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# Exploring the psychological impact of amputation on surgical patients

Thesis

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## **Thesis abstract**

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The thesis topic was chosen based on the writers' personal interests. There was plenty of information regarding this topic, but no thesis work was actually done in recent years. The purpose of this thesis is to describe the psychological effects of amputation surgery. The goal was to understand how nurses may assist patients to cope with the psychological repercussions of amputation. The thesis was done as a literature review. The material used in this thesis was obtained by reading and analyzing full-text articles. The analysis was carried out using inductive content analysis. Comparing the found results to the obtained theory, it was noticed that there are parts related to amputation that were not talked about often, and then there were some topics that were brought up often. The results can be used in future research to expand the topic of amputation and the topics around it, as well as to assist those who want to help people with amputations to cope or want to be a part of the operation.

<sup>1</sup> Keywords: Amputation, Mental health, Psychological impact, Pre-operative and Post-operative phase.

## TABLE OF CONTENTS

Thesis abstract .....	2
TABLE OF CONTENTS.....	3
Pictures, Figures and Tables.....	5
TERMS AND ABBREVIATIONS.....	6
1 INTRODUCTION.....	7
2 THEORETICAL FRAMEWORK.....	8
2.1 Limb amputation, pre-operative and post-operative phase.....	8
2.1.1 Pre-operative phase.....	9
2.1.2 Post-operative phase.....	9
2.2 Mental Health, Psychological Impact from External Factors and Interventions.....	10
2.2.1 Psychological impact from external factors.....	11
2.2.2 Interventions.....	12
3 AIM AND PURPOSE OF THE STUDY.....	14
4 METHODOLOGY.....	15
4.1 Literature review.....	15
4.2 Data collection and selection.....	15
4.3 Analysis.....	16
5 RESULTS OF THE STUDY.....	22
5.1 Psychosocial well-being.....	23
5.2 Limb loss and rehabilitation.....	24
6 DISCUSSION.....	26
7 ETHICS AND RELIABILITY.....	28
8 CONCLUSION.....	29
BIBLIOGRAPHY.....	30

BIBLIOGRAPHY LITERATURE REVIEW.....34

## **Pictures, Figures and Tables**

Table 1: Article analysis

Table 2: Inclusion and Exclusion criteria for data collection

Figure 1: Data analysis

## **TERMS AND ABBREVIATIONS**

<b>IQR.</b>	Interquartile Range
<b>PTSD</b>	post-traumatic stress disorder
<b>PLP</b>	phantom limb pain
<b>RLP</b>	residual limb pain
<b>WHO</b>	World Health Organization

## 1 INTRODUCTION

Between the years 1997 and 2018, a cohort of 75,230 individuals in Finland had a combined total of 149,492 procedures including lower limb revascularizations and amputations. A study by Ponkilainen et. al. found that the median age of the patients was 73 years, with an interquartile range (IQR) of 65 to 80 years. Additionally, it was observed that 60% of the patients were male. The frequency of endovascular lower limb revascularizations shown a substantial rise of 159%, while the frequency of lower limb amputations had a more modest increase of 25%. The data reveals a significant rise in amputations of the toe by 84% and the foot by 107%, but the occurrence of transfemoral amputations remained consistent and transtibial amputations had a decline of 53%. (Ponkilainen, et al 2022, p. 138)

An amputation of a limb is a surgical process that involves the removal of all or part of a limb in the presence of a medical condition. These conditions include trauma, infection, cancer, diabetes, and peripheral vascular disorders. The patient's quality of life, as well as their general function and mobility, hopefully improves because of the operation, alongside any discomfort they may be experiencing. (Dunkin, 2022).

The psychological impact of amputation can have significant impact on a person's mental health and emotional well-being because it can have a dramatic influence on a person's sense of self-worth. It often requires coming to terms with the loss of the limb, adjusting to the changes that have occurred physically, and coping with the emotional anguish that comes along with the loss. Individuals who have undergone amputation are said to be at a greater risk of having psychological illnesses such as sadness, anxiety, and post-traumatic stress disorder (PTSD), as stated by the National Health Service. (NHS, 2021).

The purpose of this thesis is to describe the psychological effects after amputation.



## **2 THEORETICAL FRAMEWORK**

### **2.1 Limb amputation, pre-operative and post-operative phase**

Limb amputation is a surgical procedure that involves the removal of a portion or the whole limb, such as an arm, leg, hand, or foot, because of diverse medical reasons. The operation is sometimes undertaken as a last option after unsuccessful attempts with other therapies or in cases when the functionality and overall well-being of a limb are significantly impaired. The most often performed surgical procedure involving limb removal is leg amputation, which may occur either above or below the knee (Dunkin, 2022).

In some conditions that include but are not limited to diabetes mellitus and cancer disorders or in situations where the patient's life is at risk limb amputation is an unavoidable procedure. Amputation might improve the quality of life and daily functioning for some patients because chronic pain or infection causes restricted movement and disability while doing daily activities. The perception of one's appearance has two main pillars, body image and self-esteem. Self-esteem is an attitude towards oneself that can be positive or negative. Body image is an individual's perception of themselves which is affected by both internal factors and external factors. (Sarroca et al, 2021, p. 1)

Rehabilitation is crucial after amputation, it can result in a variety of functional restrictions, including difficulties with mobility, carrying out everyday activities, and participating in social and recreational activities. These limitations can be mitigated by rehabilitation. This loss of function can contribute to emotions of frustration and dependency, as well as a deterioration in overall quality of life. The World Health Organization (WHO, 2018) underlines the need of addressing the psychological effects

of amputation in order to promote good rehabilitation and increase overall well-being. This is to prevent further psychological damage from occurring. (WHO, 2018)

### **2.1.1 Pre-operative phase**

The term pre-operative refers to the physical and psychosocial care that happens prior to surgeries. The pre-operative phase can last from a few weeks to months, and it starts when a patient is booked for a surgery and ends when the patient is transferred to the operating theatre (Johnstone J., 2020).

Before an amputation can happen, most patients go through a range of pre-operative tests. Some tests are guided by clinical needs of the patient while others are routine tests. The purpose of the tests is to assess if the patient might have pre-existing health problems (Akhtar, Macfarlane, & Waseem, 2013 p.317).

Prior to amputation it needs to be ensured that the patient is fully informed about the procedure and any interventions that need to be done. Estimating the risk for every patient and making sure that every patient understands their individual risk is important (Smith, & Johnson, 2022).

A pre-operative evaluation is a necessary step preceding most elective surgical operations. Its primary purpose is to ascertain the patient's suitability for surgery and to identify any concerns that may need attention from the surgical or anaesthetic teams. The treatment of patients who have had elective surgery starts during the perioperative phase and encompasses the collaboration of several healthcare specialists. Adequate and prompt recognition of surgical complications necessitates the implementation of appropriate monitoring and periodic clinical evaluations (Akhtar, Macfarlane, & Waseem, 2013, p. 316).

### **2.1.2 Post-operative phase**

The term post-operative refers to the period after the operation when normal function is re-turned, and any adverse symptoms are resolved. The post-operative period can be classified as early, intermediate and late recovery phases. The early recovery period is defined as 24 hours to seven days after the operation. The intermediate recovery period is defined as 28 up to 60 days after the operation. Lastly the late recovery period is six weeks up to three months after the operation. (Bowyer, & Royse, 2016, p. 74).

Post-operative care encompasses the essential components of frequent evaluation, targeted monitoring, and timely recording. Additional elements of post-operative care include the comprehensive evaluation of key physiological systems, namely the respiratory, cardiovascular, and renal systems. In addition, it is essential to effectively manage sepsis and provide adequate provision of pain treatment. (Akhtar, Macfarlane, & Waseem, 2013, p. 319).

Post-operative recovery restores function and adverse symptoms are resolved. A common adverse symptom is phantom limb pain. Phantom limb pain is the perception of pain or discomfort of a limb that is no longer there. Among those who go through amputation 79.9% experience phantom limb pain. The pain originates from the actual site of an amputation that typically resolves with wound healing. The cause of PLP is unclear. However, multiple theories exist but no clear evidence has been found. The widely accepted theory that has existed for many years involves the irritation of severed nerve endings resulting in PLP. Due to the unsuccessful treatment, phantom limb pain is a challenge in medicine (Hanyu-Deutmeyer, Cascella, & Varacallo, 2023)

## **2.2 Mental Health, Psychological Impact from External Factors and Interventions**

Mental health is a state of well-being that allows people to cope with the stresses of life, notice their abilities, learn and work well, and contribute to their community. Everyone has mental health, and it is a basic human right. It is crucial to personal, community and socio-economic development. Mental health is much more than a lack of mental disorders. Mental health includes mental disorders and psychosocial disabilities. However, it also includes significant distress, impairment, and a risk of self-harm. (WHO, 2022)

Psychiatrist Karl Jaspers claimed that psychological and biological investigations of the mind were like exploring an unknown continent. Limitations in the understanding of mental disorders continue to rattle the field of psychiatry. This recalls for a rethinking of diagnosing and treating mental illnesses. Even though all of us have mental health, it is a largely neglected issue globally. Mental health has been found to be linked to critical periods of development in the brain, 75% of mental health problems in adulthood start before the age of 18. (Lai & Chang, 2022)

Quality of life is described as one's own perception of their position in circumstances in which they live. Alongside respect to their goals, expectations, principles, and concerns. Demographic and health factors have an impact on quality of life. Many aspects of human life such as physical, mental, spiritual, and social aspects effect quality of life. (Sarroca et al, 2021, p. 2)

### **2.2.1 Psychological impact from external factors**

Mental health can be affected by external factors like major surgeries or diseases. Alongside internal factors that can affect self-esteem, body image and your mood. (Nuray, Gülhan, & Zeliha, 2020, p. 3)

The covid pandemic taught us that our living conditions influence our mental health. Negative social and economic effects could create lasting damage. (Lai & Chang, 2022)

Major surgeries like an amputation are not just a physical injury, but also a long-term severe stress and it is devastating for many. What is lost after amputation is not just a limb but rather a series of senses. This has been linked to cause, sadness, anger, continuous crying, fear of death and social isolation to name a few. Reactions from the others within public spaces were found to have caused, introversion, embarrassment, and alienation from society. Requiring help and care from others lead to a negative view and losing hope for the future. A lot of patients felt that they were a burden to their family or community and their place within them was changed instantly. (Nuray, Gülhan, & Zeliha, 2020, p. 3).

### **2.2.2 Interventions**

Interventions for mental health problems are important in order to improve the quality of patient care. Improving implementation and adherence to practice guidelines. To treat mental health problems, there are many practice guidelines in place globally. However, occupational physicians have found problems using them. According to occupational physicians there are barriers using the mental health practice guidelines. These problems include lack of knowledge of the content and self-efficacy to use specific recommendations. (Joosen et al, 2019, p. 2)

Mindfulness therapy is a typical psychological intervention which reduces stress, encourages mindful thinking and managing difficult emotional processing. Mindfulness therapy focuses on accepting personal experiences, behavioral training, meditation, and attention training. Along with mindfulness therapy there is psychotherapy and medication use. Using psychotherapy and medications at the same time is a common method of treating mental health problems. (Pan, et al, 2024, p. 2-3)

Effective interventions need to be examined physically, socially, and mental health factors to be informed by real people. There has not been much improvement in the last decade. Among 46 terms they were split into six categories: behaviors and activities, beliefs and knowledge, brain and body functions, cognitive and attentional skills, human connection, and lastly, socioeconomic factors. (Lai & Chang, 2022)

After a major operation, professional help is important and was found to cause relief and patients felt like their voice being heard social support and effective coping mechanisms protect mental health. As well as helping to cope in difficult situations. (Nuray, Gülhan, & Zeliha, 2020, p. 4)

### **3 AIM AND PURPOSE OF THE STUDY**

1. The purpose of this thesis is to describe the psychological impact of amputation surgery after it has been performed.
2. The aim is to provide information how nurses can help patients deal with the psychosocial consequences of amputation surgery.

#### **3.1 Research question.**

1. What psychological effects does amputation surgery have to the patients?

## 4 METHODOLOGY

### 4.1 Literature review

A descriptive literature review has been conducted in this thesis allowing the translation of the students' abilities in information literacy, language domain and critical thinking. A literature review is not a linear process when writing a chapter, there is also little to no guidance for elaborating for literature reviews. Despite how challenging a literature review can be from the perspective of a writer, it is still an important element in many universities for academic work (Leite, Padilha, & Cecatti, 2019, p. 2).

When writing a literature review, one should think of it as closing the existing gap of knowledge instead of creating a new map. With this strategy, one can get the literature re-view to sound like a compelling argument instead of a list of facts. The mapping out metaphor is a way to make the reader understands why your research needs to be done and why the results are an important advance on the topic (Lingard, 2018).

With the ever-increasing quantity of scientific works, literature reviews stay as a valuable way to stay informed. When reviewing a piece of literature with the vocabulary of a specified field, it creates a form of familiarity. While surveying the creations of other various authors, it provides a large scale of different ways to communicate about the topic. With the multitude of articles, one needs to go through in order to create a literature review the process of creating a literature review should be methodological manner (Koons, Schenke-Layland, & Mikos, 2019, p. 3).



## **4.2 Data collection and selection**

This thesis's data collection procedure comprises of multiple stages. The first step consisted of conducting preliminary database searches. Google Scholar, CINAHL, PubMed, Sage Journals, and SeAMK Finna have been the databases utilized. The authors aimed to utilize peer-reviewed, English-language studies published within the last ten years (2013-2023) and available in full text.

The preliminary investigations.

Following the initial database searches, the next step involved removing duplicates and refining the results by perusing the article titles and abstracts. The selection of articles has been done based on the inclusion criteria. The final stage of data collection involved reading all the articles to determine whether they answer the research questions.

The data was collected with multiple different search terms. These search terms brought thousands of results. However, we could only use some of them. The search terms were: mental health, amputation, pre-operative, post-operative, limb amputation, psychological im-pact.

## **4.3 Analysis**

Data analysis is a methodical review and interpretation of data to discover meaningful patterns, relationships, and insights, thereby facilitating informed decision-making and the generation of new knowledge. (Tabachnick & Fidell, 2019).

Since this thesis method is founded on a literature review, the collected data has been analysed using inductive content analysis. This method of analysis includes the following fundamental steps: Data reduction, data aggregation, and data organization into concepts or themes that provide an answer to the research query (Kyngas et al, 2020, p. 14). Kyngas et al. (2020, p. 14) continue by explaining that the purpose of inductive content analysis is to produce abstracts of the raw data, which comprised of the literature selected for this thesis, that summarize the key concepts and suggest potential theoretical relationships.

According to Kyngas et al (2020, p. 14), before commencing the analysis procedure, a re-searcher should be thoroughly familiar with the research data. The writers read the data acquired for this thesis multiple times to obtain an in-depth and precise comprehension of its subject matter and purpose. After becoming acquainted with the articles in their entirety, the next stage was to identify specific points within the articles that answer the thesis research question.

Out of the articles found, 6 were literature review-based articles and the rest were used for writing the information seen in this thesis.

All the articles found were read and important parts identified that answered the research question. The articles were analyzed and then coded (Table 1) and grouped into an over-arching theme (Table 2). The inclusion and exclusion criteria include all the reasons why articles were used or why a lot were left out. In order for an article to be chosen, it needed to be newer than 10 years, written in English, focused on lower limb amputations and the effects of mental health. The exclusion criteria were older than 10 years, written in another language, focusing on other amputations and effects on physical health.

Table 1: Article analysis

Authors + title	Quoted sentence	Summary	Code(s)
Akhtar, A., Macfarlane, R. J., & Waseem, M. (2013). Pre-operative assessment and post-operative care in elective shoulder surgery.	In elective surgery a pre-operative assessment is necessary.	Pre-operative assessment draws attention to the history and clinical examination.	Elective-surgery and phases of surgery
Ali, S., & Fatima Haider, S. K. (2017). Psychological Adjustment To Amputation: Variations On The Bases Of Sex, Age And Cause Of Limb Loss.	Amputation also known as removal of a limb is a surgical procedure. There are differences psychologically based on age and sex.	The psychological aspect of limb loss needs to be evaluated to adjust successfully.	Psychological aspect
Bowyer, A. J., & Royse, C. F. (2016). Postoperative recovery and outcomes--what are we measuring and for whom?.	Recovery varies on the predilection of individual institutions, clinicians or patients.	Development in automated detection and immediate treatment of individual recovery trajectories.	Recovery
Dunkin, M. A. (2022, February	Amputation is done for many	Amputation is a surgical	Amputation

5). Amputation Overview.	reasons for example, severe injury, frostbite or infection.	procedure, the most common of which is above or below the knee.	
Hanyu-Deutmeyer, A. A., Cascella, M., & Varacallo, M. (2023). Phantom Limb Pain.	Phantom limb pain presents along a wide clinical spectrum and variety of severity of symptoms.	Phantom limb pain and residual limb pain are challenges in medicine. They worsen quality of life.	Phantom limb pain, residual limb pain
Johnstone J. (2020). How to provide preoperative care to patients.	Pre-operative care is physical and psychosocial care that a patient is prepared for surgery.	Pre-operative care happens before surgery. Info about the patient is provided.	Pre-operative
Joosen M. C. W., van Beurden K. M., Rebergen D. S., Loo M. A. J. M., Terluin B., van Weeghel J., van der Klink, J. J. L., & Brouwers E. P. M. (2019). Effectiveness of a tailored implementation strategy to improve adherence to a guideline on mental health	Compliance to guidelines generally low among health care providers.	There are barriers with treating mental health problems.	Mental health practice guidelines

problems in occupational health care.			
Jowan G. Penn-Barwell & Philippa M. Bennett (2023). Amputations and rehabilitation.	An amputation is a life-changing operation.	Some patients have persistent problems with prosthetics.	Loss of limb
Lai Alvina G., & Chang Wai H. (2022). There is no health without mental health: Challenges ignored and lessons learned.	Mental health is neglected globally despite being important.	There is a lot of work is needed to understand, diagnose and treat mental disorders.	Mental illness
Nuray S, Gülhan K. Ö., & Zeliha N. N. (2020) The Mental Health of Individuals With Post-Traumatic Lower Limb Amputation: A Qualitative Study.	Amputation is only done when there is no other option left.	After amputation individuals have many mental problems such as anger and helplessness.	Post-traumatic
Pan Y., Li F., Liang H., Shen X., Bing Z., Cheng L., & Dong Y. (2024). Effectiveness of Mindfulness-	Mindfulness therapy is a standard intervention, that aims to reduce stress and encourage	Optimizing effects of interventions need developed and evaluated designs such as multiphase	Quality of life

<p>Based Stress Reduction on Mental Health and Psychological Quality of Life among University Students: A GRADE-Assessed Systematic Review.</p>	<p>mindful thinking habits.</p>	<p>optimizing strategy.</p>	
<p>Ponkilainen, V. T., Vuorlaakso, M., Kaartinen, I., Kiiski, J., Saarinen, E., Huttunen, T. T., Paloneva, J., &amp; Mattila, V. M. (2022). The Development of Lower Limb Amputations in Finland from 1997 to 2018: A Nationwide Retrospective Registry Study. European journal of vascular and endovascular surgery</p>	<p>An increasing trend in total amputation has been noted, both for minor and major amputations.</p>	<p>Revascularisation along with lower limb amputations are on the rise.</p>	<p>Revascularisation</p>
<p>Roşca, A. C., Baci, C. C., Burtăverde, V., &amp; Mateizer, A.</p>	<p>Identifying psychological changes after amputation and</p>	<p>Psychological changes after amputation there were six common</p>	<p>Phantom limb pain</p>

<p>(2021). Psychological Consequences in Patients With Amputation of a Limb. An Interpretative- Phenomenologic al Analysis.</p>	<p>how patients navigate their daily life.</p>	<p>themes. (Emotional impact, negative affect, isolation, role problems etc.)</p>	
<p>Sarroca N., Valero J., Deus J., Casanova J., Luesma M. J., &amp; Lahoz M. (2021). Quality of life, body image and self-esteem in patients with unilateral transtibial amputations.</p>	<p>Body image, self- esteem and quality of life after lower limb amputation are highly relevant.</p>	<p>After a unilateral transbial amputation the aesthetic concern represented by body image, self- esteem and quality of life were analyzed.</p>	<p>Self-esteem, body image</p>
<p>World Health Organization. (2018). Rehabilitation in health systems.</p>	<p>Globally trends in health and aging require a scaling up of rehabilitation services.</p>	<p>Globally in low- and middle- income countries rehabilitation requires strengthening.</p>	<p>Rehabilitation</p>
<p>World Health Organization. (2022). Mental health.</p>	<p>Mental health is a basic human right and it is crucial to personal, community and socio-economic development.</p>	<p>The work globally to strengthen the response to mental health and make mental health better for everyone.</p>	<p>Mental health</p>



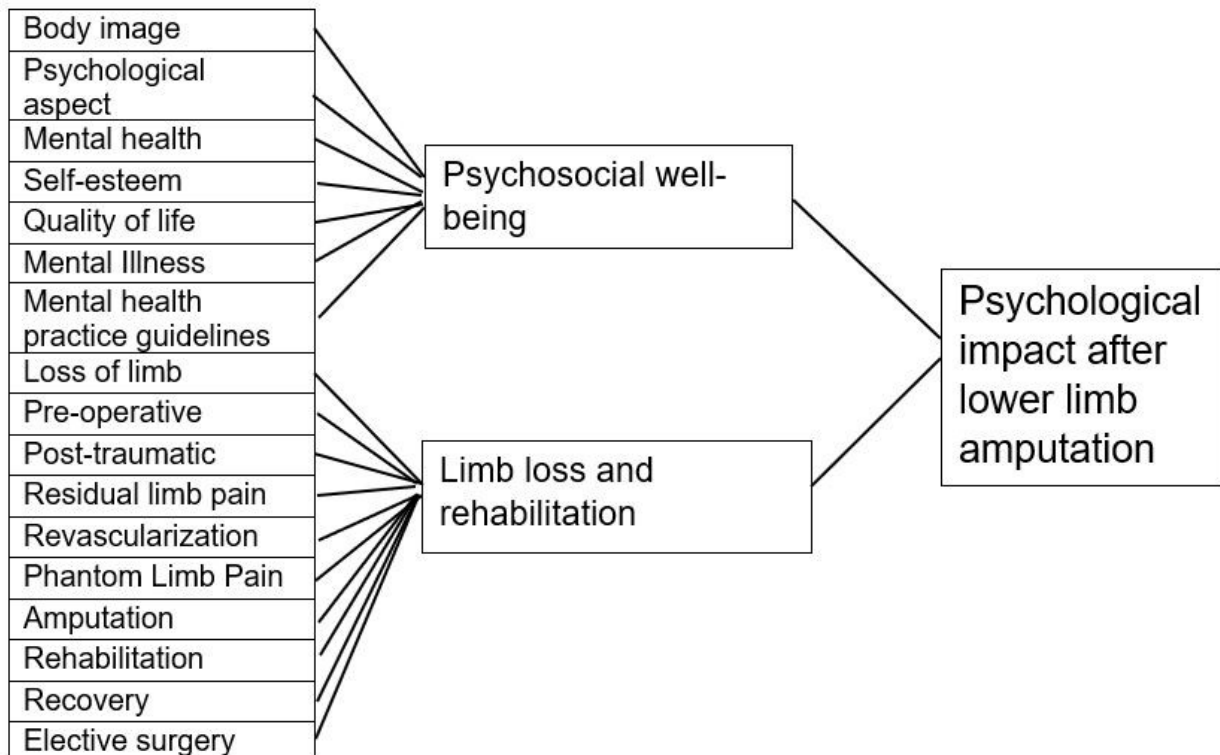


Table 2. Inclusion and Exclusion Criteria

Inclusion criteria	Exclusion criteria
Newer than 10 years	Older than 10 years
In English	Other language
Study about lower limb amputations	Study about other amputations
Effects on mental health	Effects on physical health

In this figure there is the codes, sub-themes and the theme used in grouping. The codes were sorted into sub-themes and the sub-themes were merged into a overarching theme.

Figure 1: Data Analysis



## 5 RESULTS OF THE STUDY.

After a major operation like lower limb amputation, it is expected that there will be an impact psychologically. Lower limb amputation itself causes limb loss, in many cases also limb pain.

From the findings listed in the previous chapter, the most brought up aspects of lower limb amputation are recovery, phantom limb pain, rehabilitation and residual limb pain. From a psychological perspective there is body image, self-esteem, quality of life and mental health. Because of similarities between certain aspects, they were grouped together. The codes found were sorted into two categories, which are psychological impact and lower limb amputation.

Before and after amputation a patient goes through a variety of emotions. Most often after-wards there is sadness and depression. Before an amputation patients may have other psychological illnesses or previous experiences that worsen their mental health or quality of life. Good examples of previous experiences are cancer patients and chronic pain patients.

An amputation patient may have no prior psychological issues however, in some cases like a cancer patient they may have gone through chemotherapy, and it makes them feel worse due to hair loss or nausea and an amputation might make the psychological problems worse. Patients with chronic pain may have diminished quality of life and an amputation may make one's quality of life worse. In traumatic accidents, there may be no psychological problems and losing a limb due to trauma may cause one to have psychological problems because the limb loss happens quickly and with no prior warning.

Nurses are able to help with the environment which in turn helps with body image and self-esteem. Adjusting after amputation is affected due to age, sex and what caused amputation. Nurses may help with it after amputation. Helping with mental health before and after amputation in order to reduce problems and stresses everyday life. Quality of life can be improved by helping the conditions of healing. Wound care helps heal the amputation site wound which in turn helps with phantom limb pain.

### **5.1 Psychosocial well-being**

Psychosocial well-being holds all the psychological impacts of amputation. Psychosocial well-being is an overall state of well-being mentally and emotionally. It encompasses various factors such as body image, psychological aspect, mental health, self-esteem, quality of life, mental illness, and mental health guidelines.

Body image is one's personal perception of their own body. It is affected by internal factors like age and physical condition. As well as external factors like social and environmental factors. (Sarrocá et al, 2021, p. 2). Psychological aspect is adjusting to life after amputation. How the adjusting process goes is affected by demographic traits such as age, sex and cause of amputation. (Ali et al, 2017). Mental health is state of well-being that allows for coping with the stresses of life and contribution to society. (Pan, et al. 2024, p. 2&3). Mental health is a basic human right, and everyone has mental health. Mental health includes mental disorders and disabilities but it isn't all that mental health is. (WHO, 2022). Mental health has been linked to important periods of development, 75% of mental health problems is adulthood start prior the age of 18. Due to covid-19 it was found that the living conditions that lives in effect mental health. (Lai & Chang, 2022). Self-esteem is an attitude towards oneself, self-esteem can be negative or positive. It is one's value and self-worth. Feeling like a burden to loved ones may decrease self-esteem. What has been lost due to amputation was a major part of them. Self-esteem is one of the main pillars of one's perception of one's appearance.

(Sarroca et al, 2021, p. 2 & 6). Quality of life is one's perception of their position culturally and socially. Their beliefs and values are incorporated in quality of life. Quality of life is affected physically, mentally, spiritually and socially. It can also be affected by demographic factors. The circumstances of one's living conditions also impact quality of life (Sarroca et al, 2021, p. 2). Mental illness is a part of mental health. It was found that physical conditions affect mental health. There is more work being done to better understand, diagnose and treat mental illness. There are limitations to understanding mental disorders which continues to challenge the field of psychiatry. This calls for a rethinking of diagnosing and treating mental illnesses. (Lai, & Chang, 2022, p.1). Mental health guidelines are in place to treat mental health problems globally. Mental health guidelines usage among general professionals is low. This is due to a lack of understanding about the content. Among occupational professionals the guidelines are being developed. (Joosen et al, 2019, p.2).

## **5.2 Limb loss and rehabilitation**

Within lower limb amputation, there are aspects of amputation itself. Loss of limb, pre-operative, post-traumatic, residual limb pain, revascularization, phantom limb pain,

amputation, rehabilitation, recovery, elective surgery. Loss of limb happens due to amputation which is a life-changing operation. There can be lifelong risks for certain complications, which require a follow-up. (Jowan et al 2023)

Pre-operative is physical and psychosocial care that ensures that the surgery happens safely. Patient info is given during the pre-operative phase. Tests and assessments are done prior to surgery. The pre-operative phase can last from a few weeks to months, it starts when a patient is booked for surgery, and it ends when the patient is wheeled into the operation theatre. (Johnstone, 2020). A pre-operative evaluation is a necessary step before most elective surgeries. (Akhtar, Macfarlane, & Waseem, 2013, p. 316). Post-traumatic is a state that happens when there are no other options left expect amputation. It has been found that there were behavioral and emotional changes after amputation (Nuray, Gülhan, & Zeliha, 2020, p. 3). Residual limb pain also known as “stump pain”, is pain that occurs at the amputation site. It is common in the early post-operation period (Hanyu-Deutmeyer., Cascella., & Varacallo. 2023). Revascularization is most often performed endovascularly. In recent years there has been an increase in revascularization (Ponkilainen, et al 2022, p. 140). Phantom limb pain is discomfort or pain on a limb that no longer exists. It shows up on a wide spectrum and symptoms vary in severity (Rosca et al 2021, p. 6). Phantom limb pain can be caused because of triggers that include anxiety and increased stress. Treatment is not effective, which is why phantom limb pain is a challenge in medicine. Among amputation patients 79.9% experience PLP, the pain happens at the site of an amputation, it usually revolves as the wound heals. The cause for PLP is unclear however, multiple theories exist. The most common explanation involves the irritation of nerves that were cut. (Hanyu-Deutmeyer, Cascella, & Varacallo, 2023). Amputation is done for a multitude of reasons, this includes but is not limited to, infection, severe injury or frostbite (Dunkin, 2022). Amputation is not just a physical injury but long-term severe stress and it is devastating for many. What is lost is not just a limb but a series of senses. (Nuray, Gülhan, & Zeliha, 2020, p. 3). Rehabilitation is an intervention to optimize function and

minimize the risk of disability. Rehabilitation is an important part of recovery. Amputation can cause functional restrictions which includes difficulty with mobility, carrying out everyday activities and participating in activities. (WHO, 2018). Some patients go through rehabilitation before surgery (Jowan et al, 2023). Recovery is an abstract amount of time that varies person-to-person. The recovery phase is complete when normal function is restored, and adverse symptoms are resolved. The recovery period can be split into three categories of recovery times. These are classified as early, intermediate and late recovery period. The early period is defined as 24 hours up to seven days after the operation. Intermediate recovery is 28 to 60 days after operation. And late recovery period is six weeks up to three months after the operation. (Bowyer & Royse, 2016, p. 74). Elective surgery is a planned surgery that happens after a pre-operative assessment. This ensures that the patient is fit for surgery. A detailed history is important but is underused in clinical medicine. Adequate recognition of surgical complications necessitates the implementation of appropriate monitoring and clinical evaluations. (Akhtar, Macfarlane, & Waseem, 2013, p. 316).

## 6 DISCUSSION

The findings of the thesis largely aligned with the collected theory. In the case of amputation, body image and self-esteem can be negatively affected. Patients might view themselves in a negative light, which reduces their self-esteem. Evaluation by others also plays a role in their feelings of being approached with pity. Many amputees have decreased self-esteem and a negative aspect to their body image. Body image is a major part of mental health and is affected by major surgeries. (Nuray, Gülhan, & Zeliha, 2020, p. 3). Sarroca et al. found in their study that the perception of oneself has two main pillars, which are body image and self-esteem. According to Sarroca et al., body image is affected by external factors such as social factors, and internal factors like age and physical condition. Self-esteem is one's own attitude that assesses self-worth and value. Body image is one's own perception that is affected by internal and external factors. Analyzing the thesis, the writers found that body image and self-esteem are affected by a multitude of factors. It was also found that they can affect each other. Negative thoughts about oneself can cause decreased self-esteem. It was also found that body image and self-esteem are both crucial parts of one's mental health. Both can be affected by life-changing situations like major surgeries.

Quality of life is one's perception of their position in conditions that they live in. Amputation may improve a patient's quality of life because some conditions like chronic limb infection cause movement restriction and severe pain. On the other hand, amputation may cause a decrease in quality of life due to a disruption of the body's integrity. This diminished quality of life may cause psychological problems like anxiety. (Sarroca et al, 2021, p. 1).

Rehabilitation can improve quality of life. The loss of function can deteriorate quality of life. (WHO, 2018). The writers found that the circumstances that one lives in impact quality of life. Quality of life includes the beliefs and values that people have. Quality of life includes

goals, expectations, principles, and concerns. Many aspects of human life like physical, mental, and spiritual aspects affect quality of life.

Phantom limb pain (PLP) occurs due to many reasons such as severe trauma or infection. Phantom limb pain is pain or discomfort on a limb that is no longer there. Phantom limb pain presents on wide spectrum and symptoms vary greatly. About half of those who experience phantom limb pain also experience residual limb pain (Hanyu-Deutmeyer, Cascella, & Varacallo, 2023) The concept of phantom limb pain was looked over by many authors. The writers of this thesis found that phantom limb pain originates in the surgical site. The pain typically resolves as the wound heals. The cause for phantom limb pain is not clear. The most common theory is the irritation of severed nerves. Phantom limb pain can happen due to triggers like increased stress and anxiety. During the writing process it was found that phantom limb pain is a challenge in medicine and treatment for it is not successful.

Elective surgery is a planned surgery. Pre-operative evaluation is a necessary step prior to most elective surgery. Elective surgery starts when the patient is booked into surgery and ends when the patient is brought into the operation theatre. (Akhtar, Macfarlane, & Waseem, 2013, p. 316). It was found that after an elective surgery the treatments start right away. Before the amputation it is checked multiple times that the patient knows what will happen in surgery. During this phase in the amputation process nurses can help with physical and emotional healing. Wounds are treated and the patient's psychological state should be checked to help with any issues like anxiety or decreased self-esteem.



## 7 ETHICS AND RELIABILITY

Since the research methodology of this thesis was a literature review, the study's data consisted of publicly available literature. Regardless of this, literature reviews have specific features that demand special attention. In a literature review, there is a potential for bias if the reviewer only selects literature that supports their own personal position (Coughlan & Cronin, 2021, p. 12). Therefore, the techniques used to identify the literature should be described in detail. In addition, it is essential that the selected literature is pertinent to the topic, that all key pieces of literature are included, and that the final report accurately represents the entire literature dataset (Coughlan & Cronin, 2021, p. 12). These principles influenced the data acquisition, analysis, and thesis writing processes. To ensure ethical and responsible conduct, the authors also used and adhered to the "Ethical Recommendations for Thesis Writing at Universities of Applied Sciences" resource developed by The Rector's of Finnish Universities (2019) throughout the thesis writing process.

The thesis has been written according to the official Seinäjoki University of Applied Sciences guidelines for written work, which provide a reliable structure and citation style for the text. During the writing process, the authors attended thesis workshops and seminars to ensure that their research and writing methods are adequate.

## 8 CONCLUSION

The process of analysing the obtained material took a while since there was a lot of material to go through. While writing the results, the writers had to consider the research question once more to assure that the results connected with the research question. The results found from the articles was interesting and easy to understand.

In conclusion, amputation is a major operation that has significant effects on mental health. Namely the common changes in mental health after amputation include anger, depression, decreased self-esteem and continuous crying. Amputation is done for many different rea-sons. Mental health problems before and after amputation happens to everyone who goes through amputation. The severity of symptoms varies greatly from person to person. Interventions to treat the everchanging world of mental health problems needs work to ensure good mental health for everyone. Body image and self-esteem are important pillars of mental health. Issues with either one can cause the entire mental health system to crumble down. Limb loss is devastating for almost all amputation patients, it is not as simple as a limb being amputated but rather a part of them being taken away. Residual limb pain and phantom limb pain are parts of amputation that do not get discussed often. Treatment for RLP or PLP needs to be encompassed into the nursing field. Residual limb pain and phantom limb pain vary in severity, and they have a negative effect on quality of life.

For future research and development in medicine, the importance of psychological issues needs to be looked into further. This helps nurses to assist patients with coping after procedures like an amputation. Treatment for phantom limb pain and further research into phantom limb pain as a whole need to be done to help those who suffer from phantom limb pain.

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