

Nursing Interventions in Improving the quality of life of Amputees through Rehabilitation: A Literature Review

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<p>Abstract:</p> <p>Amputation has become one of the global issues where there are more than 1 million annual limb amputation- one every 30 seconds. There are many reasons for the amputation like peripheral vascular disease and diabetes, congenital deformity etc. Amputees face many kinds of challenges like pain after amputation. Complications like bleeding and infection, psychological and physical challenges, which affects the quality of life of amputees and affects in the process of rehabilitation. Nursing interventions can help the amputees to cope with their psychological and emotional as well as physical challenges.</p> <p>The aim of this study was to explore the intervention that nurses can do in improving the quality of life of amputees through rehabilitation. The purpose was to provide information on the rehabilitation process of amputees.</p> <p>Literature review was used as a study method, the database used in this study is CINAHL. Total six articles were reviewed and used in this research study.</p> <p>The results are presented according to three main categories and their subcategories.</p>		
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1 INTRODUCTION

Globally, there are more than 1 million annual limb amputation- one every 30 seconds. People living with limb loss which is cause by vascular disease including diabetes and peripheral arterial disease is 54%, those caused by trauma is 45% and by cancer is less than 2%. Amputation cause by diabetes is one of the biggest problems. It affects 25.8 million people of the U.S. Below knees amputation are also most common which is 47% expected increase from 1955-2020. The amputee's coalition of America estimates that there are 185,000 new lower extremity amputations each year within united states. It is projected that the amputee population will be more than double by the year 2050 to 3.6 million. It means a range of people undergoing amputation is increasing. In EU countries, estimates suggest that more than 6% of the population aged 20-79 years. (Advanced Amputee Solutions, 2012.) In context of Finland, amputation rates have been reduced over 20 years ago. About 41% reduction was reported from Southern Finland from 1984 to 2000. Lower limb amputation among diabetes people has been reduced from 924 to 387 per 100,000 from 1988 to 2002. (Ikonen, Sund, Venermo, & Winell, 2010).

Amputation has become one of a major concern. Absence of a limb can be congenital or the result of trauma or complications of chronic diseases. Surgical complication and skin problems are the physical problem associated with amputation. It generates the realization in the patient about the loss of limb which eventually effects a body image. Amputation has forced to change the lifestyle, living standard and the way of seeing things by others or by society. In other words, it has influenced socially, economically, physically and psychologically. Focusing on the physical support, amputees can be provided with a prosthesis; placing an artificial body part which helps to perform daily activities such as walking, eating, can involve in sports, and any

activities. Artificial limb influences the life of people in many ways; participation in different activities, or involvement in social activity. Appropriate treatment and rehabilitation may improve patient's quality of life and enable to return to everyday life in the society. Therefore, management of its effect on amputee's body image and well-being is primary nursing considerations which also help to focus on importance of nursing intervention in the management of body image alteration. (Flannery, & Faria 1999.) Majority of amputation are performed in diabetic persons. (Timothy, Liliana, & Ellen 2002.)

The aim is to highlight the nursing care provided to the people with amputees. The purpose is to gain the information on the nurse's role and the experience in caring people with amputation. The research method is literature review.

2 AMPUTATION

2.1 Definition and Reasons

Amputation is defined as the removal of the body parts surgically such as legs, arms or any parts of the body which is infected or injured. Nowadays it is commonly practiced surgery. Two common causes of amputation are peripheral arterial occlusive disease and infection to diabetic foot ulceration. Upper limb amputation is very less performed than lower limb amputation because of the infection and diabetes that mostly affect lower limbs. (Gibson 2001.) Nowadays most amputations are executed more than 50 percent on individual with vascular disease atherosclerosis after diabetes mellitus (May 2002). Atherosclerosis is a disease of arterial system that causes poor blood

circulation and oxygen and poor nutrients supply to the body's cell by narrowing or damaging the arteries. As a result tissues die and causes infection which leads to the amputation. (Adrian 1964.)

Similarly, diabetic foot ulcer or failure to heal the ulcer is the common cause for lower limb amputation and it is the cause of high mortality in diabetes (Singh, & Chawla 2011). In a patient with diabetic foot ulcer, healing is often poor because when local amputation of parts of foot is attempted, they might not heal and can lead to further proximal level amputation. Patients can suffer from combination of peripheral vascular disease and diabetes which cause both large and small artery disease. Constructing vascular disease again and again is not successful due to poor healing. (Engstrom, & Van de Ven, 1985.) Amputation is mostly performed on individual older than age of 60. From the estimation of The National Commission on diabetes, 5 to 15 percent of all people with diabetes needed amputation. (May 2002.)

Furthermore, some other causes such as trauma and congenital deformity. Amputation of limb can occur at the site of accident or trauma which cause damage or cause death of the tissue. In some cases, trauma can be treated by orthopaedic, vascular or plastic surgery. If this fails, amputation can be done weeks, months or even years later if the function of the limb is impaired.

Similarly, losing of the limb can have several reasons. For instance, one may diagnose with bone cancer where it will be important to prevent the spreading of cancer, child born with deformed limbs or one get accident (Singh, & Chawla, 2011). Congenital deformity is when a child is born with either partial or complete absence of one limb, or total absence of all four limbs. Likewise, majority of the patient are under 30 years of age. Therefore, prostheses are provided according to their need and in the severely deformed limbs, it is necessary to amputate. (Engstrom, & Van de Ven 1985.)

2.2 Amputation challenges

Pain after amputation

After the amputation, one could feel pain in their limbs that has been amputated. It is a normal human feeling or reaction. It is common limb amputation and in mastectomy. One may feel pain for short period of time while other may feel long lasting pain. Large number of amputees have reported sensation of twisting, crushing, stabbing, burning and shooting. Its prevalence is between 50 to 80%. It has been reported that it usually starts within the first week after amputation and slowly severity is decreased in some patient while it remains long lasting in other.

Stump pain is sharp, aching and severe. Stump pain is nociceptive pain which is caused by extensive tissue trauma while some other causes can be infection, arterial insufficiency, haematoma, wound breakdown et cetera. It is also related to allergies due to prosthetic device, stump socks or local cream application. Neuropathic pain is strongly related to phantom pain. It has been reported that it is present in 61% of those who has phantom pain and 39% in those who don't feel phantom pain (ibid., 2016; 2010.)

Third pain syndrome is phantom pain which occurs in up to 80% of amputees. It is found to occur more in adults than in children. It can be delayed and may occur after trauma to stump or stump revision surgery. It is estimated that its frequency may vary from 10% to 100% and incidence reported about 92.3% in 1 week and 78.8% in 6 months. It is sporadic expressing neuropathic features such as burning, squeezing, twisting, shooting and it can be more painful in distal part such as toes, fingers. Patient may experience itching or tingling. This phenomenon is known as phantom sensation. Risk factors can be

postoperative pain, stump pain, increasing age, repeated limb surgeries. (ibid., 2016; 2010.)

Complication of amputation

The common complications after amputation are superficial infection, shortening of limb and flap donor site morbidity. With major amputation there is the risk of bleeding, significant oedema, nerve damage and even death. Amputation has adverse effects in quality of life of patients. Before doing surgery there should be always done assessment if the patient has some other conditions for example end stage renal disease. If patient has conditions like renal disease resistance to the bacteria is diminished which will increase the risk of infection. Amputation might be life threatening if there are other serious conditions in order to achieve good quality of life of the patient. Wound breakdown is caused by the poor circulation, chronic swelling, etc. Infection with risk for sepsis may be a life-threatening problem, wound breakdown might be a threat to the success of the surgical procedure and result in the need for additional surgery, including the possibility of more proximal amputation. (Ray 2000).

3 ROLE OF NURSES IN CARING FOR AMPUTEES

3.1 Quality of life in amputees

The World Health Organization (WHO) defines Quality of Life (QoL) as person's perception of his/her position in life to the situation of the culture and value systems in which he or she dwells in and the relationship of their goals, expectations, standards and concerns in life.

There are many causes for the amputation, despite the cause's amputation is the life changing procedure which brings the huge change in amputees' life. The changes are irreversible which brings alteration in most of the aspects of physical, emotional, and occupational aspects as they are learning to cope with daily life activities and their altered emotions (Ohnmar, Suganthini, Kelvin, Siti, Hadi, Kumargau....Naicker 2015, 171-174).

3.2 Factors affecting quality of life after amputation

Impairment in body function and structure influence the daily activities and participation of amputees in the society or social activities. Their personal attitudes and environmental factors play a significant role on the quality of life after amputation and goal of the rehabilitation. Psychological situation is also one of the crucial parts in amputees. Psychological condition of the patient helps to determine if they are ready for the acceptance and adjustments in the future. (Sinhaa, Wim, Perianayagam, Jitse 2013, 74-75.) Grief, anger, sadness etc are the common emotional disturbances that can affect the quality of life of the amputees. And when this kind of emotional disturbances persist in the future most of the amputees suffered with the psychological diagnosis such as Post Traumatic Stress Disorder (PTSD), Anxiety, depression and substance abuse. Additionally, these kinds of psychological disorders affect the amputee's ability to deal with their physical disabilities, which may lead to poor quality of life. (Perkins et.al 2011, 76.)

Mobility after amputation and physical health is also very important factors that affects the rehabilitation and quality of life. (Sinhaa et.al 2017, 90-94.) Functioning of physical health and not being dependent on others for the daily activities are the essential aspects and, they can change or build the perception about the amputee's life and well-being. When the amputees are not able to move or ambulate, they might think themselves as a burden for

society and their family which may affect their mental wellbeing and satisfaction. Use of prosthesis properly and being able to move with the help of them leads to a quality of life in amputees improving their mental health and confidence. (Sinhaa et al. 2013, 74-75.) Family support is also another important aspect which affects amputee's quality of life. If there is family support in coping with the changes after amputation it helps in the adjustment. No family support and inadequate social support leads to psychological and emotional disturbances and poor quality of life. (Rybarczyk, Nyenhuis, Nicholas, Cash, & Kaiser 1995.)

3.3 Nurses role in improving the quality of life in amputees

Effective care after amputation is a huge support to the patients in overcoming psychological stigma, complications as well as challenges related to rehabilitation. Society may have different perspective on them. Therefore, it is crucial to provide enough and effective care to patients after amputation (Flannery, & Faria 1999.) Nurses are the one who take care of the patient after their family. They have different and important role in caring patient with amputation. Assisting them, educating them, promoting and caring for healing emotionally or physically, enhancing their body image, promoting quality of care et cetera. (Janice, & Kerry 2014, 1188-1191.)

Relieving pain

It is important to relieve pain which may be caused by inflammation, infection, pressure hematoma or even phantom limb pain. There is different pharmacological treatment such as injection therapy, pharmacotherapy, Injection therapy is found to be more effective in Residual Limb Pain than Phantom Limb Pain due to the presence peripheral mechanism. Reginal nerve is block using lidocaine or corticosteroids which relief RLP, but the duration

of pain relief is temporary. Medication such as the opioids, anticonvulsants, antidepressants, local anaesthetics and calcitonin are the groups of medication use for pain management. (Neil 2016.)

The Non-pharmacological treatment also helps in relieving pain in amputees. Psychological changes in amputees such as decreased cognitive flexibility on pain might cause chronic post-surgical pain. Providing psychological support to the patient helps them to accept the changes in amputees and helps to regain the cognitive flexibility which will develop the capacity for adaptation. By changing the position of the patient may help to improve comfort and muscle spasm. Pain management can also be done by using relaxation techniques such as uses of smartphones apps, meditation, physiotherapy, etc. (Liz, et.al, 2019).

Promoting wound healing

After surgery nurses focus on wound healing because of an increased risk of infection and further complications or if not treated properly, may lead to death. While changing dressing, it should be done with the aseptic technique. Residual limb is handled gently, should not be leave hanging down and the amputated limb should be cleaned properly as it is most of the times enclosed in prosthetic socket due to which it is more prone to infection. Residual limb might get swollen which must be reduced so that it fit properly in prosthetic socket. This is call shaping. Nurses instruct the patient and family how to use elastic wraps or compression stocking to reduce swelling. (Janice, & Kerry 2014, 1188-1191

Promoting self-care

Going through amputation is stressful. One might feel discouraged to do daily activities, but it is very important to perform daily activities on their own and be more confident. This will help to heal faster with self-care though it affects the ability to do. Minimizing fatigue, anxiety and doing activities in a Constance pace in a good environment will help to create positive attitudes. Nurses will encourage and educates to do daily activities such as bathing, feeding, toileting, dressing with the help of therapist. They are educated how to use assistive devices and how to transfer. Similarly, most importantly recognition of signs and symptoms and any complication must be reported (ibid., 1188-1191.)

Promoting physical mobility

Position is most important in amputated patient. It helps to prevent development of knee or hip joint contracture. Residual limb should be elevated for a short period of time after surgery. Along with these, external rotation, abduction, and flexion of the lower limb should be avoided. Patient should be encouraged to change the position from side to side and not to sit for a long period of time in the same place. Nurses also start Postoperative ROM (Range of Motion) exercise which is hip and knee for Below Knees Amputation to prevent the contracture deformities. Patient is taught to stand after sitting and how to stand on one foot if the other foot is not amputated. How to prevent and inspect skin are also taught. Patient are encouraged to massage the residual limb to decrease the tenderness, improve vascularity and mobilize the site of incision. (ibid., 1188-1191.)

Resolve Grieving

Limb loss is a tragic moment for amputated patient. Even though a patient is prepared preoperatively, it comes with a shock and their feeling such as anger, pain, crying, withdrawal express how they are coping with the loss and grief. Therefore, nurses create friendly and supportive environment which helps them to express their feeling and cope with a grief. In this situating family support of family member also play important role and help to promote their life. Nurses provide mental health support and prepare for the rehabilitation. (ibid., 1188-1191.)

3.4 Rehabilitation

Loss of body part is a tragic situation. It not only affects physical and functional discomfort, but it also affects one's mind and body image. After the amputation it is very important to improve the quality of life of the patient and patient rehabilitation is an essential tool to get the optimum patient outcomes. The main aim of rehabilitation for the patient with amputation is to help them deal with the phantom and residual pain and providing them education about the uses of prosthesis and ambulation. It is very important to help in rebuilding the amputee's function. Amputation degrades patients in many phases such as function, body image and sensation. (Kelly, & Dowling 2008.)

Likewise, it may lead to depression, loosing of confidence and withdrawal from the social participation. Therefore, rehabilitation should always focus on rebuilding the patient's participation and confidence which may help to improve the quality of life of an amputee. But there are some factors which may affect the process of rehabilitation such as age and poorly healed stump.

The age less than 65 tends to acquire good mobility and autonomy than that of older people. (Kelly et al. 2008.)

In order to make the rehabilitation more successful nurse can also use various techniques for example giving the feedback to the patient to motivate so that they can continue their effort. Nurse should always do the documentation of achievement, how far the goals has been achieved, and should monitor the progress made by patient. This can help the nurse to set the new goals or to decide the next steps in providing rehabilitation care. Rehabilitation goals may be always different from everyone. For some patient the goal maybe returning to their family or previous lifestyles or their home. But for some patient for example old people the goal maybe doing their daily activities by themselves, rebuilding the satisfactory quality of life. (CNA training advisor, 2014.)

During the process of rehabilitation nurse should also be aware of phantom pain of the patient. Because if patient still has phantom pain, it makes the rehabilitation process slow. Therefore, while making the rehabilitative plan of care, the phantom pain and sensations should be considered. Quality of life maybe disturbed due to this reason and can be unrecognized sometimes. So, the nurses should be careful and take care of a holistic aspect while communicating with the amputees. Nurse should always have therapeutic communication skills in order to create good environment for the patient to discuss their psychological aspects and their distress caused by various reasons which is very essential to make rehabilitation process successful (Richardson 2008).

4 AIM, PURPOSE AND RESEARCH QUESTION

The aims of the research were to explore the interventions that are used in improving the quality of life of amputees. The purpose is to get better understanding about the nursing in the rehabilitation process of amputees. The information in our thesis can be useful for the nurses or nursing student working in a rehabilitation unit.

Research question

How can the nurses support the amputees to maintain a quality of life through rehabilitation?

5 METHODOLOGY

5.1 Literature review

Systemic literature review method is used in analysing data in this research. Literature review is a combination of literature which aims to answer a targeted research questions and it allows for the replication. A researcher first identifies one or more specific research questions and critically analyse evidence in published sources that answers that answers the research questions. (Rew 2010.)

While conducting the literature review researcher should set the research questions such as what kind of questions he wants to be answered, what kinds of specific concepts is involved. Therefore, finding research questions is the first step to be done during literature search. Then a researcher should state and be aware of the purpose of his research questions. In addition, he should focus on where and how to conduct the literature search. (Rew 2010.) A literature review can support high quality medical education research and helps to increase relevance, its originality, generalizability and impact. Literature review also helps in minimizing the duplicative research (Artino, Justin and Lauren, 2016). Duplicative research is a intentional repetition of research efforts. It is very important in research because with the help of this review knowledge can be obtained and can understand about the topic, what has already been done in the similar topic and how the research has been carried out, and what were the main issues raised in the research already (Chris, 1998).

5.2 Scientific Article Selection Process

It is very important to have a systematic and thorough review of existing research as important as the collection of data in a systematic way for advancing knowledge (Vicki, Sang-arun, Sabyasachi, Peeranuch, & Rohini 2003). Preliminary search on the nursing intervention to improve the quality of life of amputees through rehabilitation was carried out. Amputation in older people, and its effects on amputees and other topics related to amputation were found in more than 100 articles but nursing intervention and quality of life of amputees and rehabilitation in general were not found sufficiently. The database used in this thesis is CINAHL. Different data for the literature review was accumulated. In CINAHL first search term was MeSH (Medical Subject Heading) Amputation or amputee or amputees or limb loss and nurse or nurses or nursing and rehabilitation. The second search term related to the Boolean operator AND.

Similarly, same search term is used in the Medline. Various keywords combination was used for data search. It was a free search term nursing intervention. Combination of words were used like nurses, interventions, amputation, quality of life and rehabilitation which helps us to find the best results. The article is selected after reading the abstract and based on language, published year between 2009 and 2019, English language, full text available. Publication which does not meet the inclusion criteria was omitted. Table below show the data search process. PICOS (Population, phenomena of Interest, Context and Types of studies) table 1 is used for identifying the inclusion criteria and exclusion criteria. Considering the bias and reliability, search is done under the protocol and ensure that the article used for study should be within these criteria.

PICOS Table	
Population	Nurses
Phenomenon	Amputation
Context	Nursing intervention in improving the quality of life of amputees through rehabilitation.
Types of studies	In the English, Literature review

Table 1. PICO

Inclusion Criteria:	Exclusion criteria:
Full text available	Not primary research
Peer-reviewed	Not relevant to the research topic
Published between 2010-2019	Not answering the research question
Study in English	Quantitative study
A qualitative study	
Primary research	
Answer the research question	

Table 2. Inclusion and Exclusion Criteria.

Database	Key terms	Results	Chosen based on the title/ or abstract	Chosen based on full text
CINAHL (Ebesco)	Amputation or amputee or amputees or limb loss and nurse or nurses or nursing and rehabilitation.	N= 6	N= 3	N= 3
CINAHL (Ebesco)	Amputation or amputee or amputees or limb loss and quality of life or wellbeing or health related quality of life.	N= 96	N= 19	N= 3

Table 3. Screening Process

5.3 Data Extraction and Analysis

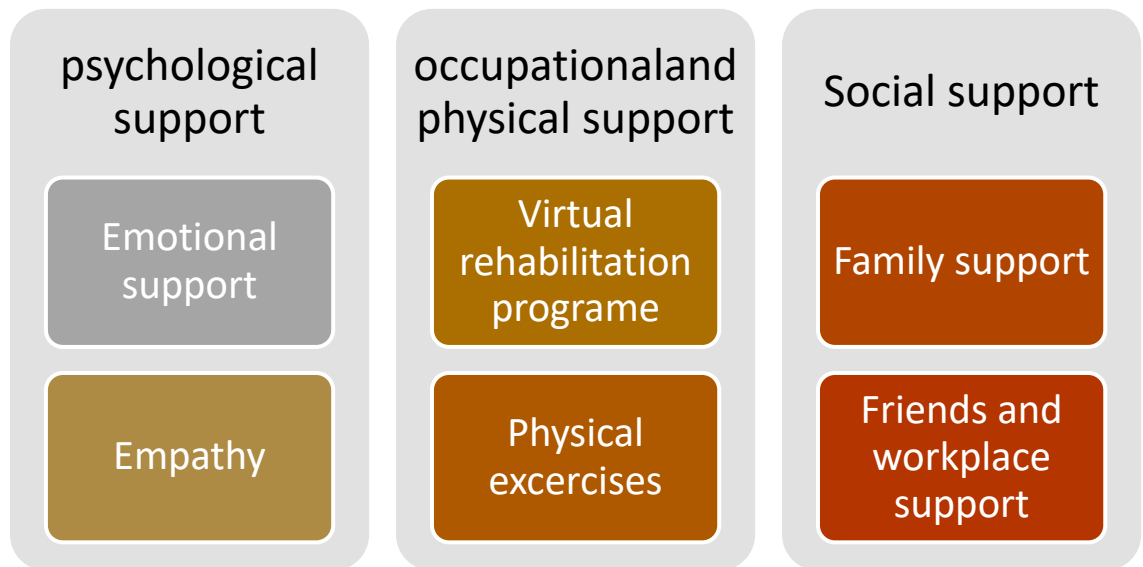
Data analysis is a central and complex part of research. It is very important for research and researcher. It is a process of extracting meaning and understanding from various data, collected during research (David, & Mary 2014). It supports the researcher to modify and transform the information to reach the conclusion and it provides structure to the findings through different source of

data collection by sorting a large pile of data that researcher has collected. It keeps human bias away through proper statistical treatment. (Steve 2011.)

Similarly, in this literature review, content analysis is used which can be deductive or an inductive. Both inductive and deductive goes through three main process which are preparing, organizing and reporting (Satu, & Helvi 2007). Inductive method has been used in this research as it enables to identify the clear and main theme from raw data. It provides a systematic and easy procedure to analyse the qualitative data that produce valid and reliable findings. (David 2006.) Open coding process has been used to reduce the pile of data which helps to build theories in an inductive process. It was done by making notes and highlighting words. Then data reduction was compassed by dividing into subgroups which were further divided into fewer main subgroups. Various data has been analysed from a different scientific research article to evaluate and analysed the research question. Finally, as data in articulated categories addressed the research question, question was placed on the final categories.

6 RESULTS

The results are presented according to the main categories and their subcategories. The main categories in (fig.5) are psychological support, occupational support, physiotherapy and social support. The main categories according to their subcategories are also explained in detail in further text.



6.1 Psychological support

Psychological support is the main elements in the rehabilitation process and helps in improving the quality of life in amputees. (Queiroz, Morais, Silva, Guimaraes, Oliveira, & Magalhães 2016). Psychological needs should also be assessed with the physical needs. When a nurse provides psychological support and is empathetic with the amputees it is easier to provide holistic support to the patient. Amputees may feel isolated, embarrassed, self-image disorders, et cetera. So, the nurses always should focus on these things and should be sensitive and be professional towards them. It is important for the nurses to motivate amputees to be participated in social interaction by support groups, by meeting with other amputees they can get the experiences and learn how to cope with the emotional ups down. This type of interaction helps to improve quality of life. Emotional support and positive beliefs towards the amputees can help to increase the hope, confidence and self-esteem. Family support is also another important component while providing psychological support to the amputees. Involving family in the process

rehabilitation and developing bond with them could be the additional effective support for the amputees (Queiroz et al. 2016, 710-711).

6.2 Physical and occupational support

A study shows that virtual rehabilitation programmes has a positive effect on re-establishing self confidence in the lower limb amputees. Virtual rehabilitation process includes three different ideas. Those are taking body as an object, moving body consciously and unconsciously, the body fades away. These ideas demonstrate the self-awareness about the combining with the prosthetic devices. And how to use the prosthetic device and adapt the changes. Another idea for the virtual rehabilitation process is understanding and trusting the device. Virtual rehabilitation program motivates the amputees to use and trust in the technology and instrument during rehabilitation process. (Moraal, Slatman, Pieters, Mert and Widdershoven, 2013, 513-514.) Study shows that higher education and employment after an amputation helps to maintain a good quality of life. The use of assistive technology, such as wheelchairs, was positively associated with reduced poverty. Results also indicate that the risk of lower quality of life depends in the physical health, psychological, and environment domains. (Magnusson, Ghosh, Jensen, Gobel, Wagberg..., Ahlstrom 2019, 4-5.)

Resilience and ROM exercises are also the crucial part which will help preparing the residual limbs for the long-term prosthetic use and helps in preventing contractures which is the common problems seen in amputees. Cardiovascular exercises are also another training which will fulfil the need of energy during walking with the prosthesis in rehabilitation process (Imam, Miller, Finlayson, Eng, Jarus, 2019, 16-17)

6.3 Family support

There are many sources of support in rehabilitation for amputees. For examples physiotherapist, nurse, counsellor, etc. But the important sources among these can be the family support. When patients are with their family, they feel that they are valued and loved by others. Family members can be their motivation especially parents for the single and spouse for the married people. Family members can help amputees in different ways like assisting in their daily activities, supporting financially, helping in dealing with the anxiety and depression, giving emotional support, etc. Although the family is important sources, but spouse is the most important assisting sources for the amputees. (Valizadeh, Dadkhah, Mohammadi, Hassankhani 2014, 233-235.)

While providing rehabilitative care to the amputees, inclusion of their partners helps to determine the depression level of amputees. Results says that if there is more involvement of partners in their partners rehabilitative care than amputees might be able to cope with the depression more. Nurses should always keep in mind to involve the partners in rehabilitation care (Murray, Simpson, Eccles and Forshaw 2014, 73-76). However, sometimes family and spouse both do not help them, and they feel disrespectful and neglected. But most of the time helpful family and spouse can contribute in rehabilitation and maintaining quality of life of the amputees (Valizadeh et al. 2014, 233-235).

6.4 Friends and workplace support

Another important sources of support can be friends. With the friend's amputees can share everything they feel. Close friendship helps to develop the positive ways of thinking about the life. Friends show empathy and helps in finding the right job, remind amputees about the good memories and

always helps them to develop their self-esteem. Good friendship helps amputees understanding the situation and feel acceptance but there are also many amputees whose close friends has left them and is not sensible towards their situation which may demotivate amputees. Amputees quality of life also depend on how their work life is. The responsible authority should always understand their situation and look after amputees financial and emotional needs. This helps to encourage the amputees to believe that they are also the part of society and their workplace. Likewise, in some situation the amputation maybe the reasons for early retirement, less attention from the boss and lack of attention. So, this maybe the reasons for low quality of life of working amputees (Valizadeh, et al. 2014, 233-235).

7 DISCUSSION

7.1 Discussion of result

There are many reasons for the amputation for examples due to long-term diseases, but sometimes the reason is due to accidents and trauma. Traumatic amputation maybe a sudden trauma in someone's life. It suddenly makes an impact in performing daily activities, affect one's skills by making them dependent on others and slowly leading them to depressive disorders. The main purpose of amputation is to enhance the regular functioning of the amputees, to relieve their symptoms and in severe cases to make their quality of life better.

During the initial period after amputation there maybe complication like bleeding, pain, infection, skin breakdown, phantom pain and sometimes joint contraction. Amputees may also be socially deprived; they might also be

psychologically weak. (Queiroz et al. 2016, 710-711). Psychological support is an essential element in amputees. Psychological support helps to develop the confident, change the perception towards the phantom pain, stump pain, etc. It is very common that most of the amputee's experience pain. Pain is not only due to amputation but there are various other secondary effects such as depression, poor quality of life, distress, anxiety and unable to cope up with day-to-day life. Person may feel different category of pain such as stump pain, neuropathic pain and phantom pain. (Neil 2016; Craig 2010.) So, the focus should also be in relieving pain of the amputees. Pain medications, physical mobility, psychological counselling, etc can always help the amputees to reduce pain (Kirsteen 2002).

The nurse should always be empathetic towards the situation of the patient, she should also understand that the amputees do not easily be adaptive to their situation, so nurse should have the tolerance towards the amputees. Due to the qualities like tolerance and empathy in nurse it is easier for the client to develop trust towards the health professional, helps to develop cooperation among amputees and motivate them to share their feelings and discomfort. Through which it helps to make the good quality of life of the amputees. After amputation, amputees often tend to loss their job and become financially unstable (Saraf, Gupta, Prakash, & Prakash et al. 2013). Due to which they feel that they are incapable of doing anything and stressed and gradually they suffer from depression which affects their quality of life. So, it is also very important to assess all the factors that is affecting the quality of life of the amputees.

7.2 Ethical Consideration and reliability

Ethics can be defined as the disciplines that are used in analysing, interpreting and evaluating data. It is very important to follow the ethics

while doing research because the rules of ethics helps to develop the research aim for examples reducing errors, accuracy, etc. (Resnik 2011). We don't have to do direct interviews or contact with the participants in literature reviews. We collect data from the other original articles. Therefore, we don't need ethical approval. But the researcher is suggested to do the ethical assessment of the articles in order to ensure the security of rights of the people, to ensure that the informed consent has taken and to be sure about the qualification of investigators (Jean-Noel, Christine, Cathy, Delphine, & Olivier 2011). The data has been searched from the CINAHL and Medline, which are the reliable sources. The data, results and methods are presented honestly. Falsification, fabrication and misrepresentation of data are avoided.

In order to avoid plagiarism reference has been used in all data that are extracted from the articles. Methods, data and results which are not published are not used in this research (Resnik 2011). Researcher has presented the inclusion and exclusion table in order to avoid bias in the study (Marian, Kim, Parminder, Stephanie, & Paul 2013).

8 CONCLUSION AND RECOMMENDATION

Amputation is the global issues which affects the amputees in different ways and affect their quality of life. It has leads to the serious psychological, social, and physical effects in the life of the human beings who has undergone amputation. They must face with a different kind of challenges like phantom pain, infection, other kinds of pain, etc. Amputees also must face challenges such as alterations in body image, social deprivation, physical dysfunction, etc. Sometimes the depression can cause the amputees to take a serious decision like suicidal attempt. Therefore, the health professional and nurse should always have a close observation towards the amputees. Nurses can

play the vital role in helping the amputees to regain their confidence and motivate them to have face problems in their daily life after amputation through counselling, giving them hope, educating them about the prosthetic use and its importance and by becoming empathetic. The result shows that psychological support, social and physical support help the amputees to have the good quality of life through rehabilitation. Counselling, support from the family always has helped the amputees to regain the confidence and adjust to the situation.

However, further research can be done in the physical and occupational support that helps to improve the quality of life.

REFERENCES

Advanced Amputee Solutions. 2012.

<https://www.advancedamputees.com/amputee-statistics-you-ought-know>.

Adrian, C. 1964. Lower Limb Amputation: a guide to living a quality of life. Demos medical publishing, LLC, 368 Park Avenue south, New York. 1st ed.

CNA Training Advisor: Lesson Plans for Busy Staff Trainers, 2014,

Amputation Care, Retrieved from:

<http://web.a.ebscohost.com/ehost/command/detail?vid=7&sid=db244068-ad7c-4d1b-a4fd-5f091d70e991%40sdc-v-sessmgr03&bdata=JnNpdGU9ZWWhvc3QtbGl2ZQ%3d%3d#AN=103975766&db=rzh>

Colquhoun, L., Shepherd, V., and Neil, M., 2019. Pain management in new amputees: a nursing perspective. *British journal of nursing*. 28. Retrieved from:

<http://web.a.ebscohost.com/ehost/pdfviewer/pdfviewer?vid=13&sid=2026e065-a59a-4795-906c-4de15715c13e%40sessionmgr4006>

Craig, M. 2010. Amputation, Prosthesis Use, and Phantom Limb Pain; An Interdisciplinary Perspective. 129-132. DOI 10.1007/978-0-387-87462-3.

David, C., Mary, B. M. 2014. Data Analysis. The SAGE Encyclopedia of Action Research. DOI: <http://dx.doi.org/10.4135/9781446294406.n102>. Retrieved from

<http://methods.sagepub.com/reference/encyclopedia-of-action-research/n91.xml>.

David, R. T. 2006. A General Inductive Approach for Analyzing Qualitative Evaluation Data. Vol. 27: 2, 237-246. doi.org/10.1177/1098214005283748.

Retrieved from

<https://journals.sagepub.com/doi/abs/10.1177/1098214005283748>.

Diehl, A. K., Allen, L., French, M., Driver, R. V., 2015 Lower Extremity Major and Minor Amputation in the High-Risk Patient. *Podiatry Management*.

34(9):57-66. Retrieved from:

<http://web.a.ebscohost.com.ezproxy.jamk.fi:2048/ehost/pdfviewer/pdfviewer?vid=6&sid=63ae1336-c12d-4908-9819-b0aef575be67%40sdc-v-sessmgr02>

Ellis, K., 2002. A review of amputation, phantom pain and nursing responsibilities. *British journal of nursing*, 11(3). Retrieved from:

<http://web.a.ebscohost.com/ehost/pdfviewer/pdfviewer?vid=10&sid=32aae075-d8a6-4a2b-9b80-497bd33d8ba0%40sessionmgr4007>

Engstrom, B., Van de Ven, C. 1985. Physiotherapy for Amputations: the Roehampton approach.

Eugene, H., and Steven, P. C. 2013. Postamputation pain: epidemiology, mechanisms, and treatment. *J Pain Res*, 6. 121–136. Published on 2013 Feb 13th.

doi: 10.2147/JPR.S32299. Retrieved from

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3576040/>.

Flannery, J.C., Faria, S.H. 1999. Limb loss: alterations in body image. *J Vasc Nurs*, 17(4).100-6; quiz 107-8. Retrieved from

<https://www.ncbi.nlm.nih.gov/pubmed/10818888>.

Gibson, J. 2001. Lower Limb Amputation. *Nursing Standard (through 2013)*, Vol. 15, Iss. 28. 47-52. Retrieved from <https://search.proquest.com/openview/c2d2583f5591671d53d18bf81274b39a/1?pq-origsite=gscholar&cbl=30130>.

Grzebien A., Chabowski M., Malinowski M., Uchmanowicz I., Milan M., Janczak D., 2017, Analysis of selected factors determining quality of life in patients after lower limb amputation- a review article, DOI: 10.5604/01.3001.0009.8980. Accessed from: <https://ppch.pl/resources/html/article/details?id=145885&language=en>

Imam, B., Miller, W. C., Finlayson, H. C., Eng, J. J., & Jarus, T. 2019. Lower Limb Prosthetic Rehabilitation in Canada: A Survey Study. doi:10.3138/ptc.2017-39. 16-17. Retrieved from: <http://web.b.ebscohost.com/ehost/pdfviewer/pdfviewer?vid=14&sid=1b731293-037e-4d28-84ca-f3c180565813%40pdc-v-sessmgr02>

Ikonen, T. S., Sund, R., Venermo, M., Winell, K. 2010. Fewer Major Amputations among Persons with Diabetes in Finland in 1997–2007 – A Population-based Study. Retrieved from: <http://care.diabetesjournals.org/content/di care/early/2010/08/30/dc10-0462.full.pdf>.

Janice, L. H., and Kerry, H. C. 2014. Brunner and Suddarth's textbook of medical-surgical nursing. 13th ed. Vol 1, 2. 1185-1192.

Kelly, M., and Dowling, M., 2008. Patient rehabilitation following lower limb amputation. *NURSING STANDARD*, 22 (49). Retrieved from: <https://archivesearch.library.nuigalway.ie/bitstream/handle/10379/14848/Amputee%20article%20rewrite%202007.pdf?sequence=5&isAllowed=y>

Levin, Z., A. 2004. Functional outcome following Amputation. Topics in Geriatric Rehabilitation. 20 (4). 256-260. Retrieved from:
<http://web.b.ebscohost.com/ehost/pdfviewer/pdfviewer?vid=13&sid=cb4d6c50-0c62-4b46-bbe8-286c5a32b8ba%40pdc-v-sessmgr04>

Maggio, A. L., Sewell, L. J., & Artino Jr, R. A. 2016, The literature review: A foundation for high-quality medical education research, Vol. 8, No. 3, pp. 297-303, Journal of graduate medical education. Accessed from:
<http://www.jgme.org/doi/full/10.4300/JGME-D-16-00175.1>

Magnusson, L., Ghosh, R., Jensen, R., K., Gobel, K., Wagberg, J., Wallen, S., Svensson, A., Stavenheim, R. and Ahlstrom, G., 2019. Quality of life of prosthetic and orthotic users in South India: a cross-sectional study. Health and quality of life outcomes. Retrieved from:
<http://web.b.ebscohost.com/ehost/pdfviewer/pdfviewer?vid=8&sid=93b67f82-6143-4ca0-a420-6aa668ced4ff%40sessionmgr102>

May, B. J. 2002. Amputations and prosthetics: a case study approach. 2nd. Ed.

McDonagh, M., Peterson, K., Raina, P., Chang, S., & Shekelle, P. 2013. Avoiding Bias in Selecting Studies. Methods Guide for Effectiveness and Comparative Effectiveness Reviews. Retrieved from:
<https://www.ncbi.nlm.nih.gov/books/NBK126701/>

Moraal, M., Slatman, J., Pieters, T., Mert, A., & Widdershoven, G. 2013. A virtual rehabilitation program after amputation: a phenomenological exploration. DOI: 10.3109/17483107.2012.744104. 8(6). 511-515.

Neil, MJE. 2016. Pain after amputation. *BJA Education*, 16:3. 107–112, published on 23rd June 2015. doi.org/10.1093/bjaed/mkv028. Retrieved from <https://academic.oup.com/bjaed/article/16/3/107/2389863#38445707>.

Nuray, S., Gulhan, K. O., & Zeliha, N. N. 2017. Psychosocial Problems and Care of Patients with Amputation. 1(1),6-9. DOI: 10.14744/ejmi.2017.22931.

Ohnmar, H., Suganthini, S., Kelvin, L., Siti, M., Hadi, F., Kumargau, S., Joseph, L., Tan, A., Khin, N., & Naicker, A. S. 2015. Quality of Life among Lower Limb Amputees Treated at the Tertiary Hospital, Malaysia. *International Medical Journal* 22 (3): 171–74. Retrieved from: <http://search.ebscohost.com.ezproxy.jamk.fi:2048/login.aspx?direct=true&db=rzh&AN=109808160&site=ehost-live>.

Paolo, B., Enrico, S., & Caterina, R. Knowledge-based design of lower limb prosthesis. Retrieved from http://paduaresearch.cab.unipd.it/3771/1/PhD_Thesis_Gabbiadini_Stella.pdf.

Perkins, Z. B., Ath, H. D., Sharp, G., & Tail, N. R. M. 2011. Factors affecting outcome after traumatic limb amputation. *British Journal of Surgery Society*, 99, 76. Retrieved from: <https://bjssjournals.onlinelibrary.wiley.com/doi/pdf/10.1002/bjs.7766>

Queiroz, L., N., Morais E, R., Silva RA, F., Guimaraes M do S, O., Oliveira L, B., & Magalhães R. L., B. 2016. Experiences of Victims of Amputation by Accidents. *Journal of Nursing UFPE / Revista de Enfermagem UFPE*. doi:10.5205/reuol.6884-59404-2-SM-1.1002sup201602. 710-711

Ray, L. R. 2000. Complications of Lower Extremity Amputations. Topics in Emergency Medicine. 22(3). Retrieved from:
<http://web.b.ebscohost.com/ehost/pdfviewer/pdfviewer?vid=4&sid=87b2865d-9ae4-451c-9bcf-dc46714a71c8%40pdc-v-sessmgr04>

Resnik, D. B. 2011. What is Ethics in Research & Why is it the Important? National institute of environmental health science. Retrieved from:
<https://www.veronaschools.org/cms/lib02/NJ01001379/Centricity/Domain/588/What%20is%20Ethics%20in%20Research%20Why%20is%20it%20Important.pdf>

Richardson, C. 2008, Nursing aspects of phantom limb pain following amputation, British journal of nursing, 17, 422-425. Retrieved from:
<http://web.b.ebscohost.com/ehost/pdfviewer/pdfviewer?vid=5&sid=cb211332-1c39-4fe6-a74b-86748c66d776%40pdc-v-sessmgr02>

Rybarczyk, B., Nyenhuis, D. L., Nicholas, J. J., Cash, S. M., & Kaiser, J. 1995. Body Image, Perceived Social Stigma, and the Prediction of Psychosocial Adjustment to Leg Amputation. Rehabilitation Psychology of the American Psychological Association. 40(2). Retrieved from:
https://www.researchgate.net/profile/Bruce_Rybarczyk/publication/232548333_Body_Image_Perceived_Social_Stigma_and_the_Prediction_of_Psychosocial_Adjustment_to_Leg_Amputation/links/56cc9d9b08ae059e37506acc.pdf

Sahu, A., Sagar, R., Sarkar, S., & Sagar, S. 2016. Psychological effects of amputation: A review of studies from India, doi: 10.4103/0972-6748.196041, PMID: PMC5248418, PMC. Accessed from:
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5248418/>

- Saraf, A., Gupta, A., Prakash, J. S., & Prakash, J. S., 2003. Effect of Postoperative Ambulation on the Quality of Life in a Transtibial Amputee. DOI: 10.5958/j.0973-5674.7.3.075. Retrieved from: <http://web.a.ebscohost.com/ehost/pdfviewer/pdfviewer?vid=11&sid=32aae075-d8a6-4a2b-9b80-497bd33d8ba0%40sessionmgr4007>
- Satu, E., & Helvi, K. 2007. The qualitative content analysis process. *Journal of Advanced Nursing*, 62(1), 107–115. doi: 10.1111/j.1365-2648.2007.04569. x.
- Sinha, R., Heuvel, W. J., Arokiasamyab, A., & Jitse P. D. 2017. Factors affecting quality of lower limb amputees. *The International Society for Prosthetics and Orthotics*, 35(1). DOI: 10.1177/0309364610397087. 90-94. Retrieved from: <https://journals.sagepub.com/doi/pdf/10.1177/0309364610397087>
- Sinha, R., Heuvela, W. J., Arokiasamayab, P. & Jitse, P. D., 2013. Influence of adjustments to amputation and artificial limb on quality of life in patients following lower limb amputation. *International Journal of Rehabilitation Research*, 37, 74-75. DOI: 10.1097/MRR.000000000000038. Retrieved from: https://www.researchgate.net/profile/Jitse_P_Dijk/publication/258043089_Influence_of_adjustments_to_amputation_and_artificial_limb_on_quality_of_life_in_patients_following_lower_limb_amputation/links/5a8fcf03aca272140560aada/Influence-of-adjustments-to-amputation-and-artificial-limb-on-quality-of-life-in-patients-following-lower-limb-amputation.pdf
- Singh, G., & Chawla, S. 2011. Amputation in Diabetic Patients. *Med J Armed Forces India*, 62(1), 36–39. doi: [10.1016/S0377-1237(06)80151-6]. Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4923303/>.

Steve, J. 2011. Importance of Data Analysis in Research. Retrieved from <http://dissertation-help-uk.blogspot.com/2011/12/importance-of-data-analysis-in-research.html>.

Timothy, R. D., Liliana, E. P., & Ellen, J. M. 2002. Limb amputation and limb deficiency: epidemiology and recent trends in the United States. *Southern Medical Journal*, Vol. 95, Issue 8. Retrieved from <https://go.galegroup.com/ps/anonym?id=GALE%7CA90569925&sid=googleScholar&v=2.1&it=r&linkaccess=abs&issn=00384348&p=AONE&sw=w>.

Tseng, S. 2007. Nursing a diabetes patient undergoing amputation surgery. *Tzu Chi Nursing Journal (TZU CHI NURS J)*, 6(3), 117-127.

Valizadeh, S., Dadkhah, B., Mohammadi, E., & Hassankhani, H., 2014. The perception of trauma patients from social support in adjustment to lower-limb amputations: A qualitative study. 20. 233-235.

Vergnes, J. N., Marchal-Sixou, C., Nabet, C., Maret, D., & Hamel, O., 2011. Ethics in systematic reviews. *Global medical ethics*. DOI: 10.1136/jme.2010.039941. Source: PubMed. Retrieved from: https://www.researchgate.net/publication/47449771_Ethics_in_systematic_reviews

Witso, E., & Ronningen, H. 2001. Lower limb amputations: registration of all lower limb amputations performed at the University Hospital of Trondheim, Norway, 1994-1997, 01, 25, 181-185, *Prosthetics and Orthotics International*. Accessed from: <https://journals.sagepub.com/doi/pdf/10.1080/03093640108726600>

Yi-Wen, C., Ya-Wen, S., & Miin-Rong, H. 2013. A Nursing Experience of an Amputated Patient with Peripheral Arterial Occlusive Disease. *Tzu Chi Nursing Journal (TZU CHI NURS J)*, 12(1), 108-117.

APPENDICES

S N	Author(s) year country	Title	Aim(s)and Purpose	Study types, populati on and sample size	Method	Evalu ation instr umen t	Key results	Critical appraisal (Hawker et. Al 2002)
1	Valizadeh , Dadkhah, Mohamm adi, Hassankh ani 2014, Iran	The perception of trauma patients from social support in adjustment to lower- limb amputation s: A qualitative study.	To explain understandi ngthe trauma of patients and the experience of support sources during the process of adaptation to a lower limb amputation	N: 20 Patients with lower limb amputati ons.	Unstruc tured intervie ws.	-	Nature and dimensions of the patients understanding on support sources.	30 (Good)
2	Imam, Miller, Finlayson	Lower Limb Prosthetic Rehabilitati	To collect information from Canadian	N: 59	cross- sectiona	-	The majority of facilities indicated that they provided both in-patient and	30 (Good)

	, Eng, Jarus 2019 Canada	on in Canada: A Survey Study	public facilities that provide lower limb prosthetic rehabilitatio n.		l survey study.		outpatient prosthetic rehabilitation services. All facilities provided balance, coordination, and gait training as well as prosthetic fit education. Most facilities indicated that they had a physical therapist an occupational therapist and a prosthetist on their team.	
3	Moraal, Slatman, Pieters, Mert and Widdersh oven, 2013 UK	A virtual rehabilitati on program after amputation : a phenomeno logical exploration.	To analysis the bodily experiences of the amn with the lower leg amputation who used a virtual	N: 1 Veteran who used the virtual environm ent during rehabilita tion.	Semi structur ed intervie ws.	Inter pretat ive phen omen ologi cal analy sis (IPA).	During this rehabilitation program, he initially experienced his body as an object, which he had to handle carefully. As he went along with the training sessions, however, he was more	30 (Good)

			rehabilitation program.				stimulated to react directly without being aware of the body's position. In order to allow himself to react spontaneously, he needed to gain trust in the device.	
4	Queiroz, Morais, Silva, Guimaraes, Oliveira, & Magalhães (2016), Brazil	EXPERIENCES OF VICTIMS OF AMPUTATION BY ACCIDENTS	To describe the experiences of victims of traumatic amputation by motorcycle accidents, as well as psychological changes.	N: 10 Victims of traumatic amputation of the lower limbs.	Interviews	-	During the research it was found that traumatic accidents brings significant effects in daily activities and psychological aspects of amputees.	30 (Good)
5	Magnusson, Ghosh, Jensen, Gobel, Wagberg,	Quality of life of prosthetic and orthotic users in	To compare subgroups and investigate whether QOL was	N: 277 participants from India were included,	Questionnaires.	-	Participants with physical disability scored significantly lower than did participants without disability in three of	28(Fair).

	Wallen, Svensson, Stavenheim, Ahlstrom, 2019. Sweden	South India: a cross-sectional study	associated with physical disability, gender, income, living area, and education.	155 with disability and 122 without.			the four QOL domains, i.e., physical health, (Median 14.29 vs 16.29; $p < .001$) psychological, (Median 14.67 vs. 15.33; $p = .017$) and environment (Median 13.00 vs 14.00; $p = .006$).	
6	Murray, Simpson, Eccles and Forshaw, 2014, UK	Involvement in rehabilitative care and wellbeing for partners of people with an amputation	To determine if partners involvement in the rehabilitative care of people who have undergone an amputation predicted their wellbeing.	N: 66	Questionnaires.	-	It provides tentative evidence in support of the planned inclusion of partners by amputation rehabilitation services	25 (Fair)