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**Psychological Consequences in Patients with Limb Amputation: A
Phenomenological Study**

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“Psychological Consequences in Patients with Limb Amputation: A Phenomenological Study”

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DECLARATION

I declare that the work presented here is my own. All sources used have been cited appropriately. Any mistakes or inaccuracies are my own. I also declare that for any publication or dissemination of information about the study, I would be bound to obtain the written consent of my supervisor.

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ACRONYMS

CRP - Center for the Rehabilitation of the Paralyzed

QoL - Quality of Life

PLP - Phantom Limb Pain

PTSD - Post-Traumatic Stress Disorder

LLA - Lower Limb Amputation

ULA - Upper Limb Amputation

BMRC - Bangladesh Medical Research Council

SCMST - Saic College of Medical Science and Technology

IRB - Institutional Review Board

GAD-7 - Generalized Anxiety Disorder-7

PHQ-9 - Patient Health Questionnaire-9

PAD - Peripheral Arterial Disease

RTA - Road Traffic Accidents

REHAB - Rehabilitation

ABSTRACT

Introduction: Limb amputation profoundly affects individuals' physical, psychological, and social well-being, necessitating comprehensive rehabilitation to support functional recovery and emotional adjustment. This qualitative study explores the psychological consequences and lived experiences of individuals with lower limb amputation, focusing on the challenges they face and the coping mechanisms they adopt during their rehabilitation journey. **Methodology:** A qualitative methodology was employed, involving semi-structured interviews with 11 participants who underwent rehabilitation at the Centre for the Rehabilitation of the Paralyzed (CRP), Savar, Dhaka. The transcribed data were analyzed using thematic content analysis with the assistance of NVivo 15 software. **Results:** Five major themes emerged from the analysis: emotional and psychological state, physical challenges, social challenges, environmental barriers, and coping mechanisms. Participants reported pervasive emotional distress, including anxiety and depression, alongside physical limitations such as phantom limb pain and reduced mobility. Social challenges included stigma, isolation, and altered interpersonal relationships, while environmental barriers such as inaccessible public spaces and infrastructure compounded their difficulties. Despite these challenges, participants employed various coping strategies, including physiotherapy, peer support, spirituality, and advocacy, to adapt to their circumstances and regain a sense of purpose. **Conclusion:** This study highlights the multidimensional impact of limb amputation on individuals, encompassing physical, psychological, and societal dimensions. While rehabilitation programs were crucial in fostering adaptation and recovery, significant barriers such as stigma, infrastructure inadequacies, and economic challenges persist. These findings underscore the need for holistic and inclusive approaches to rehabilitation, integrating psychological support, accessibility enhancements, and community-driven initiatives to empower amputees and improve their quality of life. Future research should focus on the long-term outcomes of rehabilitation and explore innovative interventions to address the unique needs of amputees.

Keywords: *Limb amputation, psychological consequences, rehabilitation, qualitative study, coping mechanisms, accessibility barriers*

1.1 Background:

Amputation, the removal of a limb or part of the body, represents one of the most significant medical and life-altering events an individual can experience (Azam et al. 2013, p.127). The implications of amputation extend far beyond the physical loss, affecting psychological well-being, social integration, and economic stability. Historically, amputation has been a crucial medical intervention, dating back to ancient times when it was often performed for ritualistic or punitive purposes rather than therapeutic ones. Today, it is a life-saving procedure primarily carried out to remove damaged tissue, alleviate pain, or manage life-threatening conditions. Despite advancements in surgical techniques and prosthetic technology, the challenges faced by amputees remain complex and multifaceted, requiring comprehensive rehabilitation and support systems to address their holistic needs (Azam et al. 2013, p.127).

The global prevalence of limb amputation is steadily rising, driven by factors such as increased rates of trauma, diabetes, and vascular diseases (McDonald et al. 2021, p.110). In high-income countries, dysvascular conditions including diabetes and peripheral arterial disease are leading causes of amputation, accounting for a significant proportion of cases. Conversely, in low- and middle-income countries like Bangladesh, trauma due to road traffic accidents and industrial injuries remains the primary cause. According to the World Health Organization (WHO, 2015), road traffic accidents result in over 21,000 deaths annually in Bangladesh, with countless others sustaining severe injuries that necessitate limb amputation. Other contributors include infections, malignancies, and congenital abnormalities, further underscoring the diverse etiology of limb loss across regions.

The burden of amputation disproportionately affects individuals in low-resource settings, where access to healthcare and rehabilitation services is often limited. Delayed medical intervention, inadequate infrastructure, and a lack of awareness exacerbate the risk of complications, leading to higher rates of amputation and poorer outcomes. In such contexts, the economic and social consequences of amputation are particularly severe, as many individuals rely on manual labor for their livelihoods. The loss of a

limb not only impairs physical functionality but also undermines financial stability, creating a cycle of poverty and marginalization (Van Twillert et al. 2014, p.916).

The psychological consequences of amputation are profound and multifaceted. The sudden and permanent nature of limb loss often triggers a range of emotional responses, including shock, denial, anger, and grief. Over time, many individuals experience chronic conditions such as depression, anxiety, and post-traumatic stress disorder (PTSD). The alteration in body image and self-identity can lead to feelings of inadequacy and diminished self-worth, further complicating the psychological adjustment process (Roşca et al. 2021, p. 110).

Research indicates that the psychological impact of amputation is influenced by various factors, including the cause of amputation, the individual's pre-existing mental health status, and the availability of social support. For instance, amputations resulting from trauma are often associated with higher rates of PTSD, as the event may serve as a constant reminder of the life-altering injury. Similarly, individuals with limited access to psychological counseling and peer support are more likely to experience prolonged emotional distress and social withdrawal.

The phenomenon of phantom limb pain a condition in which individuals perceive sensations, including pain, in the amputated limb adds another layer of complexity to the psychological experience. This condition, which affects a significant proportion of amputees, is not only physically debilitating but also emotionally distressing, as it serves as a persistent reminder of the loss. Addressing these psychological challenges requires a holistic approach that integrates mental health support into the broader framework of rehabilitation (Van Twillert et al. 2014, p. 185).

Amputation also has far-reaching social implications, often resulting in stigma and discrimination. Societal attitudes toward disability vary widely, but in many cultures, individuals with amputations face exclusion and marginalization. This stigma can manifest in various forms, from overt discrimination in public spaces to subtle biases in interpersonal relationships. For instance, some amputees report feeling judged or pitied by others, leading to a sense of alienation and diminished self-esteem (Van Twillert et al. 2014, p. 185).

The loss of a limb often disrupts social roles and relationships, particularly for individuals who are primary breadwinners or caregivers. The inability to fulfill these roles can lead to feelings of guilt and inadequacy, further straining familial and social bonds. Moreover, the lack of accessible infrastructure and inclusive policies exacerbates the challenges of reintegration, limiting amputees' participation in education, employment, and community activities. Support systems, including family, friends, and peer groups, play a crucial role in mitigating these social challenges. However, the availability and quality of support vary widely, particularly in resource-limited settings. Empowering amputees through community-driven initiatives and advocacy efforts is essential to fostering a more inclusive and supportive environment (Erbes et al., 2022).

Rehabilitation is a cornerstone of recovery for individuals with limb amputation, aiming to restore functionality, promote independence, and enhance quality of life. Physiotherapy plays a pivotal role in this process, addressing physical limitations and facilitating the use of assistive devices such as prosthetics. Through targeted interventions, physiotherapists help amputees improve strength, balance, and mobility, enabling them to adapt to their altered physical state (Erbes et al. 2022, p. 68).

In addition to physical rehabilitation, psychological and vocational support are integral components of a comprehensive rehabilitation program. Counseling services can help amputees process their emotional experiences, build resilience, and develop coping strategies. Vocational training programs, meanwhile, provide opportunities for skill development and employment, empowering individuals to regain financial independence and a sense of purpose.

Despite the critical importance of rehabilitation, access to these services remains a significant challenge in many parts of the world. In Bangladesh, for example, the Centre for the Rehabilitation of the Paralysed (CRP) serves as a leading institution providing holistic care for individuals with disabilities, including amputees. However, the demand for rehabilitation services far exceeds the available resources, highlighting the need for expanded facilities and increased investment in healthcare infrastructure (Hassan Al Imam et al. 2020, p. 995).

While the physical and functional outcomes of amputation have been extensively studied, the psychological and social dimensions remain relatively underexplored, particularly in the context of Bangladesh. Existing literature often prioritizes clinical and technical aspects, such as surgical techniques and prosthetic development, overlooking the lived experiences of amputees and their unique challenges (Hassan Al Imam et al. 2020, p. 995).

This study seeks to address this gap by adopting a phenomenological approach to understand the psychological consequences and social realities of individuals with limb amputation. Conducted at the CRP in Dhaka, the research aims to explore how amputees navigate the emotional, social, and practical aspects of their lives post-amputation. By capturing their narratives, the study intends to provide valuable insights for healthcare professionals, policymakers, and community organizations, ultimately contributing to the development of more inclusive and effective rehabilitation programs.

A holistic approach to amputation care recognizes the interplay between physical, psychological, and social factors in shaping an individual's recovery journey. Addressing these dimensions requires a coordinated effort involving healthcare providers, policymakers, and community stakeholders. For instance, integrating psychological counseling into rehabilitation programs can help amputees build emotional resilience, while advocacy for inclusive infrastructure and workplace policies can promote social and economic reintegration (Fowkes et al. 2013, p. 1330).

The findings of this study have the potential to inform the design and implementation of such holistic interventions. By highlighting the specific needs and experiences of amputees, the research can guide the allocation of resources and the development of targeted support systems. Moreover, raising awareness about the challenges faced by amputees can foster greater empathy and understanding, paving the way for a more inclusive society (Fowkes et al. 2013, p. 1330).

Amputation is not merely a medical procedure but a life-altering event with profound implications for an individual's physical, psychological, and social well-being. Understanding the complex interplay of these factors is essential to developing effective

interventions that address the holistic needs of amputees. This study aims to contribute to this understanding by exploring the lived experiences of individuals with limb amputation in Bangladesh, shedding light on their challenges, coping mechanisms, and pathways to recovery. By doing so, it seeks to pave the way for more inclusive and compassionate approaches to rehabilitation, ultimately enhancing the quality of life for amputees worldwide.

1.2 Rationale:

Limb amputation significantly disrupts individuals' lives, affecting physical, psychological, and social dimensions. Beyond the immediate physical consequences, amputation often leads to profound emotional distress, including anxiety, depression, and grief. These psychological challenges are compounded by social stigma, exclusion, and reduced opportunities for meaningful participation in societal and economic activities. Despite advancements in rehabilitation and prosthetic technology, addressing the psychological and social consequences of amputation remains a critical and under-researched area, particularly in low- and middle-income countries like Bangladesh. The psychological effects of amputation are multifaceted and deeply interconnected with physical and social challenges. Emotional responses such as sadness, frustration, and hopelessness frequently occur due to altered body image, loss of physical functionality, and dependency on assistive devices or caregivers. For many individuals, these challenges are compounded by societal attitudes that stigmatize disability, further eroding self-esteem and quality of life. Social isolation and the loss of interpersonal connections exacerbate feelings of loneliness and marginalization. Understanding these psychological consequences is essential to designing interventions that promote mental health and overall well-being. The prevalence of limb amputation is increasing globally, with trauma, vascular diseases, and diabetes being major contributors. In Bangladesh, road traffic accidents and diabetes are prominent causes. This scenario emphasizes the need for robust rehabilitation services that address not only physical recovery but also the psychological resilience of amputees. While physiotherapy has been instrumental in restoring physical functionality, integrating psychological support into rehabilitation programs remains a significant gap. Recognizing the interdependence of physical and mental health, this study seeks to explore the lived experiences of individuals with limb amputation to inform holistic rehabilitation approaches. The findings of this research will contribute to the existing body of knowledge by emphasizing the importance of mental health in rehabilitation programs. It aims to inform healthcare professionals, policymakers, and community organizations about the holistic needs of amputees, paving the way for inclusive practices and improved quality of life for individuals with limb amputation.

1.3 Research question:

What are the lived experience and psychological consequences of limb amputation among the patients?

1.4 Objectives

1.4.1 General Objectives: To explore and understand the psychological consequences experienced by patients who have undergone limb amputation at Savar, CRP, Dhaka

1.4.2 Specific objectives

- To examine the impact of limb amputation on body image, self-esteem and identity of patient with limb amputation through in-depth interview.
- To identify the social and interpersonal challenges faced by individuals with limb amputation and their coping strategies.
- To investigate the emotional responses following limb amputation among patients.
- To explore the role of healthcare professionals and support systems in addressing the psychological needs of patients with limb amputation.

1.5 Operational definition

Limb Amputation: Limb amputation refers to the surgical removal of a limb or part of a limb, typically performed due to conditions such as trauma, vascular diseases, infections, or malignancies. For this study, it includes both upper and lower limb amputations, with a focus on lower limb cases as documented among participants at the Center for the Rehabilitation of the Paralyzed (CRP) in Dhaka.

Psychological Consequences: Psychological consequences encompass the emotional and mental health effects resulting from limb amputation. These include experiences of anxiety, depression, grief, altered self-esteem, and post-traumatic stress. This definition is explored through qualitative interviews, capturing the emotional journeys of individuals as they adapt to life post-amputation.

Coping Mechanisms: Coping mechanisms are the strategies, behaviors, or psychological techniques adopted by amputees to deal with the challenges of living without a limb. Examples include participation in rehabilitation programs, spiritual practices, peer support groups, and cognitive strategies such as mindfulness or positive reframing. This study identifies the coping approaches employed by participants in their recovery journey.

Rehabilitation: Rehabilitation is the structured process aimed at restoring physical, psychological, and social well-being following limb amputation. It includes physiotherapy, prosthetic training, counseling, and vocational retraining to enable individuals to regain independence and adapt to their new circumstances. For this study, rehabilitation services provided by the CRP are examined for their role in promoting psychological recovery.

Phantom Limb Pain: Phantom limb pain is the perception of pain or discomfort in the area of a limb that has been amputated. This phenomenon is a significant focus of the study, as it impacts both the physical and psychological well-being of participants. Participants' accounts of this condition are analyzed to understand its prevalence and implications.

Social Stigma: Social stigma refers to the negative attitudes, discrimination, and marginalization experienced by individuals with amputations. This may manifest as pity, avoidance, or judgment from others, leading to feelings of isolation and diminished self-worth. The study explores how stigma affects participants' reintegration into society and their interpersonal relationships.

Accessibility Barriers: Accessibility barriers are the physical and infrastructural challenges that limit amputees' ability to navigate their environment or access essential services. These include the lack of ramps, uneven pathways, inaccessible public transport, and unsuitable workspaces. This study examines how such barriers impact participants' daily lives and social reintegration.

Body Image Perception: Body image perception pertains to an individual's self-concept and emotional response to their altered physical appearance following amputation. It involves feelings of self-consciousness, embarrassment, or diminished self-esteem. The study investigates participants' narratives regarding their body image and its effect on their identity.

Economic Challenges: Economic challenges refer to the financial burdens associated with limb amputation, including costs for medical treatments, prosthetics, and reduced earning potential due to employment limitations. The study captures participants' experiences of financial strain and its effect on their psychological well-being.

Phenomenological Approach: The phenomenological approach is a qualitative research methodology employed to explore the lived experiences of individuals with limb amputation. This approach emphasizes understanding participants' personal narratives, focusing on their psychological, physical, and social realities. It is the foundational framework for data collection and analysis in this study.

Amputation is a condition that causes disability, significantly limits human movement and physical function, and has placed a large worldwide health cost burden in recent decades (Yuan et al. 2023, p. 113). People all over the world suffer from limb amputations, which impede their physical function and movement. The leading reasons for limb amputation have been reported to vary according to the region (McDonald et al. 2021, p. 105).

The causes of amputation may differ in every country. However, reports suggest that road traffic accidents are the leading cause of lower limb amputations across all age groups. This is particularly evident in the age groups 11–20 years (63.9%), 21–30 years (72.4%), 31–40 years (68.4%), 41–50 years (48.5%), and those over 60 years (50.0%). In total, road traffic accidents account for 58.7% of all lower limb amputations. Other significant causes include peripheral vascular diseases, which contribute to 7.5% of amputations, and injuries from being hit by sharp objects, accounting for 7.2%. Infections are responsible for 6.3% of cases, while birth defects cause 5.4% of amputations. Diabetes also plays a notable role, resulting in 5.1% of lower limb amputations. Additionally, falls from heights (3.9%), cancer (3.3%), and other causes such as burns, bullet attacks, and electric shocks (2.4%) also contribute to the incidence of amputations. This data highlights the critical impact of road traffic accidents and underscores the diverse range of medical and traumatic causes leading to lower limb amputation (Hassan Al Imam et al. 2020, p. 995).

Several critical risk factors contribute to the likelihood of amputation. Patients who have undergone coronary artery bypass graft surgery are at a markedly increased risk. Indigenous ethnicity is another key risk factor, along with Charcot's arthropathy, which significantly raises the likelihood of amputation. Retinopathy is also strongly associated with an increased risk. The use of antibiotics for foot infections and the severity of those infections, particularly moderate to severe cases, further contribute to the risk. Other significant predictors include neuropathy, osteomyelitis, and peripheral vascular disease. These findings highlight the complex interplay of medical conditions leading to amputation, emphasizing the need for comprehensive management and early intervention for high-risk patients (Rodrigues et al. 2016, p. 55).

A study conducted by Hassan Al Imam et al (2020, p. 995) found that in terms of the prevalence of comorbidities, 33.7% of the subjects reported having comorbidities and 50.8% reported that their diseases started after amputation. Among the study subjects who had diabetes 41%, 50.0% stated that they had a non-traumatic type of amputation and 40.0% reported that they had amputation done because of diabetes.

Limb amputation has been linked to high rates of depression, anxiety, and post-traumatic stress disorder (PTSD). Cotiga et al. (2020, p. 33) highlighted that 38.7% of Romanian patients undergoing amputation reported severe anxiety, and nearly 30% experienced moderate to severe depression. Similarly, Pedras et al. (2017, p. 65) documented elevated pre- and post-surgical anxiety levels among patients with lower limb amputations due to diabetic foot ulcers, emphasizing the need for preemptive psychological interventions.

Psychological responses to amputation are influenced by various factors. Moxey et al. (2011, p. 33) identified that individuals with diabetes face a 30-fold increased risk of amputation, often accompanied by profound psychological impacts, including anxiety about recurrent complications and challenges in physical rehabilitation. Meanwhile, Pomares (2020, p. 59) reported that 39% of traumatic upper-limb amputation patients exhibited pathological grief, with risk factors including aesthetic concerns and feelings of mutilation.

The intersection of psychological and physical sequelae significantly affects quality of life (QoL). Pedras et al. (2019, p.90) explored the long-term effects of lower limb amputation in diabetic patients and found that depression and anxiety negatively correlated with mental health and physical functioning. Furthermore, Skoff et al. (2022, p. 75) emphasized that even minor amputations, such as partial digit loss, could trigger lasting psychological distress, underscoring the importance of early psychological intervention and pain management.

Social support emerged as a critical mediator in improving QoL post-amputation. Pedras et al. (2019, p. 79) demonstrated that patients with higher perceived social support reported better adaptation and reduced anxiety six months post-surgery. This

finding aligns with Skoff et al (2022, p. 89), who noted that most patients benefited from psychological counseling when accessible during their recovery.

Tailored psychological interventions, including counseling and peer support, have been recommended to address the complex needs of amputees. According to Cotigă et al. (2020, p. 89) integrating psychological support into rehabilitation programs is essential to mitigate anxiety and depression. Similarly, Pedras et al. (2017, p. 79) advocated for multidisciplinary care that includes mental health specialists.

Limb amputation is a significant event with profound psychological, physical, and social implications, which has been extensively explored in the literature. This review synthesizes findings from several studies that align with the scope of this thesis.

Cotigă et al. (2020, p. 89) highlighted that individuals undergoing limb amputations often experience moderate to severe depression and anxiety. Approximately 38.7% of the study population exhibited severe anxiety, and 29% reported moderate to severe depression, as measured by standardized instruments like the PHQ-9 and GAD-7. The study emphasized the need for psychological interventions tailored to the unique challenges of amputees, including phantom limb pain and altered body image.

Pedras et al. (2017, p. 79) investigated the pre- and post-surgical psychological states of individuals with diabetic foot ulcers requiring amputation. Findings revealed that pre-surgery anxiety was a strong predictor of post-surgery anxiety and depression, underscoring the necessity of early psychological support. Tailored multidisciplinary interventions were recommended to aid in psychological adjustment.

Pomares et al. (2020, p. 89) explored the concept of pathological grief in upper-limb amputation victims. The study found that 39% of respondents experienced pathological grief, significantly influenced by factors such as the absence of replantation attempts and subjective perceptions of mutilation. The findings underscore the importance of addressing grief and psychological trauma in rehabilitation programs.

Pedras et al. (2019, p. 79) conducted a longitudinal study analyzing the quality of life (QoL) in diabetic patients following lower-limb amputation. The study revealed that social support played a mediating role in improving physical and mental health

outcomes over time. Identifying risk factors such as depression and functionality loss was critical for designing effective interventions to enhance QoL.

Skoff et al. (2022, p. 225) examined the psychological and somatic consequences of digital amputations. Even partial digit amputations were associated with significant psychological disturbances, including depression, anxiety, and PTSD. The study concluded that providing early psychological support and managing physical outcomes, such as neuroma pain, could significantly improve recovery.

Moxey et al. (2011, p. 66) provided a comprehensive review of the global variability in amputation incidence, highlighting the significant role of socio-demographic factors and diabetes in shaping amputation rates. The study emphasized the need for standardized reporting systems to better understand and address the burden of amputations worldwide.

Studies such as those by Pedras et al. (2019, p. 79) and Pomares et al. (2020, p. 89) emphasize the critical role of social support in mitigating the psychological effects of amputation. Whether through family, healthcare professionals, or peer groups, emotional and practical support can enhance coping mechanisms and overall rehabilitation outcomes.

The demographic similarities have been seen in almost everywhere, where male were largely affected by road traffic accidents (n=178, 61.2%) (Hassan Al Imam et al. 2020, p. 995)

The worldwide prevalence of amputation is also increasing day by day. In a study conducted in 2021, researchers estimated that 57.7 million people worldwide were living with limb amputations due to traumatic causes. This staggering figure highlights the global impact of traumatic events leading to such severe outcomes. Among those affected, unilateral lower limb (LL) amputations were the most common, with approximately 31.7% of amputees, or about 28.9 million individuals, experiencing this type of amputation. Unilateral upper limb (UL) amputations were the second most prevalent, affecting 19.6% of the population, which equates to around 11.3 million people. Similarly, bilateral UL amputations accounted for 19.1% of cases, impacting

roughly 11.0 million individuals. Bilateral LL amputations, while less common, still affected 11.1% of those with traumatic amputations, representing approximately 6.4 million people. The data further revealed that falls were the leading cause of traumatic amputations across all levels. Falls were responsible for 52.2% of bilateral LL amputations, 38.1% of bilateral UL amputations, 36.9% of unilateral UL amputations, and 31.7% of unilateral LL amputations. This indicates the significant role of falls in causing severe injuries that lead to limb loss. Road injuries emerged as the second leading cause of unilateral LL amputations (18.6%), bilateral LL amputations (13.9%), and unilateral UL amputations (13.8%). Meanwhile, mechanical forces were notably the second leading cause of bilateral UL amputations, accounting for 15.1% of such cases. The prevalence of traumatic amputations also varied significantly among different age groups and regions. Among children under five and those aged 5–14 years, conflict and terrorism were the third leading causes of unilateral LL amputations, particularly driven by high incidences in North Africa, the Middle East, and Eastern sub-Saharan Africa. For these age groups, the highest prevalence of traumatic amputation was found in South Asia, where the numbers were notably high (60,333 for children under five and 468,553 for children aged 5–14).

There is also a very severe correlation between the increase in the number of amputations and their overall mental health. Amputees may feel despair, a severe sense of self-collapse, almost unbearable feelings, and wishing for death. Patients reported an increased amount of anxiety and depressive thoughts. Participants reported frustration and aggression due to amputation. Depression was also seen among the participants of this study as well. Some participants reported feeling guilty which led to depression as well. Unpleasant responses from society and friends also contributed to depression (Roşca et al. 2021, p. 110).

3.1 Study design: The researcher chose qualitative type of phenomenological study because it allows for exploring the perceptions of individuals in specific contexts and understanding their perspectives deeply. Qualitative research is exploratory, providing insights into participants' views, opinions, feelings, and beliefs within their natural environments. The study employed a semi-structured questionnaire and conducted in depth face-to-face interviews. Such aspects, including perceptions, beliefs, fears, and attitudes, are best understood through qualitative methods rather than quantitative approaches.

3.2 Study place

Saig College of Medical Science & Technology, Mirpur 14.

3.3 Study Area

The research took place in Centre for the Rehabilitation of the Paralysed (CRP).

3.4 Study period

This study was conducted from September 2023 to August 2024

3.5 Study population

Study population of patients with limb amputation.

3.6 Participant Selection Procedure

Participants was selected from the population using purposive sampling technique, based on predefined inclusion criteria. The researcher choose participants through purposive sampling due to specific study requirements, selecting those who meet the selection criteria.

3.7.1 Inclusion criteria

- Individuals who have undergone limb amputation (upper or lower limb).
- Adults of all ages and genders.(18 to 35 ages)
- Willingness to participate in interviews or focus group discussions.
- Varied durations since the amputation to capture different stages of adaptation.

3.7.2 Exclusion criteria

- Unwillingness
- Mentally unstable

3.8 Sample size:

A total of 11 patients with limb amputation participated in this study.

3.9 Data collection method

The researcher conducted face-to-face interviews using open-ended questions to collect data. Open-ended questions provided participants more leeway to voice their thoughts. These interviews allowed the researcher to observe the participants' facial and nonverbal expressions throughout the interview procedure. Prior to beginning the formal interviews, the researcher created a quiet situation by working with the appropriate authorities and building rapport with the participants. The researcher discussed the research topics and study objectives. Participants were given an information sheet and a consent form in Bangla to acquire their approval. Interviews were conducted in Bangla and recorded with a mobile phone recorder. Each interview was planned to last roughly 20-30 minutes.

3.10 Duration of Data collection

Data was collected starting from 13th August to 24th August 2024

3.11 Data analysis method

In the data analysis phase, content thematic analysis was employed, supported by the use of NVivo software to facilitate efficient and organized data management. The researcher began by listening to the recorded interviews multiple times and transcribing them in Bangla. The transcripts were reviewed for accuracy and subsequently translated into English. These transcripts were then imported into NVivo, where the Qualitative Content Analysis (QCA) approach was applied to identify and interpret emergent themes.

The analysis involved three stages: coding, categorizing, and generating themes. Using NVivo's features, the researcher created codes by highlighting key segments of text that represented participants' expressions and perceptions. NVivo's visualization tools, such as word clouds and node matrices, aided in identifying patterns and relationships within the data. Categorization was carried out by grouping related codes under broader categories, ensuring that all aspects of participants' experiences were captured.

Key codes were identified to form the study's overarching themes, and these themes were systematically reviewed and refined within NVivo to ensure consistency and coherence. The software's ability to track and organize codes made it easier to cross-reference data and validate findings. Finally, the themes were interpreted through a systematic review of the coded data, providing comprehensive insights into the participants' perspectives and experiences. NVivo enhanced the rigor and transparency of the analysis process, ensuring that the data was analyzed thoroughly and systematically.

3.12 Data collection tools and materials

A phone recorder was used to record the interview of the participants. Pen, paper and clip board was used to write down observation notes. An information sheet and consent

form were used for taking permission from the participants. An open-ended question sheet was used to conduct the interview.

3.13 Questionnaire

For data collection a semi-structured open-ended questionnaire was used. The questionnaire was formed based upon the related literature.

3.14 Ethical consideration

Strict adherence to ethical guidelines is paramount in this study. A formal project proposal was submitted to the Department of Physiotherapy at Saic College of Medical Science and Technology (SCMST), and approval was obtained from the Institutional Review Board (IRB) of SCMST to conduct the study. This study follows the guidelines set forth by the World Health Organization (WHO) and Bangladesh Medical Research Council (BMRC), ensuring confidentiality of participant information at all times. Permission to collect data was obtained from the Ethical Review Board (ERB) of CRP. Participants were fully informed about the aims and objectives of the study before consenting to participate. Written consent was obtained from each participant, and the process was explained verbally as well. Participants were assured of the confidentiality of their information. Participants were informed of their rights, including the option to withdraw from the study at any time without consequences. To protect anonymity, participant names and addresses participation numbers were assigned in all notes and transcripts. It was made clear that information gathered may be presented in presentations, seminars, or written papers, but in a way that ensures no identification of individuals and poses no harm to them. Participants were assured of their right to discuss any concerns related to the study with senior authorities. The ethical standards upheld in this study aim to protect participant welfare while maintaining the integrity and confidentiality of the research process.

3.15 Rigor of this study

The rigorous manner was maintained to demeanor the study. This study was conducted in a systemic way by next the steps of research under supervision of an experienced supervisor. During the interview session and analyzing data, never tried to influence the process by own value, perception and biases. Be accepted the answer of the questions whether they were of positive or negative impression. The participant's information was coded accurately and checked by the supervisor to eliminate any possible errors. Try to keep all the participant's related information and documents confidential.

4.1 Socio-demographic information of participants

4.1.1. Age of the participants

In the study, 11 participants with lower limb amputation were included. Among the participants, majority were in the age group of 15-24. Two of the participants were aged between 25-34. The age range between 35-44 included 3 participants. Lastly, the 45-54 and 55-64 age groups included one participant each.

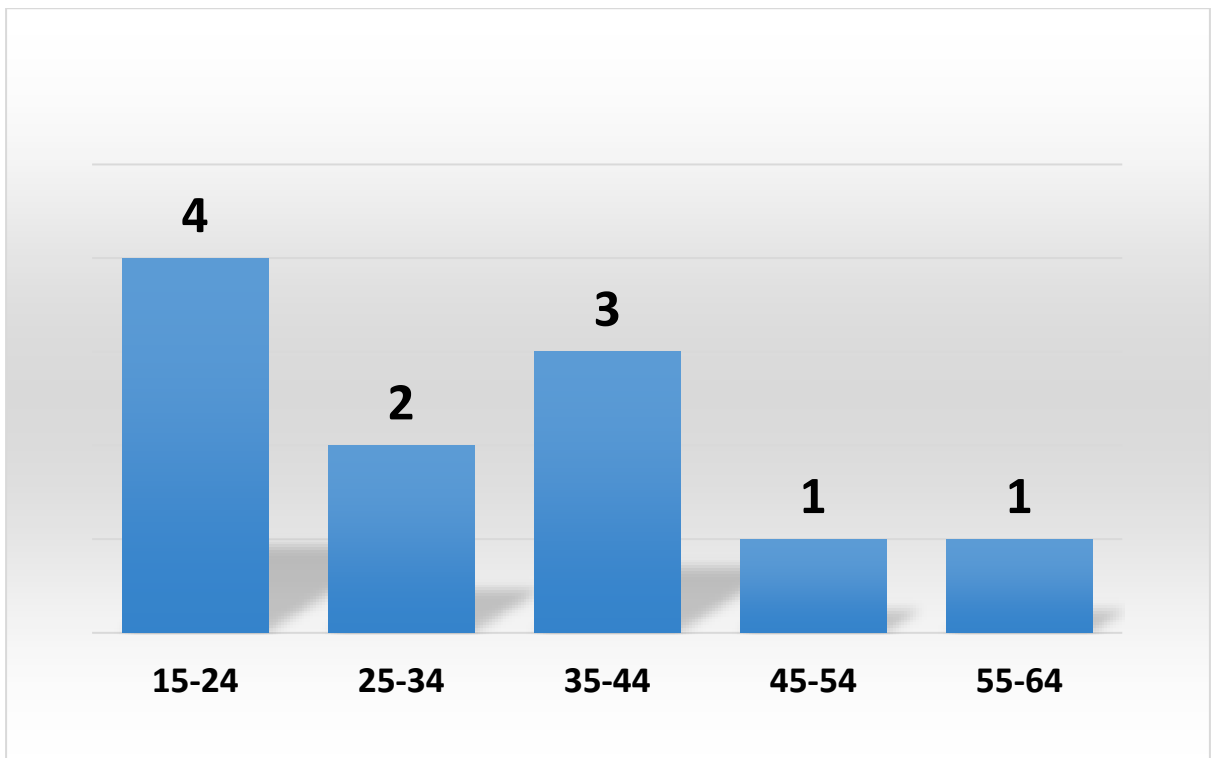


Figure: Age group of participants

4.1.2 Gender of the participants

This study included 11 participants with lower limb amputation, of which 91% (n=10) participants were male, and 9% (n=1) were female.

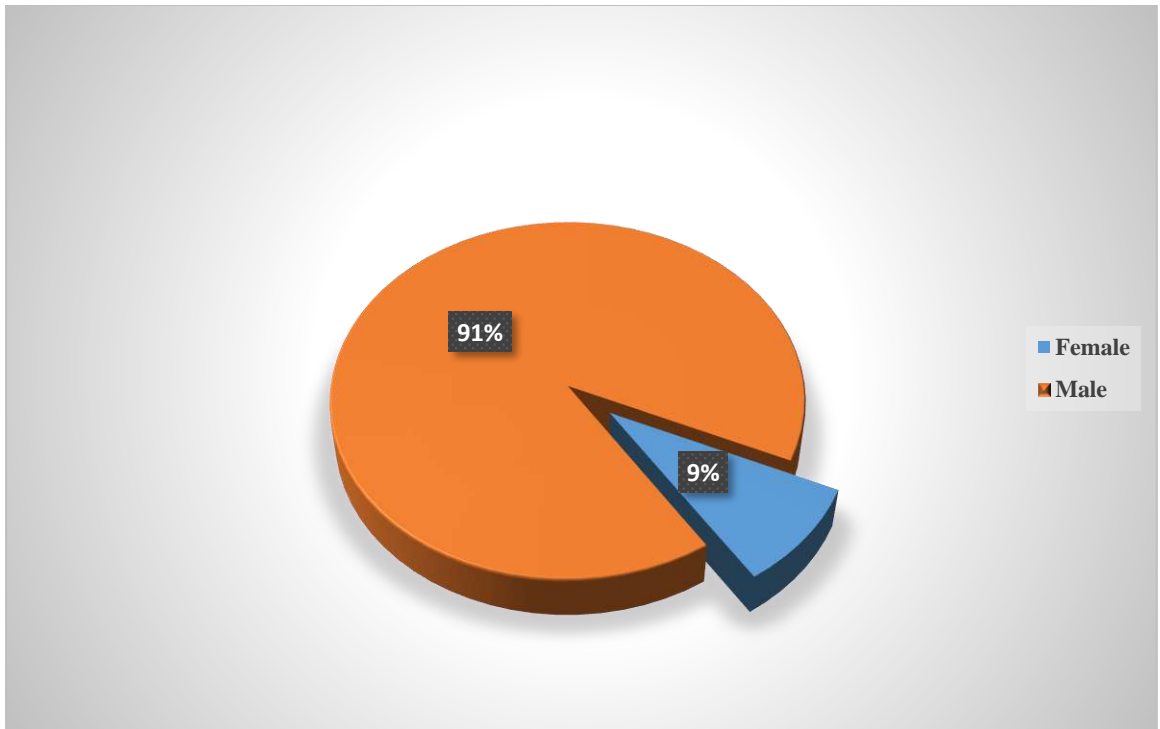


Figure: Gender of the participants

4.1.3 Marital status of participants

Among the 11 participants 55% (n=6) were married, 45% (n=5) participants were unmarried.

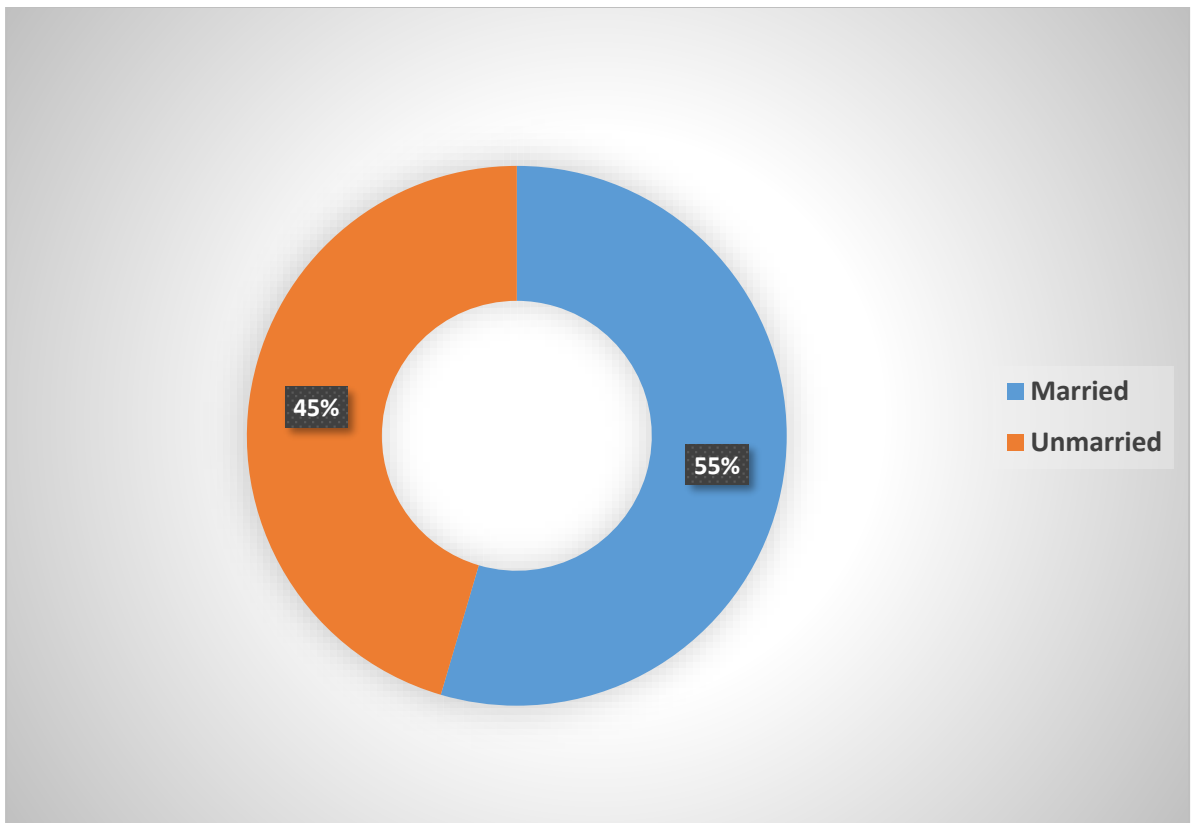


Figure: Marital status of participants

4.1.4. Family Type

Among the 11 participants, it was found that 8 participants living with a nuclear family and 3 were living with a joint family.

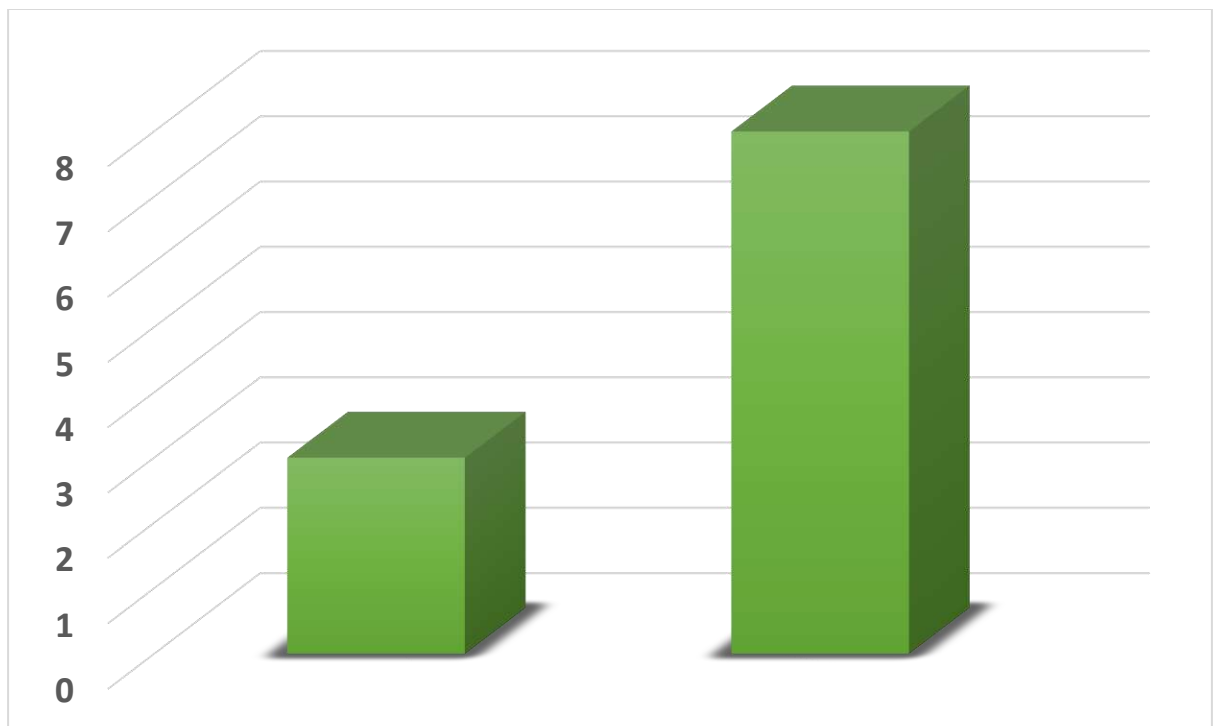


Figure: Family type of participants

4.1.5. Educational level of participants

Among the 11 participants, according to categorization 3 had secondary education, 4 participants had primary level education, 2 of the participants had bachelor's level education and the remaining 2 had higher secondary level education.

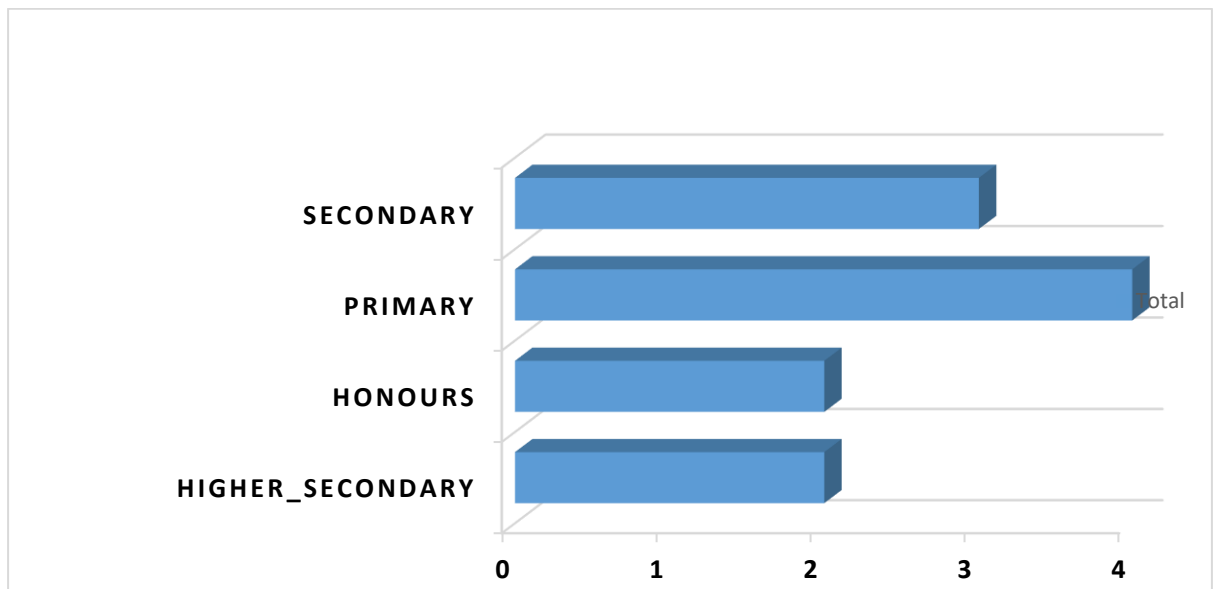


Figure: Educational level of participants

4.1.6 Living area of participants

Among the 11 participants 91% (n=10) were from rural areas, and one of the participants was from the urban area.

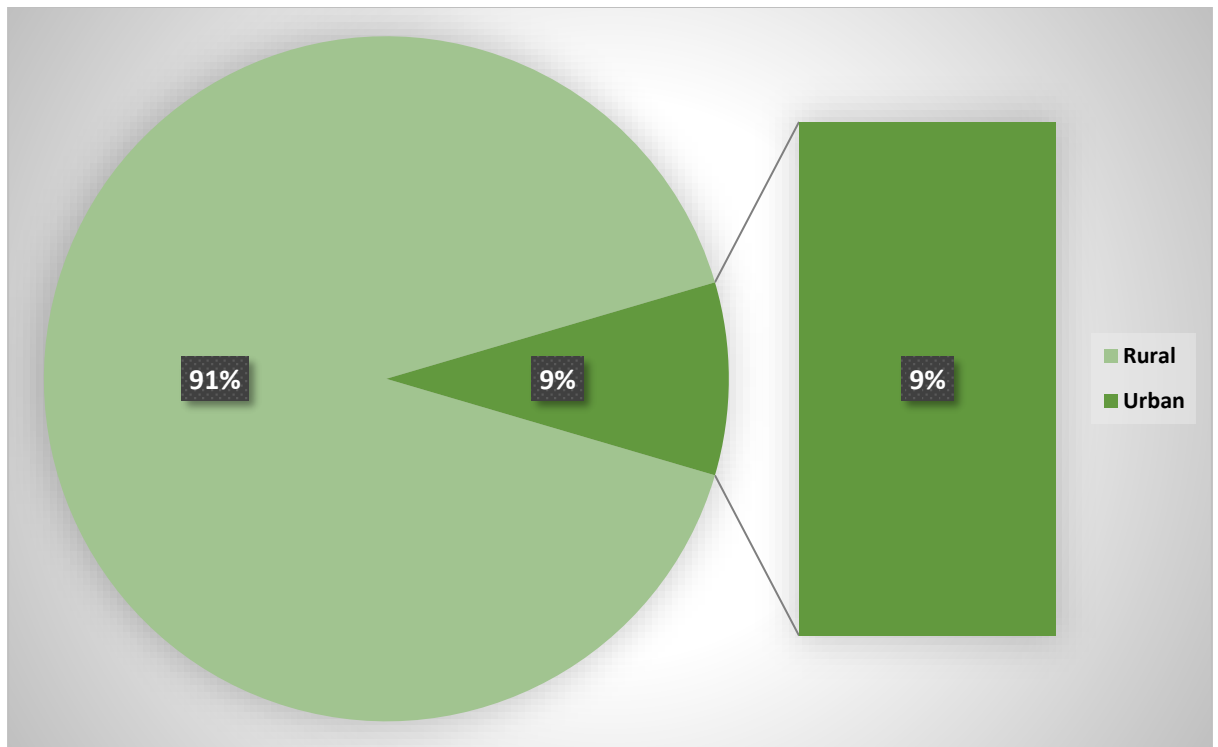
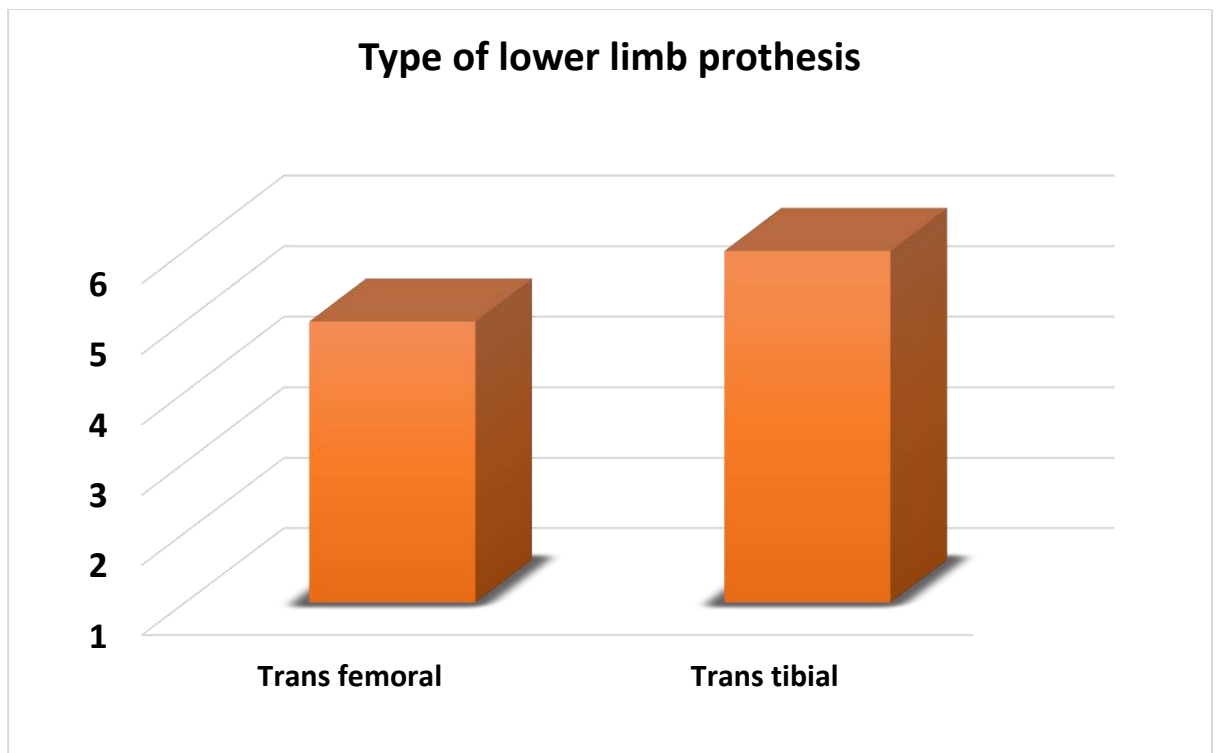


Figure: Living area of participants

4.1.7. Type of lower limb prosthesis

Out of the 11 participants, 6 participants reported having a trans-tibial prosthesis and 5 of the participants reported having a trans-femoral prosthesis



4.1.8. Cause of amputation

Among the 11 participants, 7 participants reported their cause of amputation to be accident, 1 participant reported cancer, 1 reported diabetes and 2 participants reported the cause to be other cause.

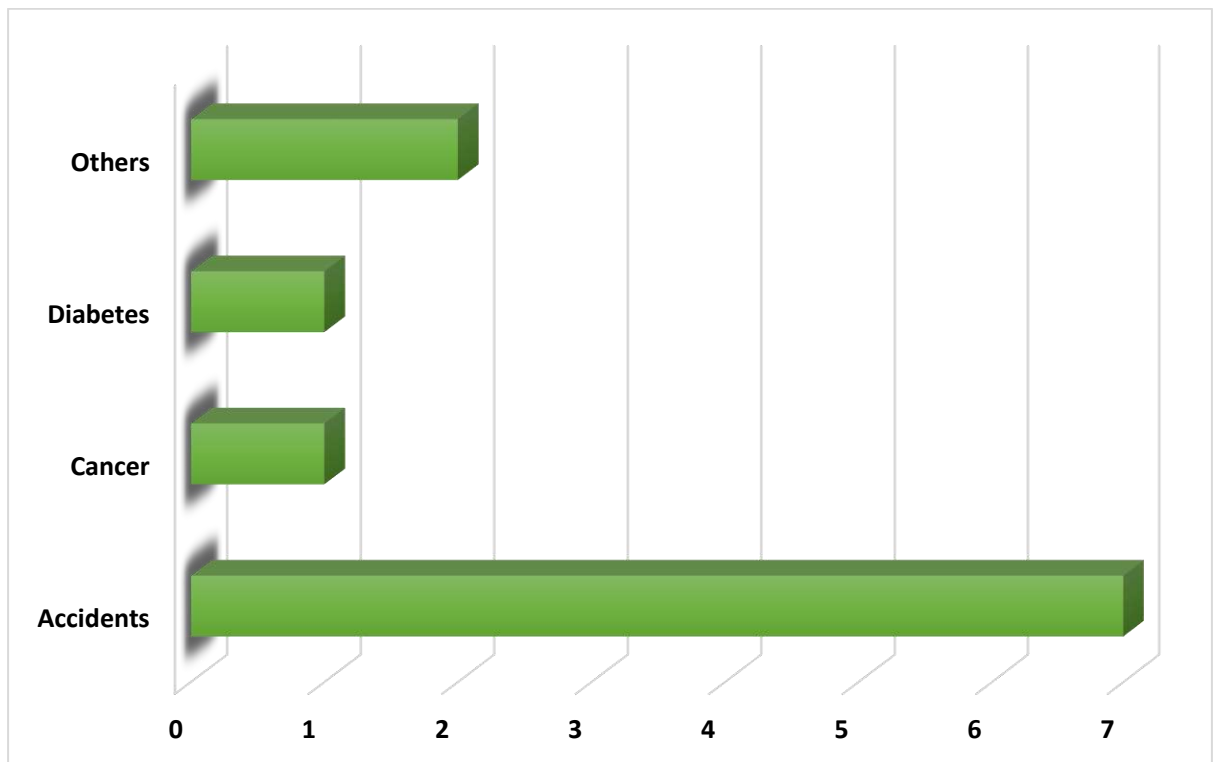


Figure: Cause of amputation

Theme-1			
Emotional and Psychological State			
Subthemes			
Participants	Emotional Distress	Adjustment and Acceptance	Self-identity and Body Image Issues
R-1	✓		
R-2		✓	
R-3	✓		
R-4		✓	
R-5			✓
R-6	✓		
R-7	✓		
R-8		✓	
R-9	✓	✓	
R-10			
R-11			

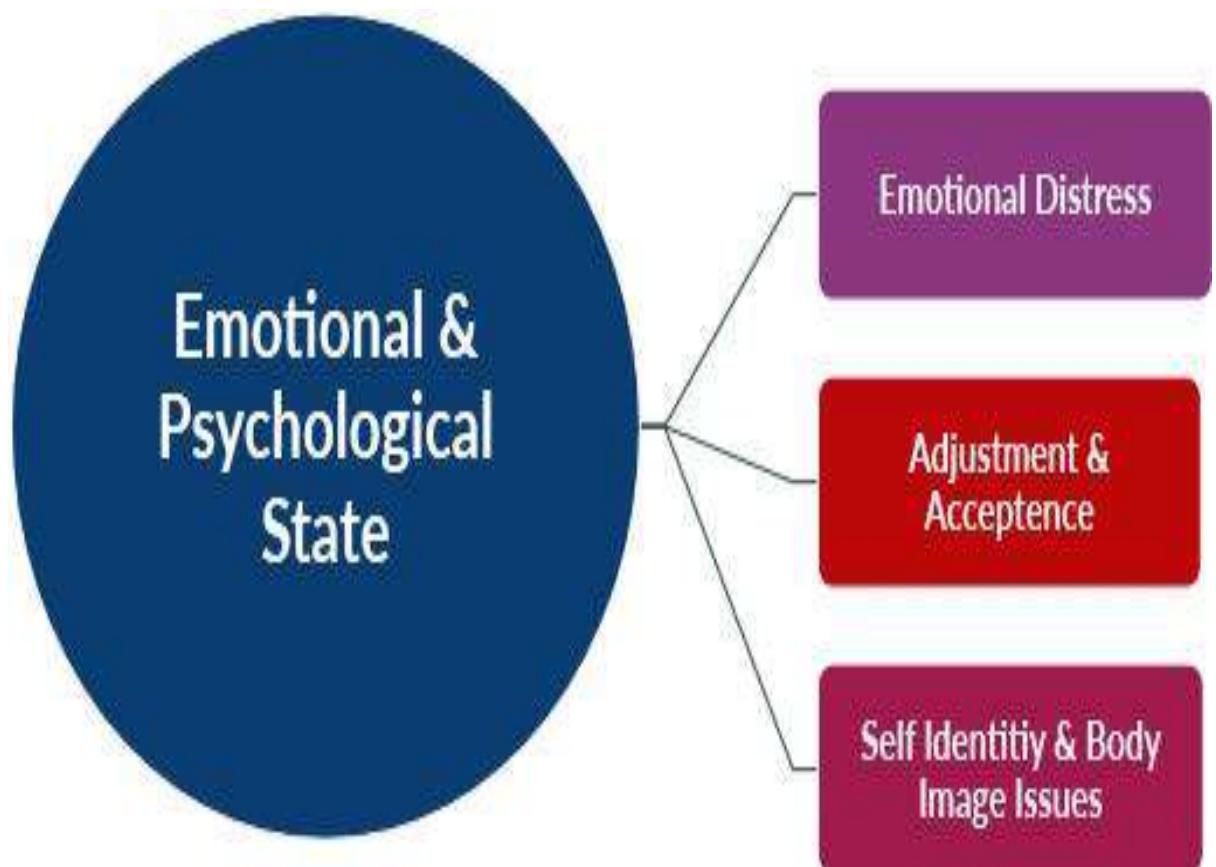


Figure: Emotional and Psychological State (Produced by NVivo 15)

The findings under the theme of "Emotional and Psychological State" explore the complex emotional and psychological challenges experienced by participants following limb amputation. The data is organized into three subthemes: Emotional Distress, Adjustment and Acceptance, and Self-Identity and Body Image Issues. Below is a detailed description of the results based on participant responses.

1. Emotional Distress

This subtheme reflects the participants' experiences of emotional turmoil, including feelings of anxiety, sadness, and depression. Six participants (R-1, R-3, R-6, R-7, R-9) explicitly reported emotional distress, highlighting it as a significant consequence of limb amputation. These participants described feelings of hopelessness and fear, particularly in the initial phases of recovery. Emotional distress appeared to be most prevalent immediately following the amputation or during challenging moments in their rehabilitation journey.

2. Adjustment and Acceptance

The subtheme of adjustment and acceptance focuses on how participants adapted to their new reality post-amputation. Four participants (R-2, R-4, R-8, R-9) expressed varying degrees of success in adjusting to their physical changes and accepting their new circumstances. These individuals described the importance of support systems, including family and healthcare professionals, in fostering a sense of resilience and adaptability. For example, R-4 shared a story of gradually finding a "new normal" through counseling and physiotherapy.

3. Self-Identity and Body Image Issues

The final subtheme highlights concerns regarding self-identity and body image, which emerged as a challenge for two participants (R-5, R-9). These participants spoke about difficulties reconciling their self-perception with their altered physical state. R-5 specifically described feelings of embarrassment and avoidance in social situations, while R-9 noted a gradual shift toward self-acceptance facilitated by the use of prosthetics and peer support.

The responses suggest that emotional and psychological responses to amputation are highly individualized. While some participants struggled primarily with emotional distress, others were more focused on adjusting to their new realities or grappling with self-identity issues.

R-9 uniquely reported challenges in all three subthemes, indicating a particularly multidimensional experience of psychological impact.

The findings underscore the importance of targeted psychological support and counseling services tailored to address emotional distress, foster adjustment and acceptance, and promote a positive body image among individuals who undergo limb amputation.

Theme-2			
Physical Challenges			
Subthemes			
Participants	Pain and Discomfort	Limited Mobility	Dependence on Assistive Devices
R-1	✓	✓	
R-2		✓	✓
R-3		✓	
R-4	✓		
R-5	✓		
R-6		✓	
R-7		✓	
R-8			✓
R-9		✓	
R-10		✓	
R-11	✓		

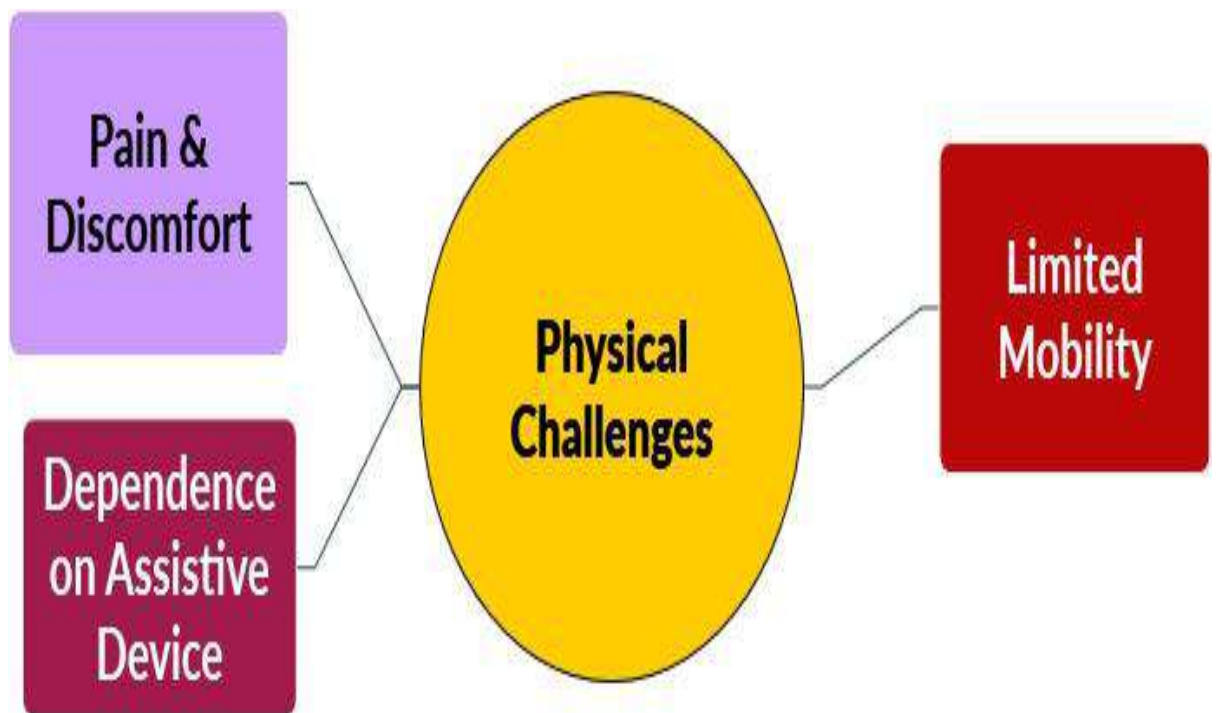


Figure: Physical Challenges and Subthemes (NVivo 15)

Results Description: Theme 2 – Physical Challenges

This theme addresses the physical difficulties participants faced after limb amputation, categorized into three subthemes: Pain and Discomfort, Limited Mobility, **and** Dependence on Assistive Devices.

1. Pain and Discomfort

Four participants (R-1, R-4, R-5, R-11) reported ongoing pain, including phantom limb sensations and discomfort with prosthetics. For example, R-1 described sharp, disruptive pain, while R-11 noted discomfort affecting daily activities. Pain management was highlighted as a critical need.

2. Limited Mobility

Seven participants (R-1, R-2, R-3, R-6, R-7, R-9, R-10) experienced reduced mobility, which impacted routine activities and physical independence. R-7 struggled with walking long distances, and R-9 expressed frustration over decreased activity levels. Limited mobility was a prevalent issue across the group.

3. Dependence on Assistive Devices

Three participants (R-2, R-8, R-10) relied on assistive devices such as prosthetics and wheelchairs. While these tools improved mobility, participants also faced challenges in adapting to them. R-8 mentioned discomfort with device use, leading to occasional reliance on assistance.

Theme-3			
Social Challenges			
Subthemes			
Participants	Stigma and Discrimination	Isolation and Loneliness	Support and Relationships
R-1	✓	✓	
R-2	✓	✓	
R-3	✓		
R-4		✓	✓
R-5	✓		✓
R-6		✓	
R-7	✓		
R-8	✓		✓
R-9	✓		
R-10		✓	
R-11	✓		



Figure: Social Challenges (NVivo)

Results Description: Theme 3 – Social Challenges

The third theme, "Social Challenges," explores the participants' experiences of navigating social dynamics after limb amputation. This theme is divided into three subthemes: Stigma and Discrimination, Isolation and Loneliness, and Support and Relationships.

1. Stigma and Discrimination

Seven participants (R-1, R-2, R-3, R-5, R-7, R-8, R-9, R-11) highlighted experiences of stigma and discrimination. These participants described being treated differently or negatively due to their amputation, affecting their self-esteem and social interactions. For instance, R-8 recounted feeling judged in public spaces, while R-1 noted subtle yet persistent exclusion from community activities.

2. Isolation and Loneliness

Six participants (R-1, R-2, R-4, R-6, R-10) reported feelings of isolation and loneliness, often stemming from reduced mobility or discomfort with social engagement. R-4 shared that the physical limitations led to reduced social interactions, while R-10 emphasized the emotional toll of perceived social disconnection.

3. Support and Relationships

Four participants (R-4, R-5, R-8) emphasized the importance of support from family, friends, and community networks in overcoming social challenges. R-5 credited strong familial bonds with fostering emotional resilience, while R-4 described how peer support groups provided a sense of belonging and motivation.

Theme-4			
Reintegration into Society			
Subthemes			
Participants	Accessibility Issues	Participation in Social Activities	Economic Challenges
R-1	✓		✓
R-2	✓		
R-3	✓	✓	
R-4	✓		✓
R-5	✓		
R-6	✓		
R-7	✓	✓	
R-8	✓		
R-9		✓	
R-10	✓		✓
R-11	✓		✓

Results Description: Theme 4 – Reintegration into Society

The fourth theme, "Reintegration into Society," explores the participants' experiences of returning to normal life after limb amputation. It is divided into three subthemes: Accessibility Issues, Participation in Social Activities, and Economic Challenges.

1. Accessibility Issues

Ten participants (R-1, R-2, R-3, R-4, R-5, R-6, R-7, R-8, R-10, R-11) reported significant barriers to accessibility, such as the lack of inclusive infrastructure and difficulty navigating public spaces. R-4 described challenges in using public transportation, while R-6 highlighted limited workplace accommodations that hindered employment opportunities.

2. Participation in Social Activities

Four participants (R-3, R-7, R-9) shared mixed experiences regarding their ability to participate in social activities. R-3 noted a gradual return to community events but expressed frustration with physical limitations. R-9 emphasized that while some social activities were accessible, fear of judgment or stigma occasionally deterred participation.

3. Economic Challenges

Six participants (R-1, R-4, R-7, R-10, R-11) identified financial difficulties as a major obstacle to reintegration. These challenges included the cost of medical care, assistive devices, and transportation. R-1 described the financial strain of ongoing prosthetic maintenance, while R-10 emphasized the difficulty of securing stable employment post-amputation.

Theme-5			
Coping and Overcoming Challenges			
Subthemes			
Participants	Role of Rehabilitation	Strategies for Adaptation	Workplace Adjustments
R-1	✓		
R-2		✓	✓
R-3	✓		✓
R-4		✓	
R-5		✓	✓
R-6	✓		✓
R-7			✓
R-8		✓	✓
R-9		✓	✓
R-10		✓	
R-11		✓	

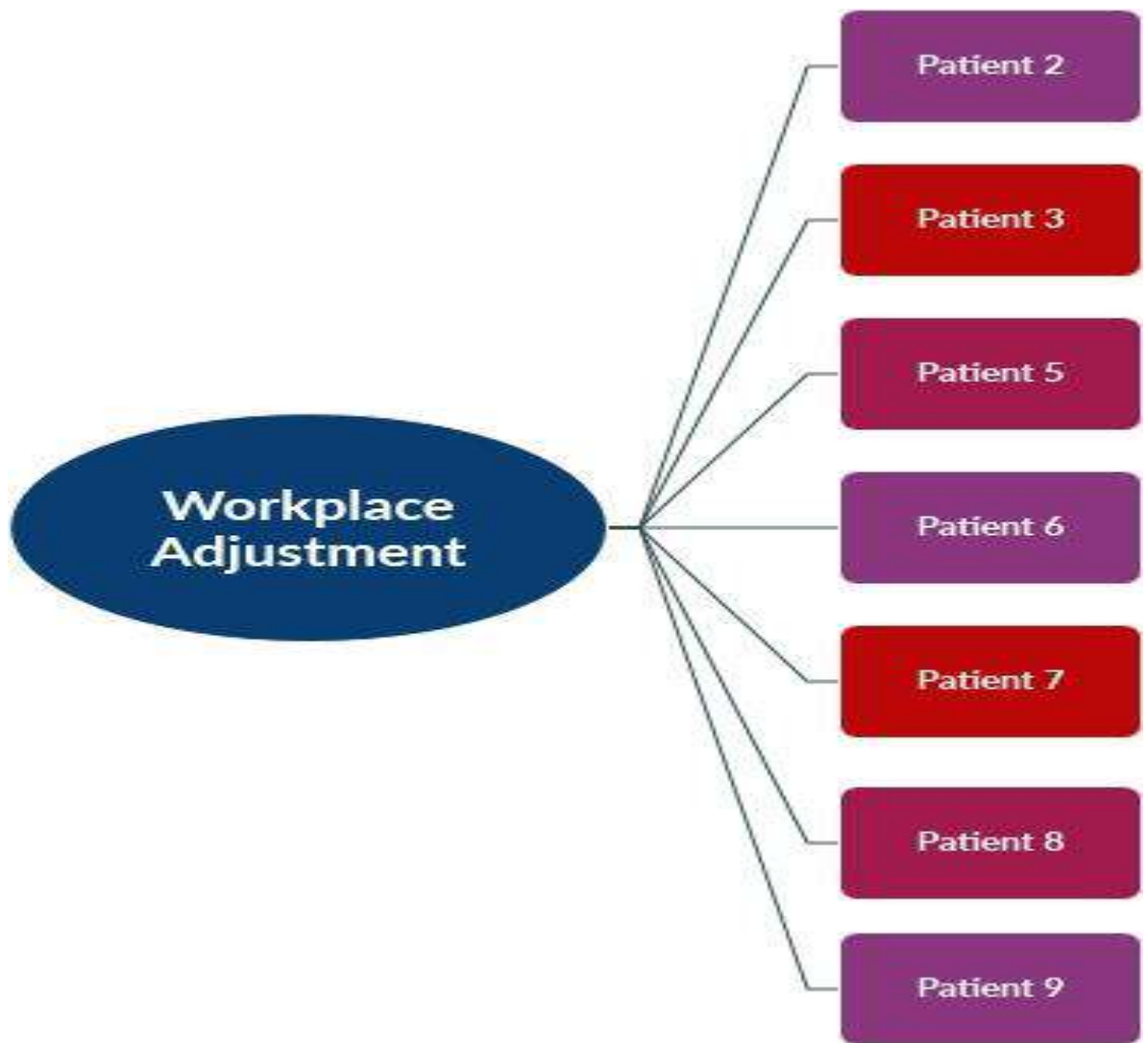


Figure: Workplace Adjustment (NVivo 15)

Results Description: Theme 5 – Coping and Overcoming Challenges

The fifth theme, "Coping and Overcoming Challenges," delves into the strategies employed by participants to navigate the difficulties associated with limb amputation. The analysis is organized into three subthemes: Role of Rehabilitation, Strategies for Adaptation, and Workplace Adjustments.

1. Role of Rehabilitation

Three participants (R-1, R-3, R-6) emphasized the importance of rehabilitation in their recovery journey. Rehabilitation programs were described as pivotal in rebuilding physical strength, improving mobility, and fostering emotional resilience. R-3 highlighted the benefits of physiotherapy in regaining independence, while R-6 emphasized how counseling sessions helped in adapting to the new reality.

2. Strategies for Adaptation

Seven participants (R-2, R-4, R-5, R-8, R-9, R-10, R-11) shared various strategies they used to adapt to their altered circumstances. These included cultivating a positive mindset, seeking support from family and peers, and developing routines that accommodated their physical abilities. R-5 mentioned relying on mindfulness practices, while R-9 described drawing strength from peer support groups to navigate emotional challenges.

3. Workplace Adjustments

Six participants (R-2, R-3, R-5, R-6, R-7, R-8) discussed workplace adjustments as a critical aspect of overcoming challenges. These adjustments included modified work environments, flexible schedules, and vocational retraining. For instance, R-2 shared how their employer provided an adaptive workstation, facilitating their return to work, while R-7 noted that workplace support was integral to regaining confidence and productivity.

Discussion:

The psychological, physical, social, and environmental challenges faced by individuals with limb amputations are multifaceted and deeply impactful. This qualitative research explores these challenges through the lived experiences of eleven participants who underwent lower limb amputation. This discussion synthesizes the key themes emerging from the interviews while integrating existing literature to provide a comprehensive understanding of the psychological consequences and coping mechanisms adopted by amputees.

The emotional toll of amputation is significant, marked by emotional distress, adjustment issues, and a reshaped sense of self-identity. Respondents often described feelings of apprehension, frustration, and a loss of autonomy. For instance, Respondent 1 stated, *"I am extremely apprehensive regarding the future and suffer frequently from mood swings,"* reflecting the pervasive anxiety and mood instability common among amputees. This aligns with research by Roşca et al. (2021, p. 50), which found that amputation often leads to depression, anxiety, and self-esteem issues.

Several respondents highlighted the gradual journey toward acceptance. Respondent 2 noted, *"It's a mix of frustration and moments of peace. Acceptance is coming slowly."* Such mixed emotions illustrate the dynamic nature of psychological adaptation, a process described by Mckechnie and John (2014, p. 89) as influenced by individual resilience, support systems, and rehabilitation efforts. Respondent 9's comment, *"I feel like I'm grieving, but therapy has been a huge help,"* underscores the role of psychological interventions in facilitating emotional recovery.

Spirituality emerged as a coping mechanism for some, with Respondent 4 sharing, *"I have become more spiritual, and this provides me with peace and hope."* This resonates with findings by MacKay et al. (2022, p. 89), who reported that spirituality often provides a framework for amputees to find meaning and resilience in their altered circumstances.

Physical challenges are a cornerstone of the post-amputation experience, encompassing pain, limited mobility, and dependence on assistive devices. Respondent 1 highlighted the persistent issue of phantom limb pain: *"That phantom limb pain is an issue to be given stress."* This phenomenon, well-documented in the literature, can severely hinder rehabilitation and quality of life (Van Twillert et al. 2014, p. 185).

Limited mobility was another prevalent theme, as articulated by Respondent 3: *"Even such simple things as going up the stairs are impossible without support."* Such limitations often translate into dependence, as Respondent 8 noted, "Activities of daily living, such as bathing and dressing, require assistance." These challenges echo findings by Hassan Al Imam et al. (2020, p. 78), who emphasized that mobility impairments often exacerbate feelings of helplessness and dependency.

The use of prosthetics introduces its own set of challenges. Respondent 9 described, *"The prosthetic doesn't feel natural, and it's hard to adjust."* Prosthetic discomfort and fatigue are well-documented barriers to physical adaptation, as highlighted in research by Yuan et al. (2023, p. 66). Addressing these barriers requires both technological advancements and individualized support.

Social interactions are often fraught with stigma, isolation, and altered relationships. Respondent 1 noted, *"I feel people stare at me. Some avoid talking with me altogether—it makes me alone."* Such experiences of stigma are consistent with findings by Roşca et al. (2021, p. 89), which emphasize the role of societal attitudes in shaping amputees' self-perception.

Isolation was another recurring theme. Respondent 2 shared, *"My friends have stopped inviting me because I won't be able to keep up."* This sentiment is echoed by Respondent 6, who stated, *"I am not included in family gatherings; they tend to assume that I won't be able to join."* These experiences highlight the exclusionary dynamics that amputees often face, as also noted by Mckechnie and John (2014, p. 90).

Support from loved ones was a mitigating factor for some. Respondent 10 remarked, *"I am more hopeful now compared to the beginning, thanks to my family."* However, as Respondent 5 observed, "People sometimes show pity towards me; I hate that,"

demonstrating that well-intentioned support can sometimes feel demeaning. The dual nature of social support underscores the importance of fostering empathetic, non-patronizing interactions.

Environmental barriers significantly hinder amputees' reintegration into society. Respondent 1 lamented, "*Public transport becomes a nightmare because there are no ramps and no provisions related to my kind.*" Similarly, Respondent 4 noted, "The cost of adapting to this new life is overwhelming," pointing to the financial burden of modifying living spaces and acquiring assistive devices.

Accessibility issues extend to public spaces, as Respondent 6 shared, "*I live in a very crowded area, and all the roads are uneven; therefore, it is difficult for me to use crutches.*" Such barriers are consistent with findings by Fowkes et al. (2013, p. 156), which highlight the need for inclusive infrastructure to support amputees' mobility and independence.

Weather conditions also emerged as a unique challenge, with Respondent 3 stating, "*Weather conditions influence my prosthesis, making it difficult to move in extreme weather.*" This underscores the importance of context-specific adaptations, particularly in regions with extreme climates.

Employment represents a critical domain where amputees face significant obstacles. Respondent 1 shared, "*I had to stop work as they wouldn't adjust according to my new requirements,*" illustrating the lack of workplace accommodations. Respondent 6 added, "My boss has been understanding, but I feel my colleagues see me as less capable," highlighting the dual challenges of systemic barriers and perceived stigma.

Economic challenges often compound these difficulties. Respondent 4 remarked, "*The cost of adapting to this new life is overwhelming,*" pointing to the financial strain of unemployment and workplace discrimination. Research by Rodrigues et al. (2016, p. 66) corroborates these findings, emphasizing the disproportionate economic burden borne by amputees, particularly in low- and middle-income countries.

Despite the challenges, respondents demonstrated resilience through various coping mechanisms. Rehabilitation emerged as a cornerstone of adaptation, with Respondent

3 stating, *"This has also given me some confidence to engage in physiotherapy."* Similarly, Respondent 6 noted, "Rebuilding my strength through physiotherapy and vocational training could help me adapt better."

Support groups were another valuable resource. Respondent 7 shared, *"I have joined a community support group, and it's helping me emotionally."* Peer support provides a sense of solidarity and shared understanding, as also emphasized by Roşca et al. (2021). Additionally, strategies such as meditation, positive affirmations, and spirituality were mentioned as tools for emotional resilience.

Advocacy and career adaptations were highlighted as pathways to empowerment. Respondent 11 stated, *"Doing disability advocacy work has given me hope and strength in overcoming such challenges."* Meanwhile, Respondent 10's focus on online courses and remote work opportunities reflects the potential of technology to create inclusive employment solutions.

Limitations of the Study

This study on the psychological consequences of limb amputation has several limitations that must be acknowledged. Firstly, the sample size of 11 participants, while sufficient for qualitative research, limits the generalizability of the findings to the broader population of individuals with limb amputations. The purposive sampling technique, while effective for selecting individuals with specific experiences, may introduce selection bias, as participants willing to share their experiences might differ in psychological resilience or coping strategies from those who declined to participate. Additionally, the study is geographically restricted to the Center for the Rehabilitation of the Paralyzed (CRP) in Dhaka, Bangladesh, and thus may not capture the experiences of amputees in other cultural, economic, or healthcare settings. Language and translation issues, as the interviews were conducted in Bangla and later translated into English, could lead to nuances or emotional expressions being lost in translation. The study's reliance on self-reported data is another limitation, as participants' accounts may be influenced by memory biases or their desire to present themselves in a socially acceptable manner. Furthermore, the cross-sectional nature of the study captures participants' experiences at a specific point in time, potentially overlooking the evolving nature of psychological and social challenges faced by amputees over the long term. The study also focuses primarily on lower limb amputees, which limits its applicability to individuals with upper limb amputations or multiple amputations. Another limitation is the exclusion of participants with mental instability or those unwilling to participate, potentially omitting insights from a critical subgroup that may experience more severe psychological challenges. Environmental and contextual variables, such as variations in support systems, socioeconomic status, and accessibility infrastructure, were not explored in depth, which could have provided a more nuanced understanding of the factors influencing psychological outcomes. Lastly, while the study employs a phenomenological approach to understand the lived experiences of amputees, the subjective nature of this methodology may introduce researcher bias during data interpretation and thematic analysis. These limitations underscore the need for further research with larger, more diverse samples and longitudinal designs to build upon the insights generated by this study and provide a more comprehensive understanding of the psychological consequences of limb amputation.

Conclusion

The phenomenon of limb amputation is not just a physical loss but a multidimensional disruption that affects every aspect of an individual's life. This qualitative research delves into the intricate psychological, physical, social, environmental, and occupational challenges faced by amputees while exploring their coping strategies and pathways to rehabilitation. Through the narratives of the eleven participants, this study highlights the far-reaching consequences of amputation, emphasizing the need for holistic support systems and inclusive policies to ensure a better quality of life for individuals undergoing such life-altering experiences.

Psychologically, amputation imposes significant emotional distress, ranging from anxiety and depression to existential concerns about identity and purpose. Participants frequently expressed apprehension about the future, frustration over their limitations, and grief over their loss. For instance, one respondent described their experience as a constant struggle between frustration and moments of peace, reflecting the dynamic and often non-linear process of emotional adjustment. This aligns with existing literature, which underscores the psychological ramifications of limb loss, including heightened risks of depression, anxiety, and suicidal ideation. However, some participants showed resilience, gradually transitioning toward acceptance and emotional healing through mechanisms such as therapy, spirituality, and positive affirmations. This finding points to the critical role of tailored psychological interventions, including counseling and peer support groups, in helping amputees navigate the complex emotional landscape post-amputation.

Environmental barriers further compound the challenges faced by amputees, particularly in low- and middle-income countries with inadequate infrastructure. Participants frequently described public spaces and transport systems as inaccessible, with uneven sidewalks, lack of ramps, and poorly designed buildings making mobility a daily struggle. One participant vividly described navigating their neighborhood as an "obstacle course," encapsulating the frustration and helplessness experienced by many amputees. These findings align with global reports on the inaccessibility of urban

environments, which often exclude individuals with disabilities from full participation in societal activities. Addressing these barriers requires concerted efforts from policymakers, urban planners, and architects to create inclusive environments that prioritize accessibility. Simple measures like adding ramps, elevators, and wider pathways can significantly improve the mobility and independence of amputees, enabling them to reclaim their agency in public spaces.

The workplace, a critical arena for social and economic integration, presents unique challenges for amputees. Participants reported discriminatory attitudes, lack of accommodations, and reduced productivity as common obstacles to maintaining employment. For instance, one respondent shared how their colleagues viewed them as less capable, while another noted the physical strain of prolonged standing required in their job. These challenges not only affect the financial stability of amputees but also undermine their sense of purpose and identity. Inclusive workplace policies, such as flexible hours, ergonomic adjustments, and remote work options, can mitigate these issues and empower amputees to thrive professionally. Additionally, vocational training and skill development programs tailored to the unique needs of amputees can open up new employment opportunities, fostering economic independence and self-confidence.

Despite these challenges, the resilience demonstrated by participants is a testament to the human spirit's capacity for adaptation and growth. Rehabilitation programs, particularly those focusing on physiotherapy, vocational training, and psychological counseling, were identified as critical enablers of recovery. Several participants expressed gratitude for the support they received through rehabilitation centers and peer groups, which provided not only practical assistance but also a sense of community and belonging. One participant emphasized the transformative power of disability advocacy work, highlighting how contributing to the welfare of others can instill a renewed sense of purpose and self-worth. Such narratives underscore the importance of comprehensive rehabilitation frameworks that go beyond physical recovery to address the psychological, social, and vocational dimensions of living with amputation.

Recommendations

Expand Sample Size and Diversity: Future studies should aim to include a larger and more diverse sample of participants to enhance the generalizability of findings. Including individuals from different geographical regions, socioeconomic backgrounds, and cultural contexts will provide a broader understanding of the psychological and social consequences of limb amputation.

Conduct Longitudinal Research: A longitudinal study design is recommended to track the psychological and social experiences of amputees over time. This would provide valuable insights into the evolving nature of challenges faced by amputees and the long-term effectiveness of coping mechanisms and rehabilitation programs.

Include Upper Limb and Multiple Amputations: Future research should include participants with upper limb or multiple amputations to explore how psychological consequences may differ based on the type and extent of limb loss. This would help develop targeted interventions for these subgroups, who may have unique needs.

Focus on Holistic and Inclusive Rehabilitation: Research should investigate the integration of psychological support into existing rehabilitation programs. Exploring the effectiveness of combining physical therapy with mental health counseling, peer support, and vocational training can lead to the development of holistic rehabilitation frameworks that address the full spectrum of challenges faced by amputees.

Examine the Role of Environmental and Social Factors: Future studies should delve deeper into the impact of environmental and social variables, such as accessibility infrastructure, societal attitudes, and family support systems. This can guide policymakers and community organizations in designing inclusive environments and supportive networks that foster better psychological and social outcomes for amputees.

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APPENDIX

CONSENT STATEMENT (English)

Please Read It Carefully

Assalamualaikum,

I am Md Tutul Sheikh, a student of B.Sc. in physiotherapy, 4th year 2018-19 session, at Saic College of Medical Science & Technology, affiliated with the University of Dhaka under the faculty of Medicine. I am conducting a research program entitled “**Psychological consequences in patients with limb amputation: A phenomenological study**” In this study, I would like to explore patient experiences and psychological consequences of amputation patients. I would like to request some information regarding your sociodemographic, and medical information-related questions. Please note that this academic research interview will take approximately 20-30 minutes to complete. Participating in this study will not affect your current or future treatment in any way. It is important to mention that the information collected will only be used for academic research purposes, and all your provided data will be kept confidential. In the case of any report or publication, we will ensure that your identity remains anonymous. Your participation in this study is voluntary, and you may withdraw at any time during this study without any negative consequences. You also have the right not to answer a question you don’t like or do not want to answer during the interview.

If you have any questions regarding the study or your rights as a participant, please feel free to contact the investigator Md Tutul Sheikh, or the research supervisor Professor Dr Mohammad Sohrab Hossain.

Do you have any questions before I start?

Yes		No	
Yes		No	

So, may I have your consent to proceed with the interview?

Signature of Participant

Date.....

.....

Signature of Interviewer

Date.....

.....

Questionnaire (English)

Title: "Psychological Consequences in Patients With Limb Amputation"

Patient Information

Patient ID:		
Date of interview:		
Name of patient:		
Code:		
Address:	Village:	Post-Office:
	Upazila:	District:
Phone:		

PART-1: Socio-Demographic Information

[Please give a tick (✓) mark at the left side box of the best correct answer]

Question No	Questions/ Information on	Response of the participant
1.1	Age	Year.....Month.....
1.3	Marital status	1 = Unmarried 2 = Married
1.4	Educational Qualification	1 = Illiterate 2 = Literate

1.5	Occupation	1 = Service holder 2 = Housewife 3 = Student 4 = Teacher 5 = Laborer 6 = Other.....
1.6	Living area	1 = Rural 2 = Urban
1.7	Family type	1 = Nuclear family 2 = Extended family
1.8	Access Road	1 = Mud 2 = Brick 3 = Pitch
1.9	Family Income	1 = 15000 – 25000 2 = 25000 – 35000 3 = More than 35000

PART-2: Anthropometric Information

Question No	Questions	Response of the participants
----------------	-----------	---------------------------------------

2.1	Heightmeter
2.2	Weightkg

PART – 3: Amputation related Information

3.1 Which types of lower limb prosthesis?

1. Trans-femoral
2. Trans-tibial

3.2 How long ago did you have your amputation?

Day.....Month.....Year

3.3 How long had prosthesis?

.....

3.4 What types of prosthesis do you have?

1. Above elbow
2. Below elbow
3. Above knee
4. Below knee

5. Others

3.5 Cause of amputation

1. Peripheral vascular disorder

2. Diabetes

3. Cancer

4. Accidents

5. Others

3.6 How many hours do you use the prosthesis (average per day)?

.....

Part – 4: Psychological Related Information

- 4.1 What is your current psychological state?
- 4.2 What kind of physical challenges you are facing?
- 4.3 What kind of social challenges you are facing?
- 4.4 What challenges do you face after returned to society?
- 4.5 What are the environmental challenges you faced after limb amputation?
- 4.6 What are the challenges you are facing in your work place ?
- 4.7 How can you overcome from these situation?

সম্মতিপত্র (বাংলা)

অনুগ্রহ করে মনযোগ দিয়ে পড়ুন

আসসালামুয়ালাইকুম!

আমি মোঃ টুটুল শেখ, বিএস সি ফিজিওথেরাপিতে, ৪র্থ বর্ষ ২০১৮-১৯ সেশন, মেডিসিন অনুষদের অধীনে ঢাকা বিশ্ববিদ্যালয়ের অধিভুক্ত সাইক কলেজ অফ মেডিকেল সায়েন্স অ্যান্ড টেকনোলজিতে পড়াশোনা করছি। আমি একটি গবেষণা কার্যক্রম পরিচালনা করছি যার শিরোনাম "অঙ্গ বিচ্ছেদ রোগীদের মধ্যে মনস্তাত্ত্বিক পরিণতি: একটি ফেনোমেনোলজিকাল গবেষণা" এই গবেষণায়, আমি রোগীর অভিজ্ঞতা এবং অঙ্গচ্ছেদ করা রোগীদের মনস্তাত্ত্বিক পরিণতিগুলি দেখতে চাই। আমি আপনার সামাজিক কিছু তথ্যের এবং চিকিৎসা সংক্রান্ত তথ্য-সম্পর্কিত প্রশ্ন করতে চাই। অনুগ্রহ করে মনে রাখবেন যে এই একাডেমিক গবেষণা সাক্ষাৎকারটি সম্পূর্ণ হতে প্রায় ২০-৩০ মিনিট সময় লাগবে। এই গবেষণায় অংশগ্রহণ করা আপনার বর্তমান বা ভবিষ্যতের চিকিৎসাকে কোনোভাবেই প্রভাবিত করবে না। এটি উল্লেখ করা গুরুত্বপূর্ণ যে সংগৃহীত তথ্য শুধুমাত্র একাডেমিক গবেষণার উদ্দেশ্যে ব্যবহার করা হবে, এবং আপনার দেওয়া সমস্ত তথ্য গোপন রাখা হবে। কোনো প্রতিবেদন বা প্রকাশনার ক্ষেত্রে, আমরা নিশ্চিত করব যে আপনার পরিচয় গোপন থাকবে।

এই অধ্যয়নে আপনার অংশগ্রহণ স্বেচ্ছায়, এবং আপনি এই অধ্যয়ন চলাকালীন যেকোনো সময় কোনো নেতিবাচক পরিণতি ছাড়াই প্রত্যাহার করতে পারেন। সাক্ষাৎকারের সময় আপনি পছন্দ করেন না বা উত্তর দিতে চান না এমন প্রশ্নের উত্তর না দেওয়ার অধিকারও আপনার আছে।

অধ্যয়ন বা অংশগ্রহণকারী হিসাবে আপনার অধিকার সম্পর্কে আপনার যদি কোন প্রশ্ন থাকে, অনুগ্রহ করে তদন্তকারী মোঃ টুটুল শেখ বা গবেষণা তত্ত্বাবধায়ক অধ্যাপক ডঃ মোহাম্মদ সোহরাব হোসেনের সাথে নির্দিষ্ট যোগাযোগ করুন।

ইন্টারভিউ শুরু আগে আপনার কি কোন প্রশ্ন আছে?

হ্যাঁ	না
হ্যাঁ	না

তাহলে ইন্টারভিউ নিয়ে এগিয়ে যেতে আমি কি আপনার সম্মতি পেতে পারি?

অংশগ্রহণকারীর সাক্ষর

তারিখ

.....

.....

ইন্টারভিউয়ারের সাক্ষর

তারিখ

.....

.....

		(২) ২৫০০০ – ৩৫০০০ টাকা
		(৩) ৩৫০০০ টাকার বেশি
অংশ ৩: নৃতাত্ত্বিক তথ্য		
৩.১	উচ্চতা	[] ফিট
৩.২	ওজন	[] কেজি
অংশ ৪: এম্পুটেশন সম্পর্কিত তথ্য		
৪.১	আপনি কোন ধরনের প্রোস্বেসিস ব্যবহার করেন??	
	(১) ট্রান্স-ফিমোরাল	(২) ট্রান্স-টিবিয়াল
৪.২	কতদিন আগে আপনি আপনার অঙ্গচ্ছেদ করেছেন?	
	দিন.....মাস.....বছর.....	
৪.৩	আপনি কতদিন ধরে প্রোস্বেসিস ব্যভার করছেন?	
	দিন.....মাস.....বছর.....	
৪.৪	আপনার কি ধরনের প্রোস্বেসিস আছে?	
	(১) হাটুর উপরে	
	(২) হাটুর নিচে	
	(৩) অন্যান্য	
	
৪.৫	এম্পুটেশনের কারন কি ছিল?	
	(১) পেরিফেরাল ভাস্কুলার ডিসর্ডার	(৪) দূর্ঘটনা
	(২) ডায়াবেটিস	(৫) অন্যান্য
	(৩) ক্যান্সার
৪.৬	আপনি কত ঘন্টা প্রোস্বেসিস ব্যবহার করেন (প্রতিদিন গড়)?..... ঘন্টা	

অংশ ৫: মনস্তাত্ত্বিক সম্পর্কিত তথ্য

- ৫.১ আপনার বর্তমান মানসিক অবস্থা কেমন?
- ৫.২ আপনি কোন ধরনের শারীরিক চ্যালেঞ্জের সম্মুখীন হচ্ছেন?
- ৫.৩ আপনি কোন ধরনের সামাজিক চ্যালেঞ্জের সম্মুখীন হচ্ছেন?
- ৫.৪ সমাজে ফিরে আসার পর আপনি কোন চ্যালেঞ্জের মুখোমুখি হন?
- ৫.৫ অঙ্গবিচ্ছেদের পরে আপনি কোন পরিবেশগত চ্যালেঞ্জের সম্মুখীন হয়েছেন?
- ৫.৬ আপনার কর্মক্ষেত্রে আপনি কোন চ্যালেঞ্জের সম্মুখীন হচ্ছেন?
- ৫.৭ কিভাবে আপনি এই পরিস্থিতি থেকে পরাস্ত করতে পারেন?

Permission Letter

Date: 11.08. 2024

Head of physiotherapy department

Centre for the Rehabilitation of the Paralyzed (CRP),

Savar, Dhaka-1343

Subject: Prayer for permission to collect data from the Prosthesis and Orthoses unit of CRP Savar .

Sir,

With due respect and humble submission to state that I am a student of B.Sc. in Physiotherapy at Saic College of Medical Science and Technology (SCMST). As part of our course curriculum, we have to conduct a research project to partially fulfill the requirement for the degree of B.Sc. in Physiotherapy. My research title is **“Psychological consequences in patients with limb amputation: A phenomenological study”** and the aim of the study is to explore the psychological consequences of limb amputation patients. This is a qualitative study under the supervision of Professor Dr. Mohammad Sohrab Hossain, PhD Executive Director, CRP, Savar, Dhaka. I have chosen the prosthesis and orthoses unit of CRP-Savar to collect data from limb amputation patients who will come to CRP for physiotherapy treatment. So, I pray and hope that you would be kind enough to permit data collection to help me complete my study.

Yours Faithfully

Tutul
Md. Tutul Sheik

B.Sc. in Physiotherapy

Session: 2018-2019

Saic College of Medical Science and Technology (SCMST)

Mirpur-14, Dhaka-1216, Bangladesh

Approved

Kindly contact with Noor Jahan Akter, (Shapla) as a coordinator for data collection.

Mohammad
11/08/24

Prof. Dr. Mohammad Anwar Hossain, PhD
Professor, Physiotherapy Dept. BH/PI
Senior Consultant & Head, Physiotherapy Dept.
CRP, Savar, Dhaka-1343



পক্ষাঘাতগ্রস্তদের পুনর্বাসন কেন্দ্র (সিআরপি)
Centre for the Rehabilitation of the Paralyzed (CRP)
a project of the Trust for the Rehabilitation of the Paralyzed
Head Office: CRP Savar, Chapain, Savar, Dhaka-1343, Bangladesh
Tel: 02224445464-5, Fax: 02224445069, E-mail: contact@crp-bangladesh.org, Web: www.crp-bangladesh.org

CRP-ERC-R&E-0401-0457

15.07.2024

To

Md. Tutul Sheikh
B.Sc. in Physiotherapy
Session: 2018-2019, Reg: 10423
Saic College of Medical Science and Technology (SCMST)
Mirpur-14, Dhaka-1216, Bangladesh
E-mail: tutulsheikhphysiosaic@gmail.com

Ref: *Study Title* "Psychological consequences in patients with limb amputation: A phenomenological study".

Sub: Approval of documents for *Study Title* "Psychological consequences in patients with limb amputation: A phenomenological study".

Dear author,

The CRP Ethics Committee reviewed and discussed your application to conduct the research entitled "Psychological consequences in patients with limb amputation: A phenomenological study". Which was submitted on 25th June 2024.

The following documents were reviewed:

SL. No.	Documents	Version	Dated	Copy
1	Protocol	-		1

The following members of the ethics committee reviewed the protocol on 15.06.2024.

SL. No.	Name	Role in EC	Affiliation with Institute (Yes/No) If yes, Specify.....
1.	Prof. Dr. Mohammad Alamgir Kabir	Chair of CRPEC	No
2.	Md. Shaikhul Hasan	Member Secretary	Yes, Assist. Manager- Research, Monitoring & Evaluation.
3.	Nasirul Islam	Executive Member	Yes

CRP Mirpur, Dhaka. Mobile: 01768152922, E-mail: dgm-mirpur@crp-bangladesh.org. CRP Ganakbari, Dhaka. Telephone: 02 96689227, E-mail: ganakbari@crp-bangladesh.org. CRP Manikganj. Mobile: 01730059559, E-mail: manikganj@crp-bangladesh.org. CRP Mymensingh - BAU Centre. Mobile: 01730059510, E-mail: mymensingh@crp-bangladesh.org. CRP Chattogram - A.K. Khan Centre. Mobile: 01730059529, E-mail: chittagong@crp-bangladesh.org. CRP Rajshahi - Afar Hussain Centre. Mobile: 01730059644, E-mail: rajshahi@crp-bangladesh.org. CRP Pabna - Diabetic Shamiy Centre. Mobile: 01730059518, E-mail: pabna@crp-bangladesh.org. CRP Barisal - CARSA Foundation Centre. Mobile: 01730059643, E-mail: barisal@crp-bangladesh.org. CRP Sylhet - Iskandar Shitara Centre. Mobile: 01730059512, E-mail: sylhet@crp-bangladesh.org. CRP Moulvibazar - Afarul & Aktarul Haque Centre. Mobile: 01730059628, E-mail: moulvibazar@crp-bangladesh.org. CRP Gobindapur, Moulvibazar. Mobile: 01730059542, E-mail: gobindapur@crp-bangladesh.org

Individual donor to CRP qualifies for a tax rebate because the Government of Bangladesh has endorsed CRP as a Philanthropic Institution.

CRP-ERC-R2E-0401-0457

4.	Dr. Mohammad Sohrab Hossain	Executive Member	Yes
5.	Mohammad Anwar Hossain	Executive Member	Yes, Head of Physiotherapy Department, CRP.
6.	Tauhidul Islam	Executive Member	Yes, Acting Head of Occupational Therapy Department.
7.	Tahamina Sultana	Executive Member	Yes, Head of Speech and Language Therapy Department (Acting).
7.	Md Obaidur Rahman	Executive Member	No
8.	Md. Mizanur Rahman	Executive Member	Yes, Assist. Professor, BHPI.

We confirm that neither you nor your study team members participated in the deliberations of the Ethics Committee & did not vote on the proposal for this study. He/She promised to CRP Research department, she/he will follow every rule and regulation of CRP and research policy. This Ethical Clearance only for those who will take/collect data from CRP.

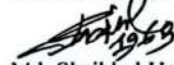
We approve the research to be conducted in its presented form at Centre for the Rehabilitation of the Paralysed (CRP).

The CRP Ethics Committee expects to be informed about the progress of the study, any Serious Adverse Effects (SAE) occurring in the course of the study, any changes in the protocol and participant's information / informed consent and asks to be provided a copy of the final report.

Please submit to the Ethical Committee (EC) the published article of the study as per EC Standard Operating Protocol (SOP)'s.

The EC is organized & operates according to the requirements of Declaration of Helsinki and ICH-GCP, local regulatory requirements and guidelines.

Yours sincerely,



Md. Shaikhul Hasan

Assistant Manager- Research, Monitoring & Evaluation,
And Member Secretary of CRP-ERC, CRP.

SCMST-BPT/IRB/05-23/031

To
Md. Tutul Sheik
4th Year Student of B.Sc. in Physiotherapy
Session: 2018-2019 , Reg No: 10423
SAIC College of Medical Science & Technology (SCMST)
Mirpur-14, Dhaka-1216, Bangladesh

Subject: Approval of the thesis proposal "**Psychological Consequences in Patients With Limb Amputation : A Phenomenological Study**" by ethics committee.

Dear Md. Tutul Sheik
Congratulations.

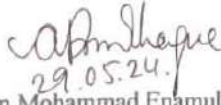
The Institutional Review Board (IRB) of SCMST has reviewed and discussed your application to conduct the above-mentioned dissertation, with yourself, as the principal investigator. The Following documents have been reviewed and approved:

Sr. No.	Name of the Documents
1	Dissertation Proposal
2	Questionnaire (English and Bangla version)
3	Information sheet and consent form.

The purpose of the study is to determine the psychological consequences in patients with limb amputation. The study involves face to face interview by using semi structured questionnaire to explore the psychological consequences in patients with limb amputation that may take 30 to 40 minutes to fill in the questionnaire and there is no likelihood of any harm to the participants. The members of the Ethics committee have approved the study to be conducted in the presented form at the meeting held at 09.00 AM on 28th September 2023 at SCMST.

The institutional Ethics committee expects to be informed about the progress of the study, any changes occurring during the study, any revision in the protocol and patient information or informed consent and ask to be provided a copy of the final report. This Ethics committee is working accordance to Nuremberg Code 1947, World Medical Association Declaration of Helsinki, 1964 - 2013 and other applicable regulation.

Best regards,


29.05.24.

Dr. Abul Kasem Mohammad Enamul Haque
Principal, SCMST & Chairman, Institutional Review Board (IRB)
SAIC College of Medical Science & Technology (SCMST)
Mirpur-14, Dhaka-1216, Bangladesh

Date

Gant Chart

Activities/ months	Sep 23	Oct 23	Nov 23	Dec 23	Jan 24	Feb 24	Mar 24	Apr 24	May 24	June 24	July 24	Aug 24
Proposal presentation												
Introduction												
Literature review												
Methodology												
Data collection												
Data Analysis												
Result												
1st progress presentation												
Discussion												
Conclusion And Recommendation												
2nd progress presentation												
Communication with supervisor												
Final submission												