

CHAPTER II

LITERATURE REVIEW

2.1 Theory

2.1.1 The Concept of Elderly

2.1.1.1 Definition of Elderly

Elderly is a natural process, meaning that the elderly have gone through three stages in their lives, namely children, adults and old. These three stages are different biologically and psychologically. The elderly experience various kinds of decline which include physical decline such as skin starting to sag, hair starting to turn white, teeth becoming missing, hearing is less clear, vision is getting worse, body movements become slow, and body structure is disproportionate (Gemini et al., 2021).

2.1.1.2 Elderly Limits

a. According to the World Health Organization (WHO)

The elderly are divided into several categories, including middle age (Middle Age) which is 45-59 years old, elderly (Elderly) is between 60 and 74 years old, elderly is between 75 and 90 years old, and very old is over 90 years old (Gemini et al., 2021).

b. According to the Indonesian Ministry of Health

The elderly are divided into several groups, namely: pre-elderly (Prasenilis) which includes residents aged 45 to 59 years; elderly (elderly) which includes residents aged 60 years and above; high-risk elderly,

including residents aged 70 years and above or residents aged 60 years and above who have health problems; potential elderly, including residents who are still able to work or carry out other activities that produce goods or services; and non-potential elderly, including residents who are unable to work so they have to depend on others to meet their needs (Gemini et al., 2021).

2.1.1.3 Classification of Elderly

Gemini et al (2021) classifies the elderly into several groups, namely:

- a. A person between the ages of 45 and 59 is considered pre-elderly (presenile).
- b. A person over the age of 60 is considered elderly.
- c. Seniors who are 70 years of age or older or who have other illnesses and are 60 years of age or older are considered high risk.
- d. Elderly people who are still able to work or are involved in activities that produce commodities or services are considered potential elderly people.
- e. Elderly people who are unable to support themselves financially are known as non-potential elderly (Manurung et al., 2020).

2.1.1.4 Factors Affecting Aging in the Elderly

Manurung, et al (2020) said that there are several factors that influence the aging process, including:

- a. Heredity (Heredity/Genetics);

- b. Nutrition (Food Intake);
- c. Health Status;
- d. Life experience;
- e. Environment;
- f. Stress.

2.1.1.5 Changes that Occur in the Elderly (Senior Citizens)

a. Physical Changes

A review of the physical changes in older adults that increase the risk of urinary tract infections (UTIs) suggests that several anatomical and physiological factors contribute to this increased susceptibility. These factors include changes in the immune system, decreased kidney function, and changes in the anatomy of the urinary tract. The studies presented below highlight how these changes specifically contribute to the increased risk of UTIs in the elderly population.

A study by Harding et al (2018) examined the effect of anatomical changes in the urinary tract of elderly women on the risk of UTI. The study found that decreased estrogen levels after menopause can cause thinning of the vaginal and urethral tissues, increasing the risk of bacterial colonization and infection. The study methodology involved clinical examination and microbiological analysis of urine samples. The findings suggest that topical estrogen therapy may reduce the risk of UTI in postmenopausal women by restoring healthy vaginal flora and increasing epithelial tissue thickness.

Another study by Nicolle (2014) discussed the role of decreased kidney function in the elderly in increasing the risk of UTI. This study explained that decreased glomerular filtration rate (GFR) and the kidney's ability to concentrate urine can lead to increased bacterial growth in the urinary tract. This study used longitudinal data from a cohort of elderly people to assess kidney function and the incidence of UTI. The results showed that older people with lower GFR had a higher risk of recurrent UTI.

A study by Uemura et al. (2016) examined the impact of immune system changes in older adults on susceptibility to UTIs. The study found that decreased T-cell function and antibody production may reduce the body's ability to clear bacteria from the urinary tract. The study involved in vitro analysis of the immune responses of cells from older and younger adults after exposure to uropathogenic bacteria. The findings suggest that improved immune responses may help reduce the risk of UTIs in older adults.

Overall, these studies highlight that anatomical changes, decreased kidney function, and immune system changes in older adults contribute significantly to the increased risk of UTI. These changes may lead to increased bacterial colonization, decreased bacterial clearance, and decreased immune response, making older adults more susceptible to urinary tract infections.

b. Mental Change

The changes that occur include an increasingly egocentric attitude, easily suspicious, increasingly stingy or greedy, a general attitude found in almost every elderly person, namely the desire to live a long life, to save as much energy as possible, to have the hope of still being given a role in society, to want to maintain one's rights and property and to remain authoritative, and to die honorably and go to heaven (Gemini et al., 2021).

c. Psychosocial Changes

Psychosocial changes in the elderly tend to be assessed through their productivity in relation to their role in work. When retiring (retiring), a person will experience losses including financial loss (reduced income), loss of work and activities so that they feel aware of death, economic deprivation, illness, loneliness, nervous and sensory disorders, nutritional disorders, a series of losses of strength and physical strength (Gemini et al., 2021).

d. Spiritual Change

The elderly are increasingly mature in their religious life. This can be seen in their daily thinking and at the age of 70 years, the development achieved at this level is thinking and acting by giving examples of how to love and be just (Gemini et al., 2021).

2.1.2 Urinary Tract Infection (UTI)

2.1.2.1 Definition of Urinary Tract Infection (UTI)

Urinary Tract Infection (UTI) is a condition of infection characterized by the growth and proliferation of bacteria in the urinary tract, including infections in the kidney parenchyma to the bladder with significant amounts of bacteriuria (Hastuti and Sjaifullah, 2016).

According to Hastuti, et al (2016) Urinary Tract Infection (UTI) is a general term to indicate the presence of bacterial growth in the urinary tract, including infections in the kidney parenchyma to infections in the bladder. Bacterial growth that reaches $> 100,000$ colony units per ml of fresh morning midstream urine is used as the diagnostic limit for UTI.

2.1.2.2 Classification of Urinary Tract Infections (UTIs)

Classification of urinary tract infections is divided into two, namely:

- a. Uncomplicated UTI is a urinary tract infection in patients without anatomical abnormalities or abnormalities in the structure of the urinary tract (Purnomo, 2016). Uncomplicated UTI is an infection that occurs in the normal urinary tract and usually only involves the bladder (Lewis et al., 2019)
- b. Complicated UTI (complication) is a urinary tract infection that occurs in patients who suffer from anatomical/structural abnormalities of the urinary tract, or systemic diseases. These abnormalities make it difficult to eradicate germs or bacteria by antibiotics (Purnomo, 2016). Complicated UTI includes infections accompanied by obstruction and

stones. Patients with complicated UTI are at risk of experiencing pyelonephritis, urosepsis and kidney damage (Lewis et al., 2019).

2.1.2.3 Etiology of Urinary Tract Infection (UTI)

The most common bacteria that cause UTIs are gram-negative organisms found in the gut such as *Escherichia coli* causing 80% of UTIs, *Klebsiella* causing about 5% of UTIs, Enterobacter and Proteus are found in 2% of UTI cases. In a literature review (Irawan & Mulyana, 2018) *Escherichia coli* is the most common microorganism found in uncomplicated UTIs. Gram-positive bacteria that cause UTIs, namely *Staphylococcus saprophyticus*, cause 10-15% of UTIs. Catheter-related UTIs often involve other gram-negative bacteria such as *Proteus*, *Klebsiella*, *Serratia* and *Pseudomonas* (Torayraju. K, 2015)

2.1.2.4 Pathophysiology of Urinary Tract Infection (UTI)

The most common cause of infection in UTI is *E. coli* bacteria. This bacteria can enter the bladder by reflux through the urethra. In addition, this type is in the urinary tract from the outer urethra to the kidneys and can also be spread hematogenously and lymphogenously (Irawan & Mulyana, 2018)

With the condition of the colony of bacteria that cause too much infection will affect the individual's natural defense system. The body's defense mechanism is a determining factor in the occurrence of infection. Under normal conditions, urine and bacteria are unable to penetrate the mucosal wall of the bladder. The mucosal layer of the bladder is composed of urothelial cells that produce mucin, an element that helps maintain the

integrity of the bladder lining and prevents damage and inflammation of the bladder. It can also prevent bacteria from attaching to urothelial cells.

In addition, the level of acidity of urine pH and the condition of increasing or decreasing body fluids contribute to urine production. The production of a lot of urine functions to maintain the integrity of the mucosa, some bacteria can enter and the urinary system will remove it. Urine is a sterile product, produced from ultrafiltration of blood in the glomerulus of the renal nephron, and is considered a sterile body system. However, the urethra is a ported entry for pathogenic germs. In women, 1/3 of the distal part of the urethra accompanied by periurethral tissue and the vestibule vaginalis is inhabited by bacteria from the intestines. This is because the location of the anus is not far from that place. In addition, the female urethra is shorter than that of men and the position of the anus is with the urethra. Therefore, women are more susceptible to bladder infections than men. (Irawan & Mulyana, 2018)

Microorganisms rise to the bladder during urination due to urine pressure. And during urination there is reflux into the bladder after urinating. It is an ascending infection from the urinary tract. In women, it is usually in the form of acute cystitis because the distance between the urethra and the vagina is short (anatomy), periurethral abnormalities, rectum (contamination) of feces, mechanical effects of coitus, and infection of gram-negative organisms from the vaginal canal, defects in the urethral mucosa, vagina and external genitalia allow organisms to enter the urinary

bladder. Infection 12 occurs suddenly due to flora (*E. coli*) in the patient's body. In abnormal men, obstruction causes stricture and hyperplasia (the most common cause). Upper urinary tract infection causes bladder infection (Irawan & Mulyana, 2018)

2.1.2.5 Clinical Manifestations of Urinary Tract Infection (UTI)

Clinical manifestations of Urinary Tract Infection (UTI) in the elderly one of the most common symptoms is cognitive changes, such as confusion or delirium, which is often an early sign of infection in the elderly, especially for those who already have dementia. In addition, the elderly can also experience sudden urinary incontinence, where they suddenly cannot hold their urine, as well as an unusual increase in the frequency of urination. Other physical symptoms include pain or burning sensation when urinating, pelvic or lower abdominal pain, and cloudy or foul-smelling urine (Mano et al., 2023)

Symptoms of fever or chills may also occur. In some cases, a low-grade to high fever may indicate that the infection has spread to the kidneys or other organs in the body. Older adults with UTIs may also experience back pain or discomfort in the lower back area, which may indicate pyelonephritis, a kidney infection. Hematuria, or blood in the urine, can also be a sign of a more serious urinary tract infection (Lucitania Floreca Mokos et al., Hematuria, or blood in the urine, can also be a sign of a more serious urinary tract infection. (Lucitania Floreca Mokos et al., 2023)

According to Mano (2023) that UTI symptoms in the elderly are often more subtle and can be mistaken for part of the aging process. According to Mano (2023). that UTI symptoms in the elderly are often more subtle and can be mistaken for part of the aging process. Therefore, close monitoring and understanding of behavioral changes and physical symptoms are essential for proper diagnosis and treatment. By recognizing the early signs of UTI and seeking prompt medical intervention, the risk of serious complications such as sepsis can be minimized.

2.1.2.6 Supportive Examinations for UTI

1. Laboratory Examinations

a. Urinalysis (Urine Examination)

In urinalysis, leukocytes and erythrocytes are important parameters that assist in the diagnosis and evaluation of Urinary Tract Infection (UTI). Leukocytes in urine, normally less than 5 leukocytes per microliter (μL) or fewer than 10 leukocytes per microscopic field (LP), when elevated above 10 leukocytes/LP or 5 leukocytes/ μL , indicate leukocyturia. Leukocyturia signifies an inflammatory response due to active infection in the urinary tract.

According to studies from a Centers for Disease Control (CDC), (2025) significant leukocyte count in urine can differentiate between asymptomatic bacteriuria and symptomatic UTI, with leukocyturia being more dominant in true UTI cases. Xie et al., (2022) also emphasize that leukocyturia is a primary diagnostic

indicator of UTI, especially when combined with positive urine culture results. Bono & Leslie, (2025) add that leukocyturia is an early sign of inflammation, but definitive diagnosis still requires confirmation by urine culture.

Meanwhile, erythrocytes in urine normally number less than 3 erythrocytes per microscopic field. If erythrocytes exceed 3 erythrocytes/LP, this condition is called hematuria (Xie et al., 2022). Mild hematuria (4-10 erythrocytes/LP) may be caused by minor irritation or trauma, whereas severe hematuria (>10 erythrocytes/LP) indicates more serious urinary tract tissue damage, such as severe infection, urinary stones, or other complications like tumors (Bono & Leslie, 2025). state that hematuria is often found in severe UTI or complications such as hemorrhagic cystitis and pyelonephritis. Bono & Leslie, (2025) also affirm that hematuria indicates widespread inflammation and epithelial damage in the urinary tract, necessitating further evaluation with radiological examination or cystoscopy.

Interpretation of leukocyte and erythrocyte results in urine should always be combined with clinical symptoms and additional tests such as urine culture to confirm UTI diagnosis and determine appropriate therapy. This approach is especially important in elderly patients and catheter users who have a high risk of UTI. The purpose

of this examination is to detect leukocytes, nitrites, blood, bacteria, and epithelial cells in the urine.

b. Urine Culture

Urine culture is an important supportive examination in diagnosing Urinary Tract Infection (UTI) aimed at identifying the bacterial species causing the infection and determining the bacterial colony count. Urine culture results are usually reported in colony-forming units per milliliter (CFU/mL), reflecting the level of bacterial colonization in the urine.

The most commonly found bacteria in urine cultures of UTI patients is *Escherichia coli* (*E. coli*), which accounts for approximately 70-90% of UTI cases, especially in women. Other frequently detected bacteria include *Klebsiella pneumoniae*, *Proteus mirabilis*, *Enterococcus faecalis*, and *Staphylococcus saprophyticus*. In catheterized patients or complicated UTI cases, other gram-negative bacteria such as *Pseudomonas aeruginosa* and multidrug-resistant bacteria may also be founds (K. Salih et al., 2016).

Table 2. 1 Bacterial Count Interpretation & Clinical Significance

Bacterial Count (CFU/mL)	Interpretation & Clinical Significance
$\geq 10^5$	Classically considered the threshold for significant UTI diagnosis in symptomatic patients, indicating sufficient bacterial colonization to cause active infection (Bono & Leslie, 2025).
$10^3 - 10^5$	In patients with typical UTI symptoms, especially young women, this range can also be significant and requires treatment (K. Salih et al., 2016)
$< 10^3$	Usually considered contamination or asymptomatic bacteriuria, especially if no clinical symptoms are present.

Urine culture results showing bacterial growth $\geq 10^5$ CFU/mL in symptomatic patients support the diagnosis of active UTI and require appropriate antibiotic therapy. Identifying the bacterial species is also crucial for selecting effective antibiotics, especially given the increasing antibiotic resistance in some bacterial strains (Flores-Mireles et al., 2015).

In patients with asymptomatic bacteriuria (bacteria in urine without symptoms), especially elderly or catheter users, treatment decisions must weigh risks and benefits, as not all cases require therapy (K. Salih et al., 2016).

c. Blood Tests

Purpose: To assess signs of systemic infection such as leukocytosis, elevated C-reactive protein (CRP), and kidney function.

Methods: Complete blood count (CBC), CRP, and kidney function tests (urea, creatinine).

Interpretation: Leukocytosis and elevated CRP support the diagnosis of severe infection or complications.

2. Radiological and Supportive Diagnostic Examinations

a. Abdominal and Kidney Ultrasonography (USG)

This examination assesses urinary tract obstruction, stones, or complications such as kidney abscesses. It is a non-invasive, easy-to-perform procedure, very useful for initial evaluation.

b. Abdominal X-ray (KUB)

Used to detect urinary stones or anatomical abnormalities. It has limitations as it cannot detect all types of stones, especially radiolucent ones.

c. Abdominal CT Scan

Provides more detailed evaluation in severe, recurrent, or complicated UTI cases. It offers clearer anatomical images and can detect abscesses or soft tissue infections.

3. Other Special Examinations

a. Uroflowmetry and Cystoscopy

Aimed at evaluating urinary tract function and bladder anatomy, especially in patients with recurrent UTI. Helps detect mechanical causes of UTI such as urethral strictures or tumors.

b. Other Microbiological Examinations

In cases of UTI unresponsive to therapy, tests for resistant bacteria or fungal infections may be conducted.

2.1.3 Use of Catheters in the Elderly

The use of urinary catheters in the elderly is a medical procedure that is often performed to meet the need for urine elimination in patients who have difficulty urinating. This procedure requires special attention, especially in terms of the Standard Operating Procedure (SOP) for catheter installation. Catheter installation must be carried out with sterile techniques to reduce the risk of infection, especially Urinary Tract Infections (UTIs). Before performing installation, medical personnel must ensure that this procedure is indeed necessary based on clear medical indications, such as urinary tract obstruction, urinary retention, or for patients undergoing certain operations (Diny Vellyana et al., Before performing installation, medical personnel must ensure that this procedure is indeed necessary based on clear medical indications, such as urinary tract obstruction, urinary retention, or for patients undergoing certain operations. (Diny Vellyana et al., 2020). According to Lucitania Floreca Mokos (2023). Contraindications for catheter placement include urethral trauma, active urinary tract infection, and certain medical conditions that may compromise the patient's condition.

In the process of catheter insertion, preparation steps are very important. Medical personnel must explain the procedure to the patient and obtain informed consent. The patient is usually placed in a lithotomy position to facilitate access to the genital area. The equipment required includes a catheter (usually a Folley catheter), antiseptic environment,

and other sterile equipment. After ensuring that all equipment is ready and in sterile conditions, the catheter is carefully inserted into the urethra until it reaches the bladder. It is important to inflate the balloon at the tip of the catheter after ensuring proper positioning to prevent the catheter from moving out of the bladder . It is important to inflate the balloon at the tip of the catheter after ensuring proper positioning to prevent the catheter from moving out of the bladder. (Diny Vellyana et al., 2020).

After insertion, catheter care is also very important to prevent infection. Nurses must follow strict SOPs in caring for catheters, including maintaining cleanliness of the area around the catheter and ensuring that urine flow is not obstructed. Studies have shown that implementing good SOPs can significantly reduce the incidence of UTI among patients using urinary catheters (Janasiska Kausuhe et al., 2017).

2.1.4 Basic Concepts of Physical Mobility

2.1.4.1 Definition of Physical Mobility

Mobility or mobilization is a person's ability to move freely, easily, and regularly with the aim of fulfilling the needs of a healthy life. Every human being needs to move. Mobility is needed to increase self-independence, improve health, slow down the disease process, especially degenerative diseases, and for self-actualization (self-esteem and body image) (Uda et al., 2017)

2.1.4.2 Types of Physical Mobility Disorders

The types of mobility disorders according to Hidayat and Uliyah (2015) are as follows:

- a. Physical immobility, which is a restriction in physical movement that aims to prevent the occurrence of movement complications such as those in hemiplegia patients who cannot maintain pressure in the paralyzed area so they are not allowed to change their body position to avoid pressure.
- b. Intellectual immobility, which is a condition in which a person experiences limited thinking ability, for example in patients who experience brain damage due to an illness.
- c. Emotional immobility, which is a condition where a person experiences emotional limitations due to sudden changes in adjusting, for example a state of severe stress due to someone having an amputation so that they lose part of their body or lose something they love.
- d. Social immobility, a condition in which a person experiences limitations in carrying out social interactions caused by illness which can affect their role in social life.

2.1.4.3 Factors Causing Physical Mobility Disorders

Factors that influence physical mobility disorders are as follows:

- a. Lifestyle

Changes in lifestyle can affect an individual's mobility abilities, because lifestyle will affect a person's daily habits (Hidayat & Uliyah, 2015).

b. Disease/injury process

The disease process can affect mobility because it affects body function. For example, someone who experiences a femur fracture will experience an inability to move the lower extremities (Hidayat and Uliyah, 2014). Culture can affect individual mobility, for example: people who have a culture of often walking long distances have strong mobility abilities, but on the contrary, if someone experiences mobility disorders (illness), they will be prohibited from doing activities because of certain customs and cultures (Hidayat & Uliyah, 2015).

c. Energy Level.

Energy is a source for mobility. So, to be able to do an activity, it is necessary to have enough energy (Hidayat & Uliyah, 2015).

d. Age and developmental status.

At different age levels, there are differences in mobility abilities. This is caused by the ability or maturity of the function of the motor apparatus along with the development of age (Hidayat & Uliyah, 2015). Age affects a person's ability to perform mobility in elderly individuals, the ability to perform activities and mobilize decreases in line with aging (Hidayat & Uliyah, 2015).

In the SDKI (2016), the causes of physical mobility disorders are as follows:

- a. Damage to the integrity of bone structure
- b. Metabolic changes

- c. Physical unfitness
- d. Decreased muscle control
- e. Decreased muscle mass
- f. Decreased muscle strength

2.1.4.4 Clinical Manifestations of Physical Mobility

In the SDKI (2016), there are signs and symptoms of physical mobility as follows:

A. Major Signs and Symptoms:

1. Complaining of difficulty moving extremities
2. Decreased muscle strength
3. Decreased range of motion

B. Minor Signs and Symptoms:

1. Pain when moving
2. Reluctant to make a move
3. Feeling anxious when moving
4. Stiffness in the joints
5. Uncoordinated movements
6. Limited movement
7. Physically weak

2.1.4.5 Changes in Urinary Elimination Resulting in Impaired Physical Mobility in the Elderly

In the client's mobility disorder with a recumbent or flat position, the kidneys or ureters will form a flat line as the nurse does when

forming urine must enter the bladder against gravity. As a result of the ureter's peristaltic contractions that are not strong enough against gravity, the kidneys become filled before urine enters the ureter. This condition is called urinary stasis and increases the risk of urinary tract infections and kidney stones (Nasrullah, 2016).

Over time, continued mobility impairment, limited fluid intake, and other causes such as fever will increase the risk of dehydration. So urine output decreases around the fifth or sixth day (Nasrullah, 2016). This concentrated urine can increase the risk of kidney stones and infection. The risk of contamination will increase if perineal care is poor after defecation, especially in women. The use of indwelling urinary catheters can be another cause of urinary tract infections in immobilized clients (Perry and Potter, 2005 in Nasrullah, 2016).

In addition to causing changes in the body system, mobility disorders can cause developmental changes, especially in the elderly. Generally, the elderly will experience a total loss of progressive bone mass. Some possibilities that can cause this condition are physical activity, hormonal changes, and actual bone resorption. The result of this loss of bone mass is that the bones become weaker, the spine is softer and more compressed, long bones become less resistant, especially when bending. The elderly will walk longer and appear less coordinated. The elderly's steps become shorter and they have more feet close together, which reduces the base of support. This causes the

elderly's body to become unstable and at risk of falling and injury (Nasrullah, 2016).

2.1.4.6 Physical Mobility Management

General management of mobilization disorders according to Hidayat and Uliyah (2015), namely:

- a. Early ambulation is an action that functions to increase muscle strength and muscle endurance. Ambulation is done by practicing sitting positions in bed, getting out of bed, standing next to the bed, moving to a wheelchair and so on. This activity is carried out gradually in overcoming mobility needs problems that can be adjusted to the level of obstacles, such as fowler's position, sim, trendelenburg, dorsal recumbent, lithotomy, and genu pectoral.

1. Fowler's Position

Fowler's position is a semi-sitting or sitting position, where the head of the bed is higher or raised. This position is done to maintain comfort and facilitate the patient's respiratory function.

2. Sim Position

The sim position is a position tilted to the right or left. This position is done to make the patient comfortable and to give medication per anus (suppository).

3. Trendelenburg position

In this position the patient lies on the bed with the head lower than the feet. This position is done to facilitate blood flow to the brain.

4. Dorsal Recumbent Position

In this position the patient lies on his back with both knees flexed (pulled or spread) on the bed. This position is done to care for and examine the genitalia and during labor.

5. Lithotomy Position

In this position the patient lies on her back with both legs raised and pulled up to the abdomen. This position is done to examine the genitalia during labor, and to install a contraceptive device.

6. Genu Pectoral Position

In this position, the patient is lying on his back with both legs bent and his chest pressed against the top of the bed. This position is done to examine the rectum and sigmoid area.

b. Passive and Active ROM Exercises

Patients whose joint mobility is limited due to disease, disability, or trauma require joint exercises to reduce the dangers of immobility (Hidayat & Uliyah, 2015) Here are some ROM exercise movements that are done to maintain and preserve muscle strength and maintain joint mobility:

1. Wrist flexion and extension
2. Elbow flexion and extension
3. Pronation and supination of the arm
4. Shoulder flexion pronation and Shoulder rotation
5. Abduction and adduction

6. Flexion and extension of the fingers
7. Inversion and eversion of the foot
8. Ankle Flexion and Extension
9. Knee Flexion and Extension
10. Groin rotation
11. Abduction and adduction of the groin
12. Ambulation exercises
13. Sitting on the bed
14. Get out of bed, stand up, then sit in a wheelchair
15. Help walking

2.2 Theoretical Framework

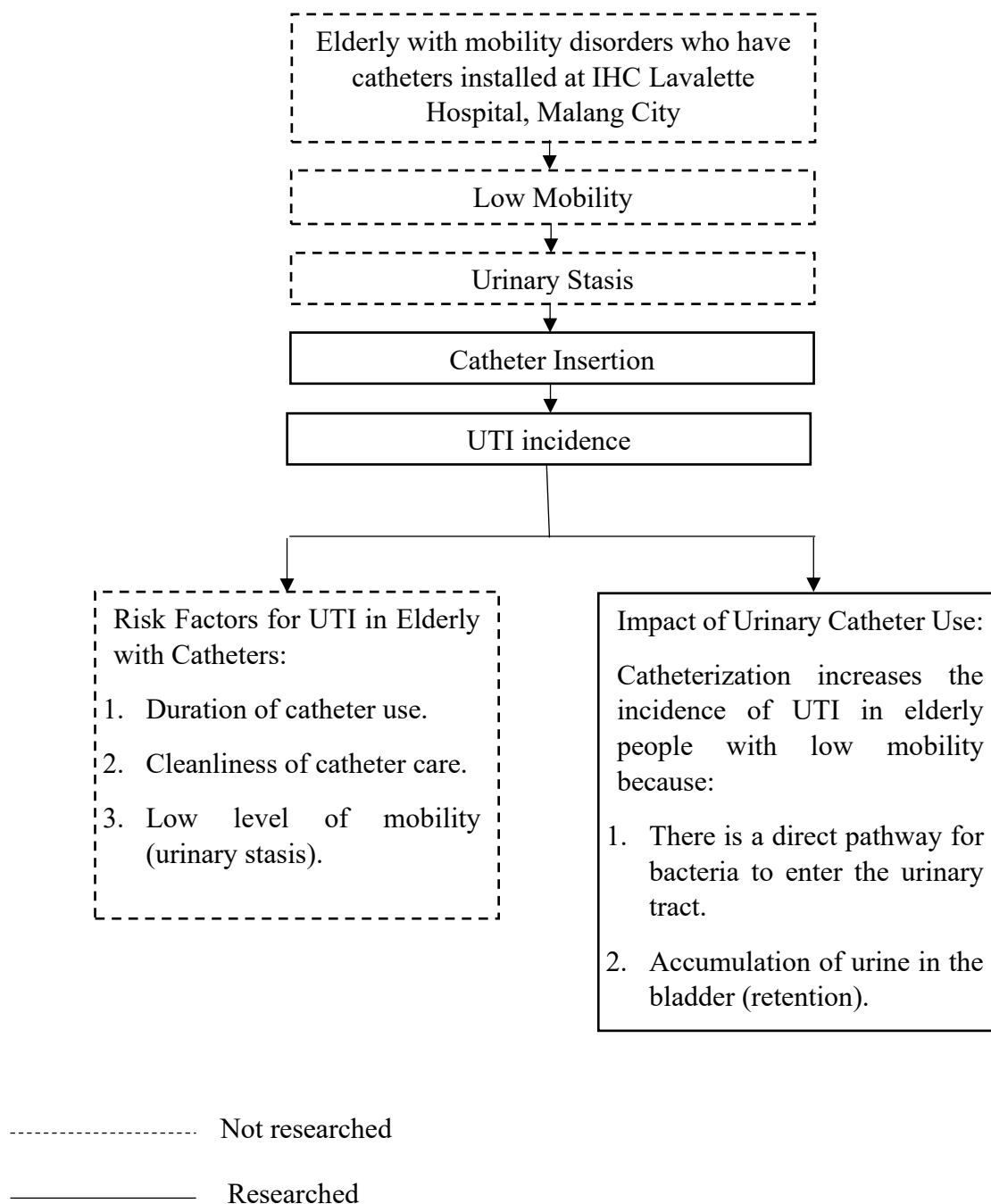


Figure 2.1 Theoretical Framework of the Relationship between Mobility and Timing The Incidence of Urinary Tract Infections in Catheterized Elderly Patients in the Inpatient Ward of IHC Lavalette Hospital, Malang City.

2.3 Hypothesis

- There is a relationship between the level of mobility and timing the incidence of urinary tract infections (UTIs) in elderly people who use urinary catheters.