proteoglycan content decreases due to progressive damage caused by

lysosomal protease enzymes such as cathepsins and neutral metalloproteinases such as collagenase (Zaki, 2013).

In the central surface of the knee joint, where the greatest pressure and friction occur, the subchondral bone undergoes eburnation and hypertrophy. Eburnation is a condition in which the articular cartilage that normally lines the joint surface is eroded, leaving the subchondral bone smooth and shiny. This hypertrophy of the subchondral bone appears on radiographs as areas of high density (sclerosis). Conversely, at the edges or periphery of the knee joint surface, the pressure is lower, causing the subchondral bone to atrophy and appear on radiographs as areas of low density (osteoporosis). Changes in the biomechanical distribution of pressure in the joint cause subchondral bone remodeling and osteophyte formation at the joint margins in response to cartilage damage. These osteophytes are a physiological mechanism for repairing and rebuilding the joint by increasing the joint surface area to better withstand loads, thus hopefully repairing the initial damage to the cartilage caused by osteoarthritis. Therefore, subchondral bone plays a crucial role as a primary pathogenic factor in osteoarthritis (Sembiring, 2018).

In the early stages of osteoarthritis (OA), blood flow stasis in the bone marrow (medullary), venous swelling, and increased pressure within the bone (intraosseous hypertension) occur. Excessive pressure and high loads, especially in weight-bearing joints such as the hip, can cause microfractures in the ossified cartilage and damage to the hyaline articular cartilage and subchondral bone,

accompanied by the formation of cystic lesions in the subchondral bone marrow. This condition occurs due to mucoïd and fibrinous degeneration of local tissue caused by microfractures in the bone trabeculae. Increased vascularity in response to the bone in this confined space is one of the causes of pain in OA sufferers (Zaki, 2013).

The synovial membrane and fibrous capsule are connective tissues that line the inside of the joint capsule and produce synovial fluid. This fluid acts as a lubricant and buffer for the joint. Small fragments of dead cartilage can detach and float in the synovial fluid as foreign bodies (loose bodies). However, these fragments usually adhere to the synovial membrane, triggering a hypertrophic reaction and the development of synovial effusion. In effusion, the synovial fluid contains higher levels of mucin, increasing its viscosity. Furthermore, the fibrous capsule undergoes thickening and fibrosis, ultimately limiting joint movement (Zaki, 2013).

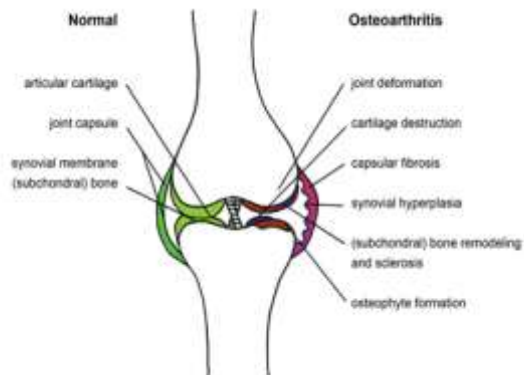


Figure 2.3 Comparison of Normal Knee Conditions and Osteoarthritis Knee Conditions

2.1.5 Osteoarthritis Complications

If osteoarthritis is not optimally treated, this condition can cause complications. In general, there are two types of complications that may occur as a result (Nyoman et al., 2019) that is :

1. Chronic Complications

Chronic complications include significant bone malfunction, and in the most severe cases can lead to paralysis.

2. Acute Complications

- a. *Osteonecrosis* : Condition of bone tissue death due to disruption of blood supply, so that the bones do not get enough oxygen and nutrients to live
- b. *Baker Cyst Rupture* : A condition where a Baker's cyst (a sac containing synovial fluid that forms behind the knee) ruptures or tears.
- c. *Bursitis* : Inflammation of the bursa, a fluid-filled sac near the joints, causing pain, swelling and difficulty moving
- d. *Symptomatic Meniscal Tear*: A condition of a torn meniscus in the knee that causes clinical symptoms such as pain, swelling, stiffness, and impaired knee function.

2.1.6 Clinical Manifestations

Signs and symptoms that can be experienced by osteoarthritis sufferers according to (Winangun, 2019) in the form of: 1) joint pain, 2) restricted joint movement, 3) morning stiffness, 4) crepitus and a grinding sensation, 5) changes in joint shape (deformity), 6) asymmetrical joint swelling, 7) signs of inflammation, 8) changes in gait.

In line with Winangun 2019, (Moskowitz, 2001) in (Qiudandra et al., 2022) stated that the signs and symptoms that can be experienced by osteoarthritis sufferers are as follows: 1) stiff joints, 2) inflammation/swelling of the joints, 3) joint pain, 4) painful joints are red, 5) fatigue that accompanies pain in the joints, 6) difficulty moving the joints, 7) sounds in each joint (crepitus), 8) changes in bone shape, 9) changes in gait.

a. Joint pain

Joint pain is the primary complaint experienced by patients. Pain increases with increased joint movement and is relieved by rest. Osteophytes are one cause of pain because, as they develop, nerves and blood vessels penetrate from the base of the bone to the cartilage and into the area where the osteophyte grows. This pain typically worsens until the joint becomes difficult to move and contractures develop. The movement disorders can be concentric (limiting all directions of movement) or eccentric (limiting only one direction of movement) (Winangun, 2019).

Early joint pain is usually only felt in the morning. However, if left untreated, pain can occur with any movement, especially weight-bearing, and the pain usually improves after rest. In some patients, joint pain can also occur after prolonged periods of rest, such as when sitting in a chair or car seat on a long trip. Joint stiffness in osteoarthritis generally lasts no more than 15 to 30 minutes and often occurs shortly after waking up (Qiudandra et al., 2022).

b. Joint movement restriction

This disorder usually worsens gradually as the pain increases. Limited joint movement is caused by the formation of fibrotic connective tissue in the joint capsule, osteophyte growth, or irregularities in the joint surface.(Winangun, 2019).

c. Stiffness in the morning

Stiffness in the joints appears after the patient has rested or has not moved for a long time, for example when sitting in a chair or car, and can even be felt after waking up in the morning (Winangun, 2019).

d. Crepitation or grating sensation

This symptom is often found in patients with knee osteoarthritis, initially only feeling like something is broken or crushed in the joint (Winangun, 2019). This symptom is not painful, only discomfort in each joint (most commonly the knee) (Qiudandra et al., 2022).

e. Changes in joint shape (deformity)

Joint deformities occur due to contractures in the joint capsule and joint instability caused by cartilage damage (Winangun, 2019). As cartilage tissue

damage worsens, the bones become deformed, accompanied by inflammation that can cause severe pain (Qiudandra et al., 2022).

f. Asymmetrical joint swelling

Swelling in the joints can occur due to joint effusion which is usually small in amount (less than 100 cc) or due to the growth of osteophytes, which causes changes in the shape of the joint surface (Winangun, 2019).

g. Signs of inflammation

Joint inflammation, characterized by tenderness, limited movement, generalized warmth, and redness, is caused by synovitis. These signs are usually subtle and appear late in the disease. These symptoms are often seen in knee osteoarthritis (Winangun, 2019).

h. Changes in gait

These symptoms can interfere with the independence of osteoarthritis patients, especially the elderly. This condition is always associated with pain, as the joint bears the weight of the body. Changes in gait patterns are especially common in patients with knee osteoarthritis (Winangun, 2019).

2.1.7 Osteoarthritis Supporting Examination

There are two types of supporting examinations used to diagnose osteoarthritis: radiological and laboratory tests. Radiological examinations, such as X-rays, serve to assess the condition of bones and joints, including the severity of osteoarthritis by observing changes such as joint space narrowing, osteophytes, and cartilage damage. Laboratory tests can be performed to support the diagnosis and assess the patient's overall condition (Swandari et al., 2022)

A. Radiological Examination

The diagnosis of osteoarthritis, apart from clinical features, can also be confirmed by radiographic images of the joints. The diagnosis of osteoarthritis is

- a) Narrowing of the joint space which is often asymmetrical (more severe in the weight-bearing area)
- b) Increased density (sclerosis) of subchondral bone
- c) Bone cyst
- d) Osteophytes at the joint margins
- e) Changes in the anatomical structure of the joints

Based on the radiological changes mentioned above, osteoarthritis can be classified radiographically from mild to severe. In the early stages of the disease, radiographic examination results usually still show normal conditions.

B. Laboratory Examination

Laboratory tests for osteoarthritis generally provide little significant information. However, they are useful in identifying the underlying cause of secondary osteoarthritis, such as evaluating the peripheral blood count (hemoglobin, leukocyte count, and erythrocyte sedimentation rate), which are usually within normal limits unless inflammation is present.

2.1.8 Management

A. Non-Pharmacological

According to (Nurudhin 2024) a non-pharmacological approach is the initial step in managing osteoarthritis (OA) and aims to reduce pain and improve joint function without the use of drugs, including:

- a. A structured physical exercise program, such as aerobic exercise, muscle strengthening, and flexibility training, helps improve joint stability, reduces stiffness, and improves overall quality of life. It's important to tailor the exercise program to the individual's condition and abilities to minimize the risk of injury.

- b. Weight loss is highly recommended for OA patients who are overweight.

Being overweight or obese, especially those with OA of weight-bearing joints like the knees and hips. A 5-10% weight loss can significantly reduce pain and improve joint function. Consult a nutritionist to determine an appropriate diet for those with osteoarthritis (OA) to achieve healthy and balanced weight loss goals.

- c. Using assistive devices such as canes, walkers, or orthoses can help reduce stress on affected joints and improve mobility. These devices help distribute the load evenly.

B. Pharmacological

According to Wijaya (2018), pharmacological treatment for osteoarthritis focuses on pain reduction, which is crucial. Various types of analgesic drugs are used, including nonsteroidal anti-inflammatory drugs (NSAID), opiates, and

other non-opiate analgesics. NSAID work by inhibiting the biosynthesis of prostaglandins formed during the inflammatory process, through inhibition of the cyclooxygenase (COX) enzyme. NSAID therapy is divided into nonspecific COX inhibitors and specific COX-II inhibitors. Examples of nonspecific COX inhibitors include ibuprofen, diclofenac, meloxicam, and aspirin, while celecoxib is an example of a selective COX-II inhibitor. In addition, a frequently used non-opiate analgesic is paracetamol (acetaminophen), which is effective in reducing pain in knee osteoarthritis, although its effectiveness is lower than NSAIDs, but it has fewer side effects.

2.2 Family Support

Family support refers to the forms of acceptance, attitudes, and behaviors demonstrated among family members. Each individual within the family is viewed as an integral part of the family environment. The family is positioned as the primary source of support, always ready to provide assistance and help when needed (Irawan et al., 2017).

Family support refers to concrete attitudes and actions aimed at assisting family members, ensuring they are valued, loved, cared for, and feel comfortable. Furthermore, family support encompasses the efforts provided by family members in the form of emotional support, information, and appreciation, aimed at boosting individual motivation in dealing with various life situations (Seran et al., 2023).

2.2.1 Family Support for the Elderly

Families play a key role in supporting seniors in maintaining their health. Family support plays a crucial role in enhancing the well-being of senior (Zahara & Anastasya, 2020) Family support refers to an individual's perception of the assistance provided by family members, including immediate family, relatives, and close friends. Adequate family support can positively impact the well-being of older adults. Support provided to older adults includes emotional support, information, appreciation, and instrumental support (Sapwal, 2020).

A. Emotional support

Emotional support means that family can provide a sense of comfort and security for rest and recovery, while also helping someone manage their emotions. Emotional support has aspects that include expressions of love, love, attention, mutual trust and the ability to listen and be heard (Inayati & Hasanah, 2022) Emotional support is a form of support that provides love, sympathy, attention, encouragement, personal warmth, and positive feelings (Arini et al., 2022). In this study, emotional support is defined as a family actively asking about and addressing the complaints and problems experienced by the elderly, demonstrating care, trust, and affection. This support allows the elderly to feel emotional closeness, gain motivation, and increase self-confidence, which contributes to an improved quality of life.

B. Informational support

Informational support is a form of assistance provided by families through the provision of relevant information regarding the elderly's health condition, as well

as guidance or advice (Arini et al., 2022). Furthermore, informational support can help reduce stressors because the information provided provides positive suggestions to the elderly. This support can take the form of advice, suggestions, recommendations, guidance, and information. However, if this support cannot be implemented according to the elderly's needs and level of dependency, informational support cannot be provided optimally (Fitriah et al., 2017).

C. Award support

Support in the form of appreciation is one form of assistance provided by families through the delivery of appreciation and positive feedback to the elderly. This support is demonstrated through attitudes that encourage, accept, and provide approval for the opinions, ideas, and feelings expressed by the elderly (Bomar, 2012). The appreciation support referred to in this study is the family providing encouragement, praise, approval of the ideas presented by the elderly, and involvement in decision-making. Thus, the appreciation support provided by the family can improve the psychosocial condition, enthusiasm, motivation for life, and self-confidence in the elderly, because they feel respected and important to the family. Through this support, the elderly gain recognition for their existence and realize that their presence is still needed and appreciated by those closest to them (Ekasari et al., 2023).

D. Instrumental support

Instrumental support refers to concrete forms of support provided directly by family members to the elderly, including actions or services aimed at meeting their physical and functional needs in daily life. This support includes the provision of facilities such as transportation, food, toiletries, clothing, housing, financial support, and assistance with daily household activities (Inayati & Hasanah, 2022).

2.2.2 Family Support Category

Family support is a form of assistance given by families to each other in the form of attitudes, actions, information and attention that can foster a feeling of comfort, being loved and appreciated in the recipient (Happi et al., 2021). Family support is divided into two main categories, namely families with good support and families with less good support (Ina & Setyoningrum, 2023).

Family support is considered good when all four aspects of emotional, informational, instrumental, and esteem support are fully met. Families that provide good support can create a safe and comfortable environment for their members, so that each individual feels loved, heard, and cared for with full attention. (Alvita & Christin, 2021) With optimal support, family members will feel more motivated and prepared to face the challenges of daily life, particularly those related to health and well-being.

Family support cannot be considered good if the four aspects of support—emotional, informational, instrumental, and esteem—are not fully met. Families that lack support tend to fail to create a safe and comfortable

atmosphere for their members, so individuals within the family may feel unloved, unheard, and under-appreciated (Zahara & Anastasya, 2020) Without adequate support, family members are at risk of feeling less motivated and struggling to cope with the challenges of daily life, particularly those related to health and well-being.

2.2.3 Factors Influencing the Provision of Family Support

Factors that can influence the provision of family support according to Purnawan (2008) in Rahayu (2008) are as follows:

A. Internal

1. Stages of development

During this developmental phase, support is influenced by age, which is closely related to an individual's growth and development. Therefore, each age group, such as infants and the elderly, has a different perspective and response to changes in their health conditions.

2. Education and level of knowledge

A person's belief in support is strongly influenced by intellectual aspects, including their level of knowledge, educational background, and prior experience. Cognitive function plays a crucial role in shaping an individual's thought patterns, including understanding various aspects of the disease and applying health information to maintain physical well-being.

3. Emotional factors

Emotional factors can influence a person's belief in support through how they implement it. Individuals experiencing stress due to life changes tend to

respond to various symptoms of illness with anxiety, as they perceive these conditions as threatening their safety. However, those who struggle to emotionally cope with the threat of illness may refuse to acknowledge the symptoms, making them reluctant to seek treatment.

4. Spiritual

The spiritual aspect can be observed through how a person lives his life, which includes the principles and beliefs that are adhered to and manifested in actions, the quality of interpersonal relationships with family and friends, and the individual's capacity to find meaning and hope in his life's journey.

B. External

1. Family support

Implementing family support is a way for families to provide assistance that can influence individual behavior in pursuing their health goals. For example, when family members implement preventative measures, this tends to encourage patients to follow similar health measures.

2. Economic factors

The higher a person's economic status, the quicker they are to recognize and respond to symptoms of illness. Therefore, people with better economic conditions are more likely to seek help promptly when experiencing health problems.

3. Cultural background

A person's cultural origins influence their beliefs, values, and habits in providing support, including in how they carry out personal health care.

2.3 Daily Living Activities

Daily living activities is an activity that is carried out daily by humans routinely and universally (Anggraini et al., 2022). ADL are activities performed to complete routine daily tasks as a basic step in self-care. Daily activities can be used as a benchmark to evaluate a person's ability to perform activities, as well as to identify whether an elderly person requires assistance from others to complete daily activities or is able to perform them independently (Wulan Sari et al., 2022). Daily activities are routine activities a person performs throughout the day, such as walking, eating, dressing, bathing, brushing teeth, and grooming. Certain conditions may require assistance in carrying out these activities, whether short-term, long-term, temporary, permanent, or during rehabilitation (Fauziah et al., 2024).

2.3.1 Types of ADL

Below there are various types of Activity Daily Living (ADL) (Setiahardja, 2005) as follows:

1. Basic ADL

*Activity Daily Living m*These are the basic skills a person must possess to care for themselves, including dressing, eating and drinking, using the toilet, bathing, and grooming. This basic skill category also includes controlling bowel and urinary functions (continence).

2. Instrumental ADL

Daily Living Activities related to the ability to use objects or tools to support daily activities, such as preparing food, using the telephone, typing, writing, and managing finances.

3. Vocational ADL

Fulfillment of needs in daily activities related to work and school activities, both those carried out inside and outside the school environment.

4. Non-Vocational ADL

Activities to fulfill ADL are basically recreational, as a hobby, and are used to fill free time with fun activities.

2.3.2 Ability to Fulfill ADL

The ability to fulfill Activities of Daily Living (ADL) is a person's ability, especially the elderly, to perform basic daily activities independently without assistance from others (Hardianingsih, 2021). These activities include bathing, eating, dressing, using the toilet, and transferring. ADL is an important measure for assessing a person's functional independence in daily living. This ability reflects the extent to which a person can care for themselves routinely and universally, which significantly impacts the quality of life and well-being of the elderly. The ability to fulfill ADL is a measure of an individual's independence in performing daily self-care activities that are essential for maintaining life function and quality of life, especially in the elderly (Rahayu et al., 2024).

2.3.3 ADL Fulfillment Ability Categories

A. Barthel Index

The Barthel Index is a measurement instrument used to assess a person's level of functional independence in performing daily activities, particularly in self-care and mobility. This tool measures a patient's ability to perform various basic activities such as eating, bathing, dressing, using the toilet, and transferring. The score obtained from this assessment reflects the extent to which a person is able to perform these activities independently without assistance. The Barthel Index has 10 activities assessed, with the final result (total score) categorized into five categories: independence, mild dependence, moderate dependence, severe dependence, and total dependence (Nurhidayat et al., 2021).

The 10 activities assessed in the Barthel index are as follows:

- a. Eat
- b. Bathe
- c. Self-care
- d. Get dressed
- e. Defecate
- f. Urination
- g. Use of the bathroom
- h. Moving places
- i. Mobility (walking on a flat surface)
- j. Climbing or descending stairs

B. Katz Index

The Katz Index is a measuring tool used by nurses to assess the function of elderly clients by evaluating their ability to perform daily activities. According to Ritonga (2018), the activities assessed include bathing, dressing, using the toilet, transferring, controlling bowel movements, and eating, with the following assessments:

a. Bathe

Independent : Assisted bathing is limited to one part of the body, such as back, or able to bathe completely independently

Depends : Receive assistance with bathing in more than one area body, requires assistance when getting in and out of the bathroom

b. Get dressed

Independent : Taking clothes from the wardrobe, putting on clothes, undressing, as well as buttoning or tying clothes.

Dependent : Unable to dress independently or does so partially

c. Toileting

Independent : In and out of the bathroom, cleaning genitalia independently

Depends : Get help getting into the bathroom and when using the potty

d. Transferring

Independent : Change position from bed, and stand or get up alone from the chair

Dependent : Gets help getting in or out of bed or chair, does not transfer at all

e. Continent

Independent : Defecation and urination can be controlled independently.

Depends : Partial or total incontinence, namely using catheters and bedpans, enemas and sanitary napkins/diapers.

f. Eat

Independent : Take food from a plate and put it on mouth independently

Dependent : Getting help in taking food from the plate and feeding him, not eating at all and eating through a NGT.

2.3.4 Factors Affecting the Ability to Fulfill ADL

According to Hardywinoto (2014), the factors that influence a person's ability to fulfill daily living activities are as follows:

a. Age and developmental status

A person's developmental stage and age can reflect their level of ability and willingness, as well as how they respond to disabilities in performing daily activities. During the developmental process from infancy to adulthood, a person gradually transitions from dependence to independence in performing ADL.

b. Physiological health

A person's physiological health plays a crucial role in their ability to participate in daily activities. For example, the nervous system collects, transmits, and processes information from the surrounding environment. The musculoskeletal system works closely with the nervous system to respond to sensory stimuli through movement. Disorders of these systems, which can be caused by disease or injury, can hinder a person's ability to perform daily activities independently.

c. Cognitive function

A person's cognitive ability level affects their ability to perform daily activities, which involve receiving information, organizing, and solving problems. This mental function plays a vital role in logical thinking, and cognitive impairment can hinder independence in performing ADL.

d. Psychosocial functions

Psychosocial functioning reflects an individual's ability to recall past experiences and communicate information accurately and realistically. This function is formed through a complex interaction between intrapersonal and interpersonal aspects. Disturbances in the intrapersonal dimension, such as impaired self-image or emotional instability, can negatively impact the fulfillment of responsibilities in family and work contexts. Meanwhile, barriers in the interpersonal aspect, such as difficulty in establishing communication, limitations in social interactions, or the inability to fulfill social roles, also have the potential to disrupt an individual's functioning in carrying out daily activities.

e. Stress level

Stress is a nonspecific physical response to various needs or demands. Stress-causing factors, called stressors, can originate from within the body or the surrounding environment and can disrupt the body's balance. These stressors can be physiological disorders such as injury or trauma, or psychological disorders such as loss.

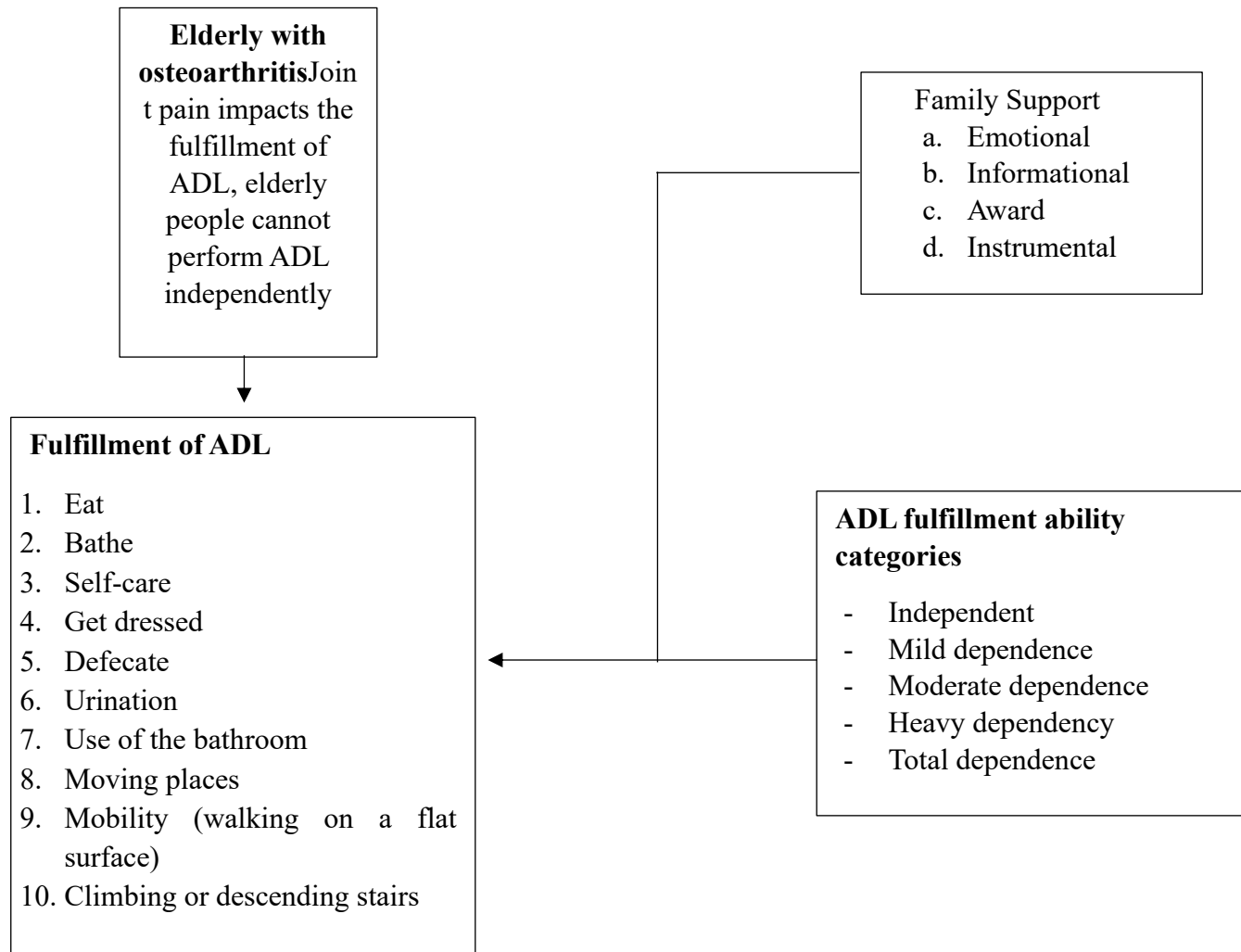
f. Mental status

Mental status reflects a person's intellectual well-being, which impacts their ability to meet their basic needs. One factor that can contribute to a lack of independence in meeting these needs is limited mental status. For example, older adults with memory loss or cognitive impairment, as well as those with apraxia, will face difficulties meeting their basic needs.

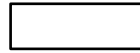
2.3.5 Connection Family Support for ADL Fulfillment Ability in Elderly Patients with Osteoarthritis

Family support plays a crucial role in improving ADL performance in older adults with osteoarthritis. Optimal family support can increase their independence in performing daily activities and improve their quality of life. Therefore, families are expected to provide all four aspects of family support to the fullest extent possible. This will enable older adults with osteoarthritis to live better and more independently.

2.4 Conceptual Framework



Information :



: What is being researched



: What is not researched

Elderly people with osteoarthritis often face limitations in fulfilling activities of daily living (ADL) due to pain and limited mobility in the joints, which can affect their physical abilities. Osteoarthritis causes a significant decline in physical function, making them more dependent on others for basic activities such as bathing, dressing, moving, and getting around. Family support plays a crucial role in helping elderly people fulfill these ADL needs. Good family support, such as providing physical assistance, motivation, and attention, can improve elderly independence and their quality of life despite the limitations caused by osteoarthritis. However, if family support is less than optimal, elderly people tend to experience greater dependency and ADL fulfillment is not met properly. Thus, the ability of elderly people to fulfill ADL is greatly influenced by a combination of internal factors such as osteoarthritis and external factors such as family support, which determine whether or not elderly people's ADL abilities are fulfilled.

2.5 Hypothesis

A research hypothesis is a tentative statement or assumption based on a theory or initial observation, the validity of which will later be tested through the research process. The hypothesis in this study is H1: there is a relationship between family support and the ability to perform activities of daily living (ADL) in elderly people with osteoarthritis.