STRESS, ANXIETY AND DEPRESSION FOLLOWING TRAUMATIC LIMB AMPUTATION

Faculty of Medicine

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We the undersigned certify that we have carefully read and recommended to the Faculty of Medicine, University of Dhaka, for the acceptance of this dissertation entitled

STRESS, ANXIETY AND DEPRESSION FOLLOWING TRAUMATIC LIMB AMPUTATION

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DECLARATION

This work has not previously been accepted in substance for any degree and isn't concurrently submitted in candidature for any degree. This dissertation is being submitted in partial fulfillment of the requirements for the degree of B.Sc. in Physiotherapy.

I confirm that if anything identified in my work that I have done plagiarism or any form of cheating that will directly awarded me fail and I am subject to disciplinary actions of authority. I confirm that the electronic copy is identical to the bound copy of the Thesis.

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Acknowledgement

Acronyms

AKA	Above Knee Amputation
APA	American Psychological Association
BHPI	Bangladesh Health Professions Institute
BKA	Below Knee Amputation
BMRC	Bangladesh Medical Research Council
DASS-21	Depression, Anxiety and Stress Scale – 21 items
DM	Diabetes Mellitus
IDF	International Diabetes Federation
IRB	Institutional Review Board
LLA	Lower Limb Amputation
P & O	Prosthetics and Orthotics
PTSD	Post-Traumatic Stress Disorder
PVD	Peripheral Vascular Disease
QoL	Quality of Life
ULA	Upper Limb Amputation
WHO	World Health Organization

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Abstract

Purpose: The purpose of the study was to identify the level of stress, depression, anxiety andstress among traumatic limb amputation. ***Objectives:*** To identify the level of depression, anxiety & stress among traumatic limb amputation. To explore the Socio-demographic information of the participants. ***Methodology:*** The study was conducted by using cross sectional method. Total 156 samples were selected conveniently for this study from National Institute of Traumatology & Orthopedic Rehabilitation, Easy Life For Bangladesh, Bangladesh Mobility Limb Centre, Dynamic limb center in Dhaka city. All data were collected through face-to face interview ***Results:*** This study's participant means and standard deviation of participant age where are Mean ± SD= 41.16±15.647.; here 16-36 years were 39.7%, 37-57 years 42.9% and >57 years 17.3% of the participant. In this study, male participants were 87.2% and female participants were 12.8%.This study's participant means and standard deviation of participant depression level where are Mean ± SD= 29.03±.8.169; here Normal were 1.3%, Mild were 2.6%, Moderate 12.8%,Severe 25.0% and Extremely sever 58.3% of the participant. This study's participant means and standard deviation of participant anxiety level where are Mean ± SD= 18.14±.8.169; here Normal were 9.6%, Mild were 7.1%, Moderate 20.5%, Severe 16.0% and Extremely sever 46.8% of the participant. This study's participant means and standard deviation of participant stress level where are Mean ± SD= 25.36±.7.024; here Normal were 6.4%, Mild were 12.2%, Moderate 33.3%, Severe33.3% and Extremely sever 14.7% of the participant. ***Conclusion:*** The results of the study suggest that depression, anxiety and stress are commonly experienced after amputation. The amputee group should have access to the amputee care program which will provide psychiatric care alongside rehabilitation.

Key words: *Amputation, Depression, Anxiety, Stress*

CHAPTER - I	INTRODUCTION

1.1 Background

Amputation is a surgical procedure in which a portion or the entire extremity is removed (Feinglass et al., 2012). One of the main causes of long-term impairment is amputation. An amputation is the removal of an organ or other body part. Amputation is regarded as one of the greatest impairments and is described as the spontaneous or partial removal of all or portion of the processing body that is covered by skin. It is a typical late-stage sequela of diabetes and peripheral vascular disease or a sequela of civil unrest, landmines, and unintentional injuries (Pooja & Sangeeta, 2013).

Amputation could be described as the removal of a body extremity by surgery or trauma. It may be done to treat injury, disease, or infection. It can be easily define as amputation is loss of all or part of a limb or extremity such as an arm, leg, foot, hand, toe, or finger (WebMD, 2017).

Amputation the removal of a body extremity by trauma or surgery is a physical disability that has not received considerable attention in psychosocial research. Trauma is the leading indication for amputation in younger people. Limb loss due to a traumatic injury is sudden and emotionally devastating (Copuroglu et al., 2010).

"Major" limb loss is defined as amputation above the elbow, below the elbow, above the knee, below the knee, or the foot. "Minor" limb loss is defined as amputation of the hand or digits. Lower limb amputations are much more frequent than upper limb and are most commonly the result of disease followed by trauma (Houtum et al ., 2012). The global frequency of amputation is challenging to determine, as rates vary widely both between and within countries (Holman et al., 2012).

A special case is that of congenital amputation, a congenital disorder, where fetal limbs have been cut off by constrictive bands. In some countries, amputation of the hands, feet or other body parts is or was used as a form of punishment for people who committed crimes (Ahmed et al., 2016). The amputation of a limb brings about several changes in the psychological and social functioning of an individual: alterations in self-concept and body image, decreased quality of life and loss of employment status or occupation (Falgares et al., 2019).

The researcher said that amputation due to trauma can have a number of negative physical, psychological, and socioeconomic effects. The rehabilitation of individuals who have had traumatic limb amputations has seen a major increase in funding and public attention, but little is known about the frequency of anxiety and depression over the long term (Mckechnie et al., 2014).

Researcher said that among the most prevalent mental conditions are anxiety and depressive disorders. These two conditions are highly comorbid and are collectively referred to as internalizing disorders. According to data from the Substance Abuse and Mental Health Services Administration, major depressive disorder was predicted to affect 7.1% of adults and 13.3% of adolescents in 2017 during the course of a 12-month period. Although data on anxiety disorders are less recent, in the years between 2001 and 2003, adults' 12-month prevalence was estimated to be 19.1%, and in the years between 2001 and 2004 teenagers' lifetime prevalence was assessed to be 31.9%. During women's reproductive years, there is roughly a 2:1 ratio of women to males who suffer from anxiety and depressive disorders, respectively (Ned & Kalin,2020). According to researcher diabetes patients exhibit anxiety and depressive symptoms at significantly higher rates than the general population, and when diabetes-related complications like Diabetic Foot Ulcer (DFU) are present, high levels of anxiety and depression have been linked in several studies to adverse disease outcomes. According to empirical data, this link is reciprocal. On the one hand, anxiety and depression are particularly detrimental to self-care practices and have been linked to worse diabetes control, poor adherence to medication, diet, and foot self-care practices. On the other hand, DFU necessitates a number of daily self-care practices and treatments that may hasten the onset of, or even trigger, depression and anxiety symptoms. Along with a higher incidence of non-healing and repeated foot ulcers, depression has also been linked to larger, more serious foot ulcers (Pedras et al., 2016).

According to researcher the available evidence on anxiety symptoms is not as clear as it is on depression. Patients with a history of successfully treated ulcers exhibited fewer symptoms of worry than patients with active ulcers, according to Tennvall and Apelqvist. When comparing individuals with foot ulcers to those with amputees, Carrington did not discover significant variations in the degrees of anxiety. However, recently, a link between anxiety disorders and an elevated risk of ulcers over a 10-year period was discovered in a study with a sizable population sample of adults.

Additionally, the symptoms of anxiety and depression frequently coexist, carrying similar risks and aggravating negative medical effects (Pedras et al., 2016).

The author said that the media has also been eager to highlight the triumphs. Teams of injured workers, for instance, have performed amazing feats like marathons, competitive sports, and alpine excursions. This is an illustration of the idea that the more obvious physical disability is the sole issue that requires attention, with the psychological consequences sometimes being disregarded by the general population and unseen to medical professionals. The problem might be made worse for veterans of the armed forces. There was little information available regarding the extent of long-term psychological effects, despite recent evidence suggesting that rates of mental health morbidity in the United Kingdom military population may be lower than in other national military services due to their resilience in the face of adversity (Mckechnie & John., 2014).

The author said that the majority of current surveys and research were conducted more than ten years ago, thus they do not take into account the advancements in prosthetic technology and amputation surgery. Furthermore, surveys were frequently conducted at the facility where patients received treatment and had their prosthetic limbs fitted or in other pre-selected contexts, making it plausible that non-users and patients who had severed relations with the facility would not have been included. The objective of this study was to compile objective (Salminger et al., 2020).

Therefore, taking into mind the lack of studies that examine the psychosocial adjustment to LLA over time and the behavioral responses, individual and environmental factors, This study seeks to close the knowledge gap in this area by building theoretical approach. Theoretical basis Livneh advocates for the idea that coping with chronic sickness and disability (CID) a dynamic, ongoing, and protracted process made up of three phases of adjustment and adaption (Pedras et al., 2018). However, there is evidence that emotional-focused coping strategies have been linked to more negative outcomes following a traumatic event than problem-focused strategies. There are no studies addressing the relationship between coping strategies and traumatic stress symptoms in patients who underwent an LLA. Similarly, rather than the severity of the LLA, coping methods have been found to be strongly associated with the development of PTSD. Numerous demographic and clinical traits may be

significant mediators in the emotional reaction to the LLA in patients who have had limbs amputated as a result of a chronic condition. As a result, the objectives of this study were to determine the prevalence of traumatic stress symptoms in a sample of adult patients who underwent an LLA because of DFU, to examine the temporal trends of traumatic stress symptoms, and to examine the effects of coping mechanisms, symptoms of anxiety and depression, sociodemographic characteristics, and clinical characteristics on traumatic stress symptoms after an LLA. The findings will be helpful in directing psychotherapy interventions for this population in clinical settings from ten months prior to surgery (Pedras et al., 2019).

1.2 Justification

Now a day's anxiety and depression following traumatic limb amputation are becoming epidemic in situation. Because most of the people suffering from anxiety and depression due to traumatic limb amputation. One of the most prevalent mental health issues in the world is depression. Anxiety is also a mental health issue, it can be mild or severe. Everyone has feelings of anxiety and depression at the some point in their life. It is very common for the person who has limb amputation. Depression is the most typical factor in suicidal behavior worldwide. The prevalence rate of depression and anxiety is rising day by day. Amputees consider themselves a burden to society and family. They always worried about their future. Due to their depression anxiety, individuals are experiencing various psychogenic issues such as insomnia, guilty feelings and reduction in mental and physical activity. But they are not aware about depression and anxiety. Also not aware treatment of depression and anxiety. That's why they don't get proper treatment and guideline. The purpose of this study to know about the level of anxiety and depression following traumatic limb amputation. Because of this study I can know which of depression and anxiety they suffer from and how they are able to lead their normal life. A lot of study were done world-wide regarding this topic to determine the anxiety and depression following traumatic limb amputation. Among the few studies that were found locally not sufficient to present the real picture of the situation due to shortage of information and study were conducted couple of year back which does not represent the present situation on this regard. So, it is very urgent to know the situation. For this reason, one study is necessary to conduct on this topic to take the preventive measures and minimized the gap of the knowledge on this regard.

1.3 Research Question

What are the level of stress, anxiety and depression following traumatic limb amputation?

1.4 Objectives

1.4.1 General objective

- ✓ To determine the level of stress, anxiety and depression following traumatic limb amputation patients in Dhaka city.

1.4.2 Specific Objectives

- ➢ To assess the level of stress, anxiety and depression of amputation patients by DASS21 scale in Dhaka city.

- ➢ To identify amputation level, amputation area and amputation side of the participants.

- ➢ To find out association between age and level of stress, level of anxiety and level of depression.

- ➢ To explore association between level of amputation and level of stress, level of anxiety and level of depression.

- ➢ To describe the socio-demographic information of the participant.

1.5 Conceptual framework:

Independent variable

Dependent variable

Sociodemographic factor: Age, Gender, Education quelification, monthly income,Family types

Stress, Anxiety and Depression

Amputation related question: Amputation area, Amputation level, Amputation side
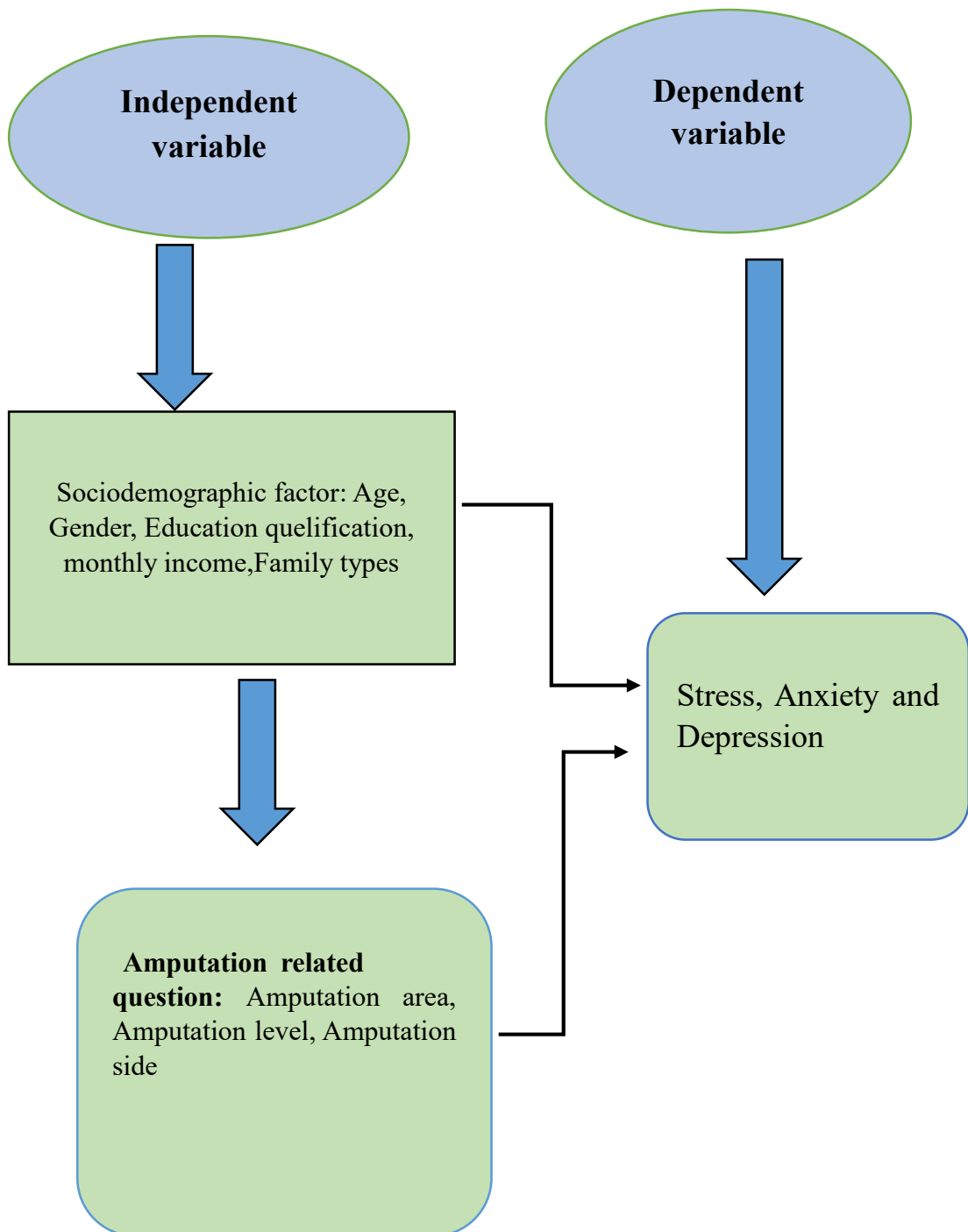
1.6 Operational definition

Stress: Stress can be defined as a state of physical or mental tension caused by a difficult situation. Stress is a natural human response that prompts us to address challenges and threats in our lives. Everyone experiences stress to some degree.

Anxiety: Anxiety is a feeling of unease, such as worry or fear, that can be mild or severe. Everyone has feelings of anxiety at some point in their life. For example, you may feel worried and anxious about sitting an exam, or having a medical test or job interview.

Depression: Depression (major depressive disorder) is a common and serious medical illness that negatively affects how you feel, the way you think and how you act.

Traumatic limb Amputation: Amputation is the loss or removal of a body part such as a finger, toe, hand, foot, arm or leg due to trauma. It can be a life changing experience affecting your ability to move, work, interact with others and maintain your independence. Continuing pain, phantom limb phenomena and emotional trauma can complicate recovery.

Amputation: Amputation is the loss or removal of a body part such as a finger, toe, hand, foot, arm or leg. It can be a life changing experience affecting your ability to move, work, interact with others and maintain your independence

CHAPTER – II	LITERATURE REVIEW

Amputation is the removal of a limb by trauma, medical illness, or surgery. As a surgical measure, it is used to control pain or a disease process in the affected limb, such as malignancy or gangrene. In some cases, it is carried out on individuals as a preventative surgery for such problems (Connel et al., 2016). Amputation leads a person to a permanent disability. It brings a dramatically change in the life, function and movement of the victims. These changed situations are experienced more bylower limb amputees than by upper limb amputees. The incidence of lower limb amputation is also higher than that of the upper limb (Calle Passcul et al., 2011). Limbs are very vital part of human body. But unfortunately because of illness or trauma loss of this limb or partial limb is called Amputation. Amputation leads to a permanent disability and brings many difficulties and limitation people's everyday life. It hampers persons Quality of Life (QoL) (Sinha et al., 2011).

Bangladesh is a low-and-middle-income-country with a population of 160 million. Incidence rate of lower limb amputation in Bangladesh is largely unknown except a study published in 1997 that reviewed 6 years-worth of data from one district and estimated incidence rate to be 75 per 100,000 populations (Aftabuddin et al., 1997). The incidence of lower limb amputation varies significantly across the globe, ranging from 5.8 to 31 per 100,000 (Hisam et al., 2016)

The Amputee Coalition of America estimates that there are 185,000 new lower extremity amputations occurs each year just within the United States and also reported that there are nearly 2 million people living with limb loss in the United States (LLA, 2012). The ratio of upper limb to lower limb amputation is 1:4. Around 30% of USA amputee patient have lower limb loss and 10% upper limb loss patient (Cooper, 2014).

Special case is that of congenital amputation, a congenital disorder, where fetal limbs have been cut off by constrictive bands. In some countries, amputation of the hands, feet or other body parts is or was used as a form of punishment for people who committed crimes (Ahmed et al., 2016).

Amputation may include solitary limbs (one- sided), both the upper or lower limbs (two-sided), or a blend of upper and lower amputation (numerous removals), amputation might be performed at different anatomical levels (De Laat et al., 2011).

According to the researcher loss or removal of a bodily part, such as a finger, toe, hand, foot, arm, or leg, is known as amputation. Your capacity to travel, work, communicate with others, and preserve your independence may all be impacted by this potentially life-changing experience. Recovery may be hampered by persistent pain, phantom limb occurrences, and emotional stress. Traumatic amputations can occur as a result of motor vehicle accidents, workplace or industrial accidents, or injuries sustained during conflict. Amputations due to trauma make up roughly 45% of all amputations. A bodily component may be severed or ripped off in an accident, or it may sustain severe burns or crush injuries that render it irreparably damaged. A bodily part may be amputated surgically if tissue damage, infection, or illness affect it in a way that renders it difficult to heal or endangers the person's life. Tissue death necessitating an amputation can also be brought on by trauma or illness that for an extended period of time shuts off blood supply to a bodily component. An illustration of this is frostbite, which can damage the blood vessels in the fingers and toes and ultimately need their removal (Shores, 2022).

According to the researcher Amputation due to trauma can have numerous negative effects on the body, mind, and society. Although the rehabilitation of individuals who have had traumatic limb amputations has seen a considerable rise in funding and public attention, little is known about the frequency of anxiety and despair, especially over the long term (Mckechnie & John, 2014).

The researcher said that trauma is a prominent source of morbidity and mortality, especially in poor countries, accounting for 16% of the global disease burden . Specifically, traffic accidents are, after HIV/AIDS, the second largest cause of death for young adults . According to estimates, the different types of injuries account for 12% of the disability adjusted life years lost globally. Trauma is the primary cause of disability worldwide and the disorder that results in the greatest loss of Disability-Adjusted Life Years (Bhutani, 2016).

According to the researcher in developing nations, trauma is the most common reason for limb amputation, coming in second place to peripheral vascular disease in industrialized nations. Among the populace in the UK, trauma causes 7-9% of the 5000 amputations carried out each year1. Since traumatic amputees often have a lengthy life expectancy, the prevalence is substantially higher. For instance, trauma accounts for 16% of annual amputations in the USA, whereas traumatic amputees make up 45% of those who live with an amputation (Perkins et al., 2011).

The researcher told that, A person's life can be drastically affected by limb loss, which frequently has long-lasting physical, psychological, and occupational repercussions. Amputations caused by trauma are a significant source of long-term disability and functional restriction. Among young adults of working age and teenagers. Despite a sizable and expanding body of literature on dysvascular amputations, few studies have looked at the epidemiology of amputations brought on by trauma. Amputation due to damage has distinct circumstances than amputation due to vascular disorders in general. Because of the patient's underlying illness, tissue repair after a dysvascular amputation may be significantly hindered. Traumatic amputation may be accompanied by a number of traumatic disorders, including bone fractures, nerve damage, etc. (Yasar et al.,2016).

According to the researcher in developing nations, trauma is the most common reason for limb amputation, coming in second place to peripheral vascular disease in industrialized nations. Among the populace in the UK, trauma causes 7-9% of the 5000 amputations carried out each year1. Since traumatic amputees often have a lengthy life expectancy, the prevalence is substantially higher. For instance, trauma accounts for 16% of annual amputations in the USA, whereas traumatic amputees make up 45% of those who live with an amputation (Perkins et al., 2011).

According to the author Eco-anxiety and climate anxiety are topics of significant scholarly interest and are frequently mentioned in modern media. Research on the definitions and variations of these phenomena is, however, lacking. This essay covers several eco-anxiety viewpoints from a wide diverse fields. Empirical investigations on various types of eco-anxiety are discussed using insights from various

anxiety theories. According to the paper, eco-anxiety appears to be influenced by uncertainty, unpredictability, and uncontrollability. The majority of eco-anxiety manifestations seem to be non-clinical, however "pathological" eco-anxiety cases are also included. Examining other pertinent concepts and phenomena, such as solastalgia, ecological trauma, and bereavement from the environment. Investigated is the connection between research on eco-anxiety and studies on ecological emotions and affect (Panu et al., 2020).

According to the researcher for pertinent studies published since 2002, a search of the literature was conducted using the available databases Cochrane, Medline, Embase, and PsycINFO. The impact on was one of the secondary results. Relationships, quality of life, employment, and substance abuse. The inclusion, exclusion, and quality criteria were met by the randomized control trials, observational studies, or reviews that were chosen. 13 studies in all were included in the review. In the initial literature search, 590 studies were found, and 485 of those came from the core databases. None came from key author searches or specialized sources. A references search turned up five. 104 relevant papers remained after duplicates were eliminated and a preliminary title filter. Following a consensus debate over three manuscripts, these were manually sorted against the inclusion criteria by both reviewers, leaving 32 publications. Two papers' full text versions were not accessible. Thirty more were evaluated for quality, and 13 were found to be acceptable for inclusion. The PRISMA provides a summary of the procedure. Inadequately documented techniques, insufficient results, digital amputations included with subgroups, an insufficient or absent traumatic amputation subgroup, and unrecognized or separate mental health outcomes were some of the reasons for exclusion based on quality. Another research concentrated only on four cases of electrical trauma, while a third piece examined the effects of post-operative fluid collections. One publication was a scoring system validation exercise (Mckechnie & John, 2014).

The researcher told that he two most common mental disorders, which impact hundreds of millions of people globally, are depression and anxiety disorders. Understanding the causes of these disorders and the associated mechanisms is crucial since it may lead to the development of new therapeutic approaches. The amygdala is

a region that serves as the kernel for processing emotional stimuli. Over the past few decades, a growing number of studies have highlighted the significance of the stress-induced inflammatory response in this region as a potentially significant contributor to the pathophysiology of depression and anxiety disorders. In this review, we first provide a summary of recent developments in understanding the causal relationship between stress-induced inflammation and depressive and anxiety disorders from both animal and human studies. with a focus on research demonstrating how inflammation affects neurons in the amygdala at a variety of levels, including molecular signaling, cellular function, synaptic plasticity, the neural circuit, and behavior, as well as their roles in the pathology of inflammation-related depression and anxiety disorders. Finally, we discussed some of the challenges facing the current research and suggested a few topics for further investigation in this area (Hu et al., 2022).

The author said that the quality of the diet is examined in relation to depression and anxiety disorders, as well as the clinical characteristics of these diseases (disorder type, severity, chronicity, and clinical subtypes). The Netherlands Study of Depression and Anxiety's 9-year follow-up provided data on 1634 persons (controls = 336, current disorder = 414, remitted = 886). Using Composite International Diagnostic Interviews, depressive and anxiety disorders were identified. The Alternative Healthy Eating Index and the Mediterranean Diet Score (MDS) were used to assess the quality of the diet (AHEI). Subjects with a present disorder had significantly lower-quality diets than controls who were in good health. When patients were divided into groups . There was a dose-response relationship between having a poorer diet and having chronic depression or anxiety problems that were more severe and affected all participants. Between IDS components pertaining to depression subtypes and food quality, there was no clear correlation. In particular, those with concomitant depression and anxiety disorders have lower diet quality. The quality of the food is worse the more severe and persistent the symptoms. Prospective studies are required to confirm the association between diet quality and depressed and anxiety disorders and to investigate whether enhancing diet quality could enhance mental health (Smith et al.,2018).

According to the researcher despite being as prevalent and potentially as incapacitating as depression, anxiety has received less attention and is frequently

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misdiagnosed and untreated in the general population. Similar to this, anxiety in medical students demands more focus due to its important ramifications. We set out to research the prevalence of anxiety among medical students worldwide as well as the associated risk factors. We conducted a thorough search for cross-sectional studies that looked at the prevalence of anxiety among medical students in February 2019. In order to investigate the origins of heterogeneity, we estimated the overall prevalence and pooled odds ratio (OR) using the random-effects model. 40,348 medical students' data from 69 trials were combined and examined. The percentage of medical students who reported having anxiety was 33.8% (95% Confidence Interval: 29.2-38.7%). Middle Eastern and Asian medical students experienced anxiety the most frequently. There were no statistically significant variations in the prevalence of anxiety between subgroup analyses by gender and study year. Anxiety affects almost one in three medical students worldwide, a prevalence rate that is significantly greater than that of the general population. When students are stressed and concerned, administrators and leaders of medical schools should take the initiative to de-stigmatize mental diseases and encourage help-seeking behaviors. To pinpoint the anxiety risk factors that are particular to medical students, more investigation is required (Quek et al., 2019).

According the researcher the death rates following major lower limb amputation (LLA) have always been very high. Regarding the risk variables, there exist contradictions. After a significant LLA, the reamputation rate is mostly unknown. The purpose of this study is to report the death and reamputation rates at 30 and 1 years following major LLA and to identify potential risk factors. All patients who underwent dysvascular major LLA in 2012–2013 at 12 institutions in the Netherlands' northern region are included in this observational cohort study. Major LLA was performed on 382 patients, 65% of whom were men, with an average age (SD) of 71.9 12.5 years. 88% of patients had peripheral arterial disease, and 56% had diabetes mellitus (DM). In contrast to 56% who had neither a major nor minor LLA on either limb prior to the research period, 26% had no revascularization or prior LLA on the side of the amputated leg. The death rates after 30 days and one year were 14% and 34%, respectively. Three to four times as many patients aged 75 to 84 and over 85 had a one-year mortality rate. One-year mortality was independently correlated with transfemoral amputation (OR 2.2), history of heart failure (OR 2.3), myocardial infarction (OR 1.7), hemodialysis

(OR 5.7), immunosuppressive medicine (OR 2.8), and guillotine amputation (OR 5.1). Within a year, 26% of patients underwent ipsilateral reamputation; no risk variables were found (Fard, 2020).

The researcher said that this prospective observational cohort research was conducted between January 2012 and February 2016 in 2 Dutch hospitals and included patients with critical limb ischemia who were 70 years of age or older. Following a multidisciplinary vascular meeting, patients were split into 4 treatment groups: endovascular revascularization, surgical revascularization, conservative therapy, and main major amputation. Using the Dutch translations of the Center for Epidemiological Studies Depression Scale and the StateTrait Anxiety Inventory, depression and anxiety were assessed four times during the course of a 1-year follow-up period (Peters et al., 2019).

The researcher said that the cause of peripheral artery disease (PAD) is atherosclerosis in the arteries that supply the lower extremities, which leads to arterial constriction or occlusion. Chronic limb-threatening ischemia, the most severe type of PAD, presents a high risk of limb loss and cardiovascular death. It is well established that diabetes mellitus raises the risk of PAD, speeds up the disease's course, and makes the condition worse. Patients who have both PAD and diabetes mellitus are at a higher risk of severe consequences, such amputation. Amputation rates among people who have both diabetes mellitus and PAD have remained consistent or even increased in high-risk categories, despite a decline in the total number of amputations carried out annually in the United States. Amputation risk varies significantly between regions, racial/ethnic groups, and socioeconomic status within this cohort. Particularly, patients who live in rural areas, those who identify as African-American or Native American, and those with low socioeconomic position are more at risk for amputation. The subgroups at high risk for amputation and the disparities they experience in receiving both preventative and interventional cardiovascular therapy must be the focus of efforts to enhance the quality of care for people with PAD and diabetes mellitus (Barnes et al., 2020).

The researcher said that a total of 138 patients were included. 44 patients had a significant limb amputated within a year. Patients with greater anxiety against those who did not did not have substantially lower amputation-free survival, and neither did

those who had more depressive symptoms versus those who did not. The anxiety scores for either group did not significantly change over time. When compared to the baseline measurement, depressed symptoms in amputees significantly decreased at median follow-up times of 336.5 days and 365 days, at 8.5 vs. 4.5 (95% CI 1.76e7.48, P 14 0.002) and 8.5 vs. 4.3 (95% CI 0.61e9.82, P 14 0.027), respectively. Similarly, following a median follow-up period of 365 days, non-amputees had a significantly lower total score for depressed symptoms (Peters et al., 2019).

The researcher said that a diabetic foot ulcer (DFU), which can lead to lower extremity amputation, is one of the most severe diabetes mellitus (DM) consequences (LEA).A sample of 149 DFU patients who underwent LEA completed a sociodemographic and clinical questionnaire, the Hospital Anxiety and Depression Scale, and both. The Cox proportional hazards models utilized in this longitudinal, multicenter investigation with four assessment points were adjusted for demographic and clinical factors. Ten months after a LEA, the rates of mortality, reamputation, and healing were 9.4%, 27.5%, and 61.7%, respectively. Anxiety was initially inversely related to healing. Depression did not, however, independently predict mortality. No psychological variable was linked to reamputation (Pedras et al., 2019).

The researcher said that numerous research have looked into how social support and coping mechanisms affect post-amputation psychosocial adjustment. Few, however, have concentrated on the significance of attachment styles. In order to better understand how attachment insecurity, social support, coping mechanisms, and unfavorable feelings like anxiety and depression affect adult amputees, this study looked at the connections between these variables. Sixty-two persons with amputations (71% men, 29% females), chosen from the Italian Workers' Compensation Authority's Prosthetic Center, completed the Beck Depression Inventory II, the State-Trait Anxiety Inventory Y, the Multidimensional Scale of Perceived Social Support, the Coping Inventory for Stressful Situations, and the Attachment Style Questionnaire. The link between attachment insecurity (i.e., attachment anxiety and attachment avoidance) and negative emotion (i.e., depression, state anxiety, and trait anxiety) variables was investigated using a mediation analysis based on Pearson's correlation values. Analysis showed that insecure attachment patterns had a significant impact on how people used

emotion-focused coping mechanisms. In adult amputees, the latter moderated the connection between attachment insecurity, sadness, and anxiety (Falgares et al., 2019).

Man is a social species, and his survival depends on his ability to form and maintain social bonds. The unique Corona virus and containment efforts offered such a barrier to interpersonal and communal connections that social relations were significantly disrupted as a result of social alienation and isolation. These social ties, interactions, and relationships have formed an important part of our lives since the dawn of humanity (Kang et al., 2020). So, if there isn't such a connection, it may lead to stressful states of loneliness, anxiety, despair, mental diseases, health risks, and a slew of other concerns that affect both the person and society as a whole. COVID-19-related public health issues are wreaking havoc on the population's mental health and causing an increase in psychological crises. COVID-19-related public health problems are wreaking havoc on people's mental health and leading to an upsurge in psychological crises (Liu et al., 2020).

While much clinical attention and study has been focused on treating the physiological consequences of the new coronavirus, affected individuals' psychological affects should also be considered (Prem et al., 2020). As the previous SARS and MERS outbreaks demonstrated, viral infections and subsequent isolation and quarantine can quickly result in sleep disturbances, anxiety, and other psychiatric symptoms. For example, 70.8 percent of patients had psychiatric symptoms, and 41.7 percent received a definitive psychiatric diagnosis and medication during their hospital stay (Kim et al., 2020)

A total of 1,427 people were surveyed in a cross-sectional research, and their mental health was measured using the DASS-21 scale. Anxiety and depressed symptoms were recorded by 33.7 percent and 57.9% of respondents, respectively, while 59.7% expressed medium to extremely severe stress levels. Poor mental health outcomes were substantially connected with perceptions that the pandemic interrupted life events, impacted mental health, jobs, the economy, and education, projections of a deteriorating situation, and uncertainty about the health-care system's capacity (Banna et al., 2020).

Mental health is a crucial and necessary component of overall health. According to WHO "Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." This concept implies that mental health encompasses more than the absence of mental diseases or impairments. Mental health is a condition of wellbeing in which a person recognizes his or her own potential, is able to cope with everyday stressors, works effectively, and contributes to his or her community. Mental health is essential to our ability to think, emote, interact with others, make a living, and enjoy life as a collective and individual human being. On this premise, mental health promotion, protection, and restoration may be seen as a critical concern for people, communities, and societies all over the world (Shigemura et al., 2020).

Anxiety is a sensation of tension accompanied by concerned thoughts and bodily changes such as elevated blood pressure. It's fairly unusual for someone suffering from anxiety to also be depressed, or vice versa. Anxiety disorders are found in nearly half of people diagnosed with depression. According to the World Health Organization (WHO), one in every thirteen people worldwide suffers from anxiety. As per the WHO, anxiety disorders are the most frequent mental disorders globally, with the most common anxiety disorders being specific phobia, major depressive disorder, and social phobia (Shigemura et al., 2020).

Anxiety and depression impact everyone in a society to a considerable extent. According to recent research, persons who are isolated or quarantined feel considerable levels of anxiety, rage, disorientation, and stress (Brooks et al., 2020). People's fear of the unknown nature of the Virus might lead to mental illnesses, according to studies done in China, the first country to be afflicted by this latest Virus outbreak (Shigemura et al., 2020).

Several Surveys has revealed increased incidence of anxiety and depression symptoms (Ahmed et al., 2020; Peng et al., 2020; Xiong et al., 2020). Nearly 30% of university students experienced anxiety symptoms, and more than 20% reported depression symptoms, according to a poll conducted from January 31 to February 3, 2020 (Chunyuan, 2021).

According to the findings, 392 (82.4 percent) students experience mild to severe depressive symptoms, while 389 (87.7%) students have medium to severe anxiety symptoms. More over 60% of the pupils were male (67.2%), with the remainder being female. One in every three pupils was from a rural region (35.1%). Less than a quarter of pupils (24.8 percent) claimed they were not behind in class, while slightly over 30 percent said they exercised frequently at home throughout the lockdown. 392 (82.4 %) of the 476 valid individuals were found to have mild to severe depression symptoms. Male students (67.35%) reported more depressed symptoms than female students (32.65%), whereas students in their early twenties (66.07 %) had more depressive symptoms than other age groups. Depression was especially common among students who did not engage in any physical activity (62.24%) or who felt they were falling behind in academic activities (76.78%). Furthermore, pupils who lived with their families (96.93%) and in urban areas (65.05%) had more depression symptoms. In the instance of anxiety, 389 students (87.7%) showed signs of mild to severe anxiety. Students who lived with their family were 2.6 times (95%ci: 1.418, 4.751) more likely to be depressed than those who did not. Students who provided supplemental lessons before lockdown, on the other hand, were 1.4 times (95% CI: 0.856, 2.227) more likely to exhibit mild to severe anxiety symptoms than those who did not. Students who were concerned about their academic activities were 1.8 times (95% CI: 1.099, 2.883) more 16 likely than students who were not concerned to have mild to severe anxiety symptoms. During the lockdown, kids who lived with their families were 1.8 times (95% CI: 1.021, 3.308) more likely to experience mild to severe anxiety symptoms than students who did not (Gritsenko et al., 2020).

Here are some common types of symptoms that can affect a person with depression: continuous anxious and sad filling, being hopeless, feeling iniquity, ill tempered, loss of doing mobility, lack of interest to do sexual activity, exhaustion, loss the ability to hold concentration, always feeling indecision, excessive sleeping or sleeping disturbance, loss of appetite or overeating, think about suicide, crying, lack of bonding with the baby, poor interest about the baby, mood swing (Bembnowska & Josko-Ochojska, 2015)

The causes of depression depend upon many factors if a family member has depression immediately increases the risk of developing depression of the other member of the 14 family. The age ranges of 20 to 40 years considered as most vulnerable period for getting depressed. During total life time women's mostly feels depressed among the tendency and frequency of attempt a suicide is more for women. Frequently a woman tends to committee suicide. Mostly women's attempts suicide but fails. Men are diagnosed with depression at a lower rate than women, and male depression rates in Western countries are half that of females. Experts believe that men's depression rates are lower than women's because of men's reluctance to disclose concerns about their mental health and seek professional mental health care. Surprisingly, male suicide rates are three times greater than female suicide rates Stigma around mental illness, which can impair men's help-seeking and/or treatment compliance and limit their self-disclosure about depressed symptoms and/or suicidal thoughts, is implicated in the discordant link between men's low rates of diagnosed depression and high suicide rates. Loss of jobs, getting divorced, loss of close person moreover negative life experience increased depression. Research proves that people who are unemployed for six months or more in the last five years had a higher rate of depression it's about three times more than of the general population (Oliffe et al., 2016). Suicide rates are greater among men than women in most countries. China is an exception, having greater rates in females, particularly young women in rural areas. Rural women's suicide rates, on the other hand, have fallen dramatically in the recent decade. The responsible factor for most of the suicidal case was depression, stress oranxiety. (Vijayakumar, 2015).

Anxiety leaves a lot of negative impact, which has a direct effect on the physical and psychological development of the mothers as well as the baby (Yilmaz et al., 2013). Anxiety is considered as a most common mental disorder that generally frequently occur, it is a trouble of emotional tone and temperament. It's get sprouted by mood, psychological concern. generalized anxiety disorder, specific phobia, social phobia, obsessive-compulsive disorder, acute stress disorder, and post-traumatic stress disorder. There are adjustment disorders with anxiety features, and disorders due to general medical conditions and substance-induced anxiety disorders is also assimilated. Diagnostic criteria for identifying anxiety is taking history at least for six months back

from now that was there any kind if continuous worrying or difficulty to controlling the worrying, and at the same period of time was there any three or more symptoms 15 particularly. Those are including restlessness, fluctuated mental status, lack of concentration or failed to hold concentration, irritability, insomnia. Sometimes the symptoms of anxiety show more similarity with the symptom of panic disorder such as shortness of breath, excessive sweating etc. Anxiety disorder mostly common for those people who has goes through stressful life event, women's always have higher rate of anxiety than man but the ultimate cause behind this is totally unknown. It is assumed that gonadal steroids act for male which plays role to inhibits anxiety. Different research proved that female goes through a wider stressful life event than men, so it can be the possible factor for anxiety of women. (Adwas et al., 2019).

3.1 Study design

It was a descriptive type of cross-sectional study.

3.2 Site

National Institute of Traumatology & Orthopedic Rehabilitation, Easy Life For Bangladesh, Bangladesh Mobility Limb Centre, Dynamic limb center in Dhaka city.

3.3 Study period

The duration of the study was 6 months form 3rd January 2023 to 31th July 2023

3.4 Sample size

We know that,

$$n = \frac{z^2 pq}{d^2}$$

Here,

n=required sample size

z=confidence level at 95% (standard value of 1.96)

p=the expected rate of prevalence, here researcher taken the Prevalence rate of (20.6%) 0.206 from the previous published literature by (Mckechnie., and Jhon., 2014).

d=margin of error at 5%(0.05)

q = 1-P

$$n = \frac{z^2 pq}{d^2}$$

$$n = \frac{z^2 p(1-q)}{d^2}$$

$$= \frac{(1.96)^2 \times 0.206 \times (1-0.206)}{(0.05)^2}$$

=251

So, Sample size is 251.

Researcher has collected 156 due to time limitation and unavailability of the participants.

3.5 Study population

Traumatic limb amputation patient attending in National Institute of Traumatology & Orthopedic Rehabilitation, Easy Life For Bangladesh, Bangladesh Mobility Limb Centre and Dynamic limb center .

3.6 Sampling Technique

The participants for the study were collected by using convenience sampling technique.

In this method samples are chosen according to the inclusion and exclusion criteria set by researcher.

3.7 Data collection tools

DASS 21 Scale, Questionnaire

3.8 Data Collection Procedure

The data was collected face to face interview. Data were collected after receiving permission from the ethical review board. A participant required around 15-20 minutes to gather responses to questions. The researcher also explained to all participants the goal of the study. Participants were guaranteed that their private information would never be disclosed. The questions were formulated in Bangla. The questionnaire consists of three parts; socio-demographic information, amputation related question and DASS21 scale.

3.9 Data Analysis

The data were analyzed with the Microsoft Office Excel 2019 with SPSS 25 version software program, and both descriptive (mean, standard deviation, frequency, percentage) and inferential statistics (eg: chi-square test).

3.10 Inclusion criteria

➢ People with limb amputation

➢ Both male and female were selected

➢ The age of 15-80 years

3.11 Exclusion criteria

➢ The subject who are not willingly participate.

➢ people who is medically unstable

3.12 Ethical consideration

• Bangladesh Medical Research Council (BMRC) and World Health Organization (WHO) guideline also were followed to conduct the study.

• The Research proposal was submitted to the ethical committee that ethical review board of SCMST Saic College of Medical Science and Technology approval was obtained from the Board.

• Written informed consent was taken at the time of enrolling the respondents.

• All respondents were informed that they are free to leave or to refuge to take part in this study at any time

• The personal information of the respondents was kept totally confidential.

3.13 Limitation

▪ The main limitation is its shortened duration to complete the study.

▪ This study conducted by my own fund. So, they might have some limitation and financial aspects with in this study.

▪ Resources were limited which have a great deal of impact on the study.

CHAPTER: IV	RESULT

The study aimed to identify the Stress, Anxiety, and depression following traumatic limb amputation. The data was collected by the researcher himself. Structured questions were used with both open-ended and close-ended questions in the questionnaire. The data were analyzed with the Microsoft Office Excel 2019 with SPSS 25 version software program. In this study researcher used tabular form, bar, Figure, Pie chart so show the result of the body.

Socio-demographic condition:

4.1.1 : Age of participant

This table shows that, in between 156 participants maximum age was >57 years and as follows minimum age was 16 years . Where are Mean ± SD (standard deviation) calculation was 41.16±.15.647years.; here 16-36 years were 39.7%(n=62), 37-57 years 42.9%(n=67) and >57 years 17.3% (n=27)of the participant.

Table-1: Age of participant

Age Group	Frequency (n=156)	Percentage	Mean	SD
16-36	62	39.7%	41.16	15.647
37-57	67	42.9%		
>57	27	17.3%		

4.1.2 : Gender of participants

Demographic data showed that, most of the participants were male, in number it was 136 and female were 20. In which male 87.2% rather than female 12.8% .
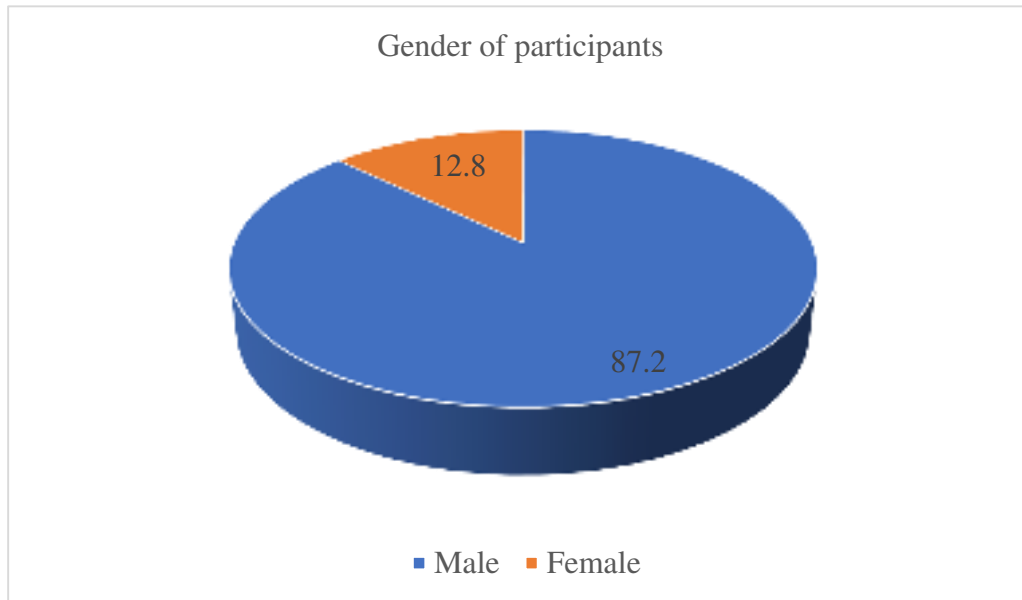
Figure-1: Gender of participant

4.1.3 : Living area of the participant

In this study, most of the participants live in rural area; herel 61.4%(n=100) participant were live in rural,9.6% (n=16) participant were live in semi urban ,26.3% (n=41) participant were live in urban.
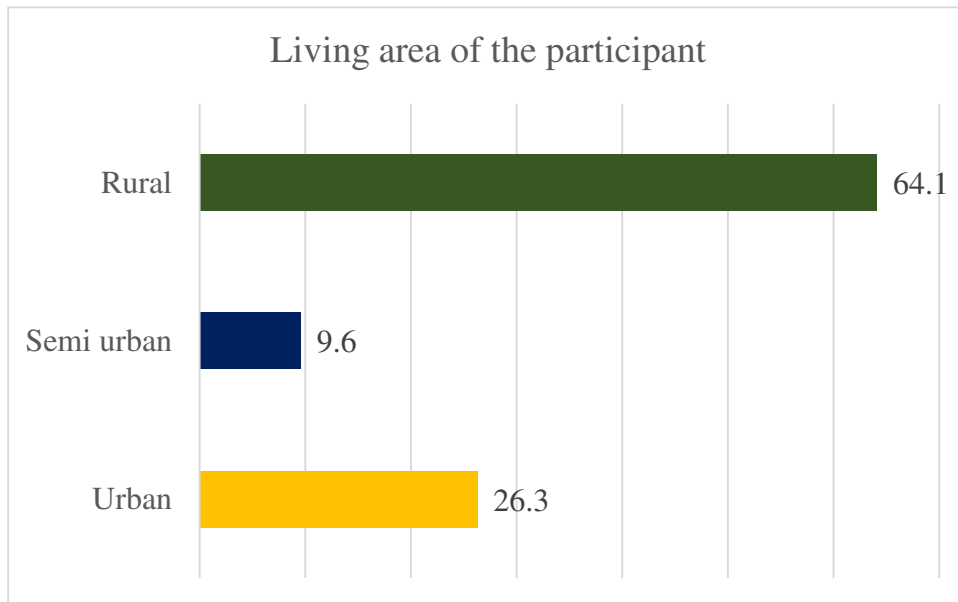
Figure-2: Living area of the participant

4.1.4 Education level of the Participant

This graph showed that, among 156 participants 23.7% (n=37) were PSC, 13.5% (n=21) were JSC, 14.7% (n=23) were SSC and 4.5% (n=7) were HSC, 6.4% (n= 10) were Honours , 1.9% (n=3) were Masters and 35.3% (n=55) were others.
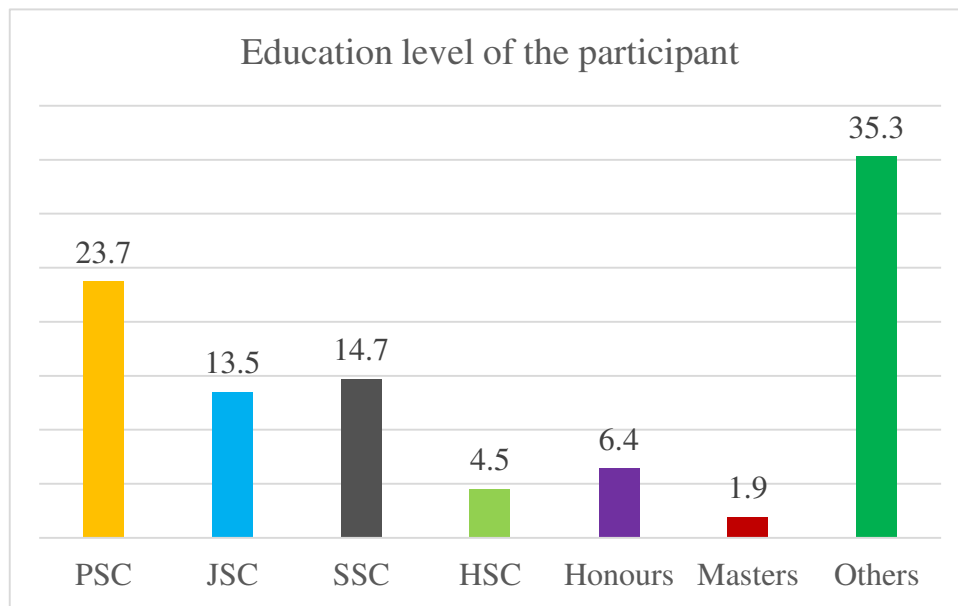
Fig-3: Education level of the Participant

4.1.4 : Types of family of the participant

This pie chart showed that, 86 participants or 55.1% were nuclear type family and 70 participants or 44.9% were extended type family.
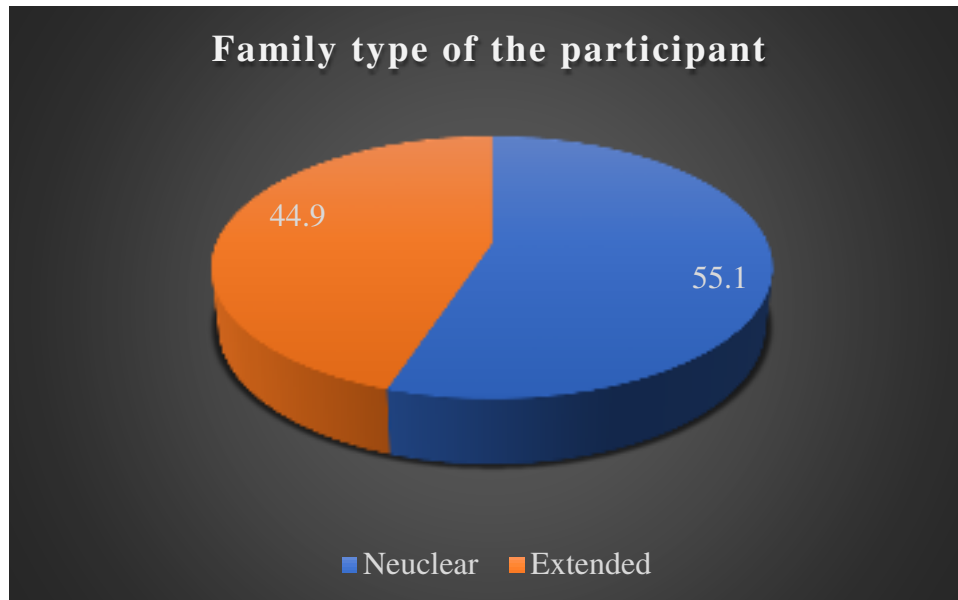
Figure-4: Types of family of the participant

4.1.5 : Income of the participant

This table showed that, participant means and standard deviation of participant income was Mean ± SD= 6134.62±.10059.235; here 0-20000 taka were earned 95.5% (n=149), 21000-41000 taka were 2.6%(n=4)and >41000 taka   1.9% (n=3) of the participant..

Table-2: Income of the participant

Amount	Frequency	Percentage	Mean	SD
0-20000	149	95.5%	6134.62	10059.235
21000-41000	4	2.6%		
>41000	3	1.9%		

4.1.6 : Religion of the participant

In this study, Out of 156 participants148 participants or 94.9% were muslim and 8 participants or 5.1% were hindu.

Religion of the participant

5.1

94.9

■ Muslim ■ Hindu
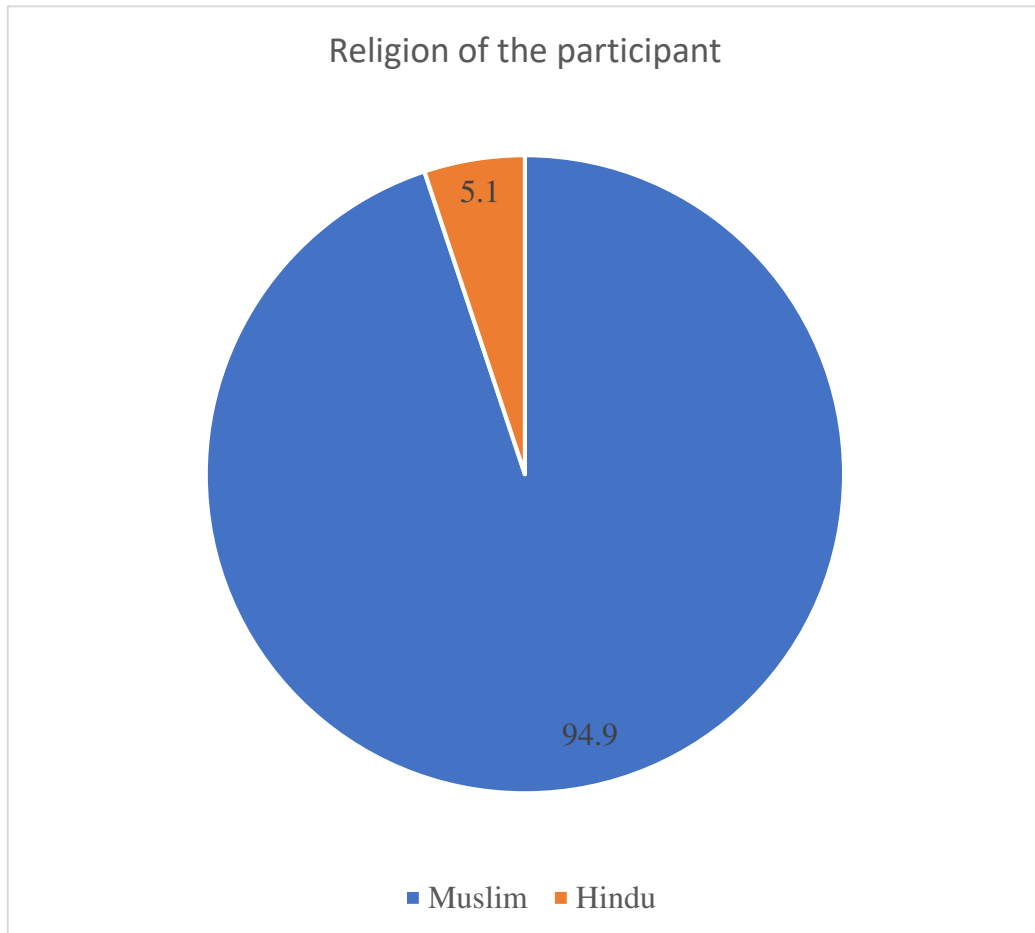
Figure-6: Religion of the participant

4.1.7 : Martial status of the participant

In case of their marital status 120 participants or 77% which was majority of number of attendance were married, where 23% or 36 participants were unmarried.

Marital status of the participant

23

77

■ Married ■ Unmarried
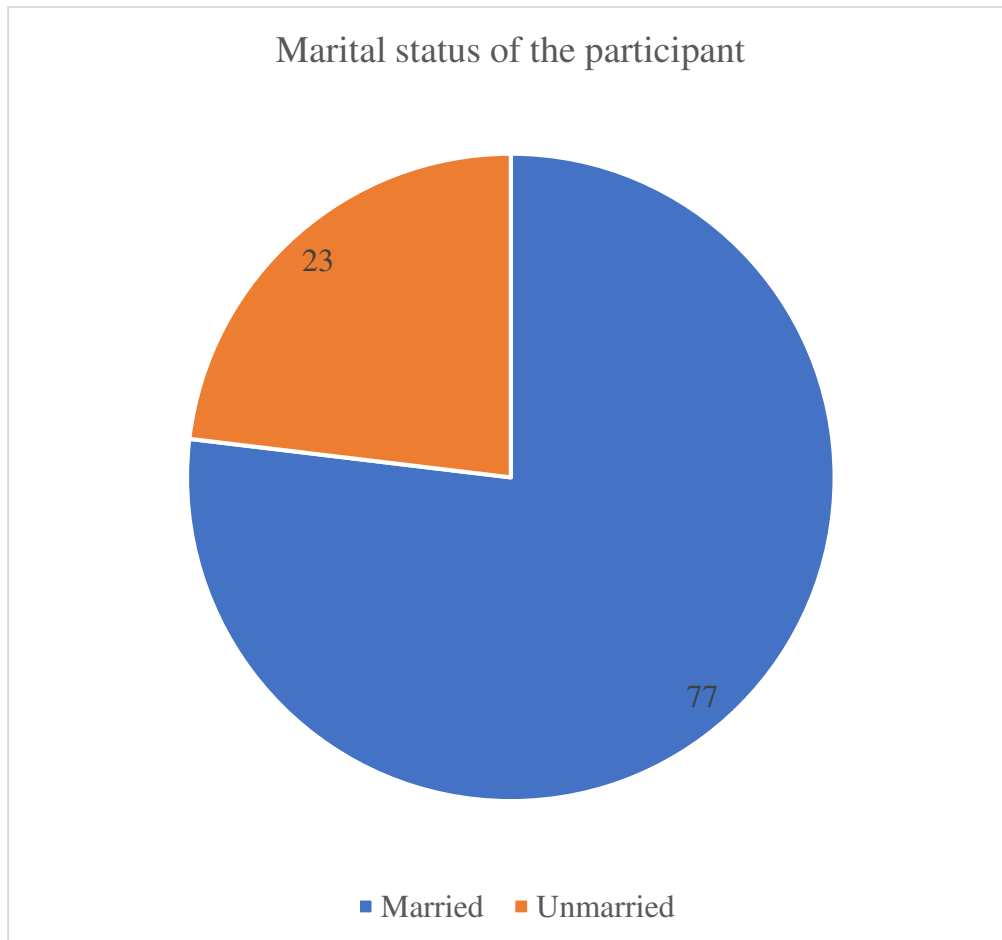
Figure-7: Martial status of the participant

4.2 : Amputation related Question

4.2.1 : Amputation level of the participant

In this study, 138 participants or 88.5% were lower limb amputation where 18 participants or 11.5% were upper limb amputation
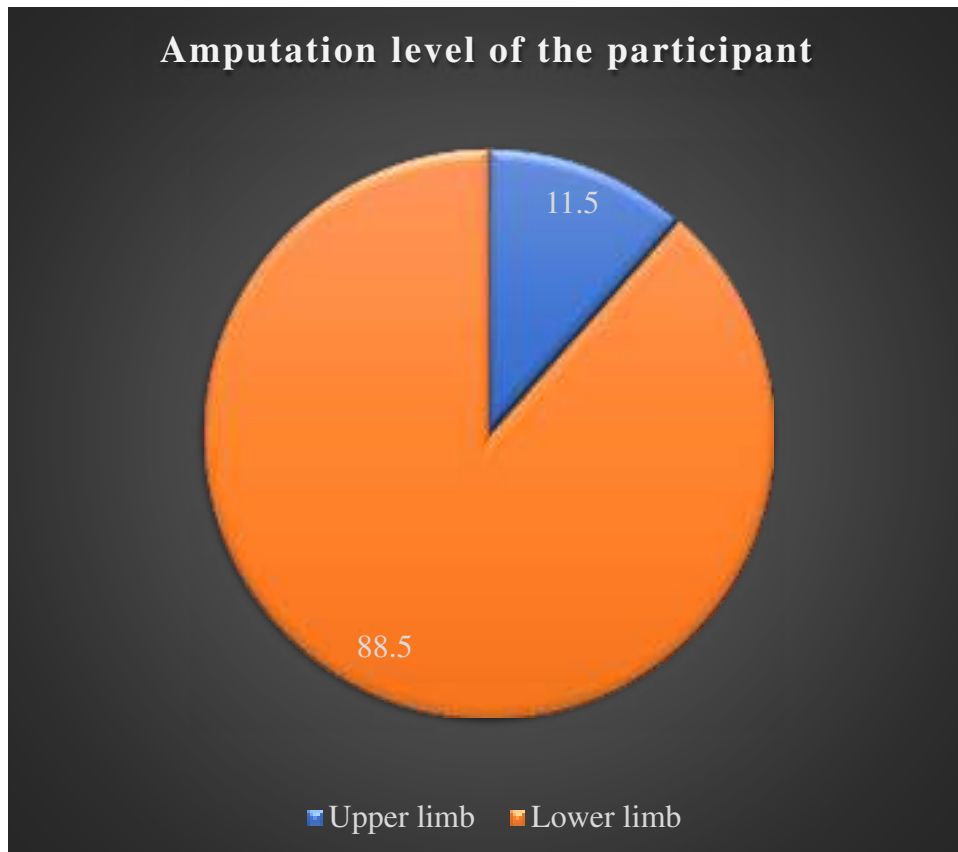
Fig-8: Amputation level of the participant

4.2.2 : Amputation area of the participant

This bar chart showed that, 1.9% (n=1) participant's amputation area were shoulder disarticulation, 41.0% (n=64) were below knee, 37.2% (n=58) were above knee, 4.5% (n=7) below elbow, 5.8% (n=9) above elbow, 6.4% (n=10)knee disarticulation and 2.6% (n=3) were ankle disarticulation.
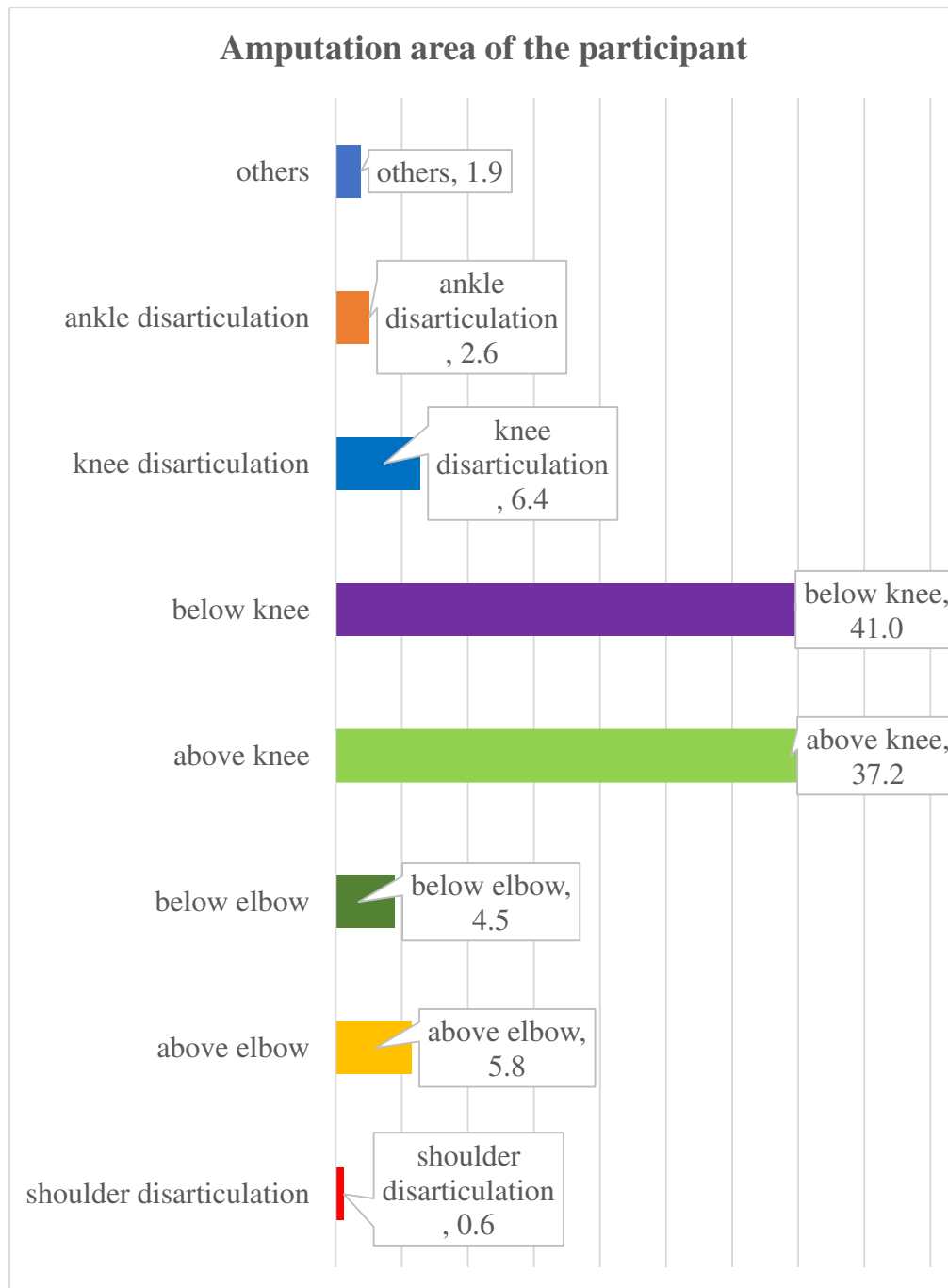
Fig-9: Amputation area of the participant

4.2.3 : Amputation side of the participant

In this study, 63.5% (n=99) participant's amputation side were right side, 34.6% (n=54) were left side and 1.9% (n=3) were both side.
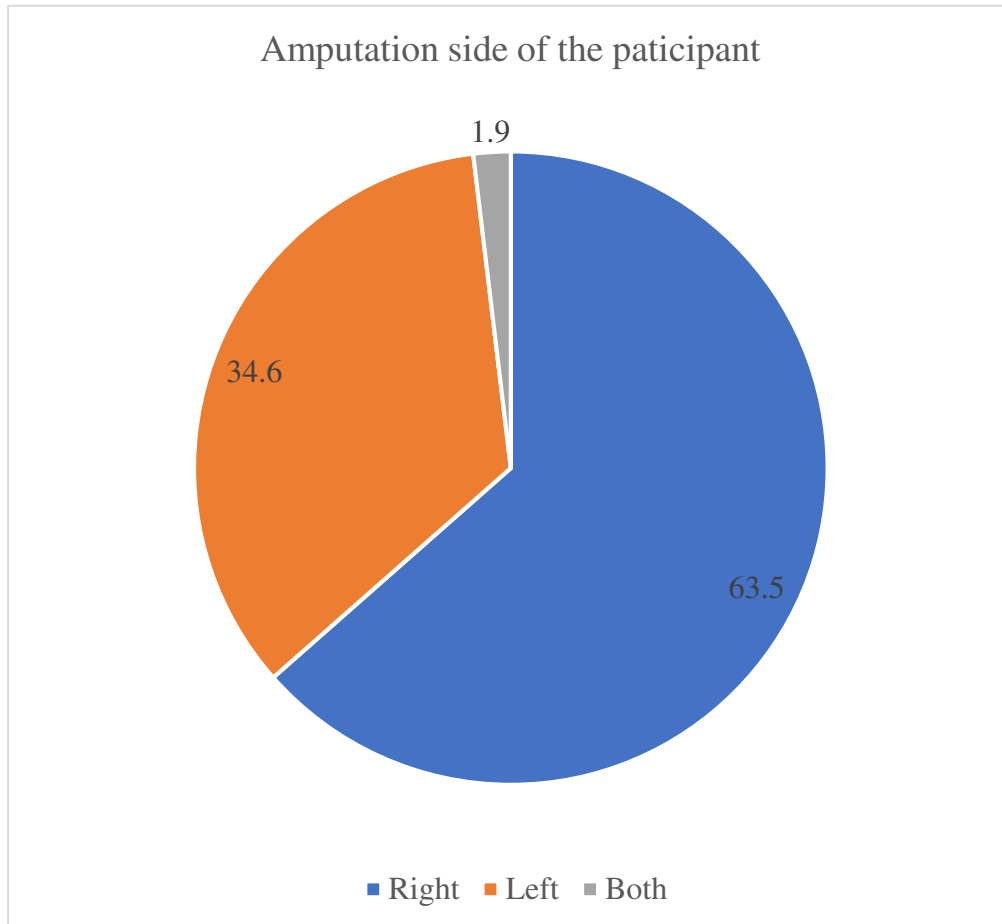
Figure- 10: Amputation side of the participant

4.3.1: Depression level of the participant

This study's participant mean and standard deviation of participant depression level where are Mean ± SD= 29.03±.8.169; here Normal were 1.3%(n=2), Mild were 2.6%(n=4), Moderate 12.8%(n=20), Severe 25.0%(n=39) and Extremely sever 58.3%(n=91) of the participant..

Table-3: Depression level of the participant

Types	Frequency	Percentage	Mean	SD
Normal	2	1.3	29.3	8.169
Mild	4	2.6		
Moderate	20	12.8		
Severe	39	25.0		
Extremely severe	91	58.3		

4.3.2: Anxiety level of the participant

This study's participant mean and standard deviation of participant anxiety level where are Mean ± SD= 18.14±.8.169; here Normal were 9.6%(n=15), Mild were 7.1%(n=11), Moderate 20.5%(n=32), Severe 16.0%(n=25) and Extremely sever 46.8%(n=73) of the participant.

Table-4: Anxiety level of the participant

Types	Frequency	Percentage	Mean	SD
Normal	15	9.6	18.14	8.19
Mild	11	7.1		
Moderate	32	20.5		
Severe	25	16.0		
Extremely severe	73	46.8		

4.3.3: Stress level of the participant

This study's participant mean and standard deviation of participant stress level where are Mean ± SD= 25.36±.7.024; here Normal were 6.4%(N=10), Mild were 12.2%(n=19), Moderate 33.3%(n=52), Severe 33.3%(n=52) and Extremely sever 14.7%(n=23) of the participant.

Table-5: Stress level of the participant

Types	Frequency	Percentage	Mean	SD
Normal	10	6.4	25. 36	7.024
Mild	19	12.2		
Moderate	52	33.3		
Severe	52	33.3		
Extremely severe	23	14.7		

4.4: ASSOCIATION

4.4.1: Association between amputation level of the participant and depression level of the participant

The table shows that the chi value was .082 and the P-value was 8.284. So, there is no significant Association between amputation level of the participant and depression level of the participant

Table no:6- Association between amputation level of the participant and depression level of the participant

Association between amputation level of the participant and depression level of the participant								P value	Chi value
		Level of depression						8.284	.082
		Normal	Mild	Moderate	Severe	Extremely severe	Total		
Level of amputation	Upper limb	0	1	2	9	6	18		
	Lower Limb	2	3	18	20	85	138		
Total		2	4	20	39	91	156		

4.4.2: Association between amputation level of the participant and anxiety level of the participant

The table shows that the chi value was .158 and the P-value was 6.605. So, there is no significant Association between amputation level of the participant and anxiety level of the participant

Table no:7- Association between amputation level of the participant and anxiety level of the participant

Association between amputation level of the participant and anxiety level of the participant									P value	Chi value
		Level of anxiety							6.605	.158
		Normal	Mild	Moderate	Severe	Extremely severe	Total			
Level of amputation	Upper limb	3	0	5	0	10	18			
	Lower Limb	12	11	27	25	63	139			
Total		15	11	32	25	73	158			

4.4.3: Association between amputation level of the participant and stress level of the participant

The table shows that the chi value was .243 and the P-value was 11.301. So, there is no significant Association between amputation level of the participant and stress level of the participant.

Table no:8- Association between amputation level of the participant and stress level of the participant

Association between amputation level of the participant and stress level of the participant								P value	Chi value
		Level of Stress						11.301	.023
		Normal	Mild	Moderate	Severe	Extremely severe	Total		
Level of amputation	Upper limb	4	1	8	3	3	18		
	Lower Limb	6	18	44	49	21	138		
Total		10	19	52	52	23	158		

51

4.4.4: Association between age of the participant and stress level of the participant

The table shows that the chi value was 25.385 and the P-value was .001. So, there is significant Association between age of the participant and stress level of the participant.

Table no:9- Association between age of the participant and stress type of the participant

Association between age of the participant and stress type of the participant								
							P value	Chi value
		Level of Stress					.001	25.385
		Normal	Mild	Moderate	Severe	Extremely severe	Total	
Age of the participant Total	16-36	5	15	22	15	5	62	
	37-57	3	3	24	28	9	67	
	>57	2	1	6	9	9	27	
Total		10	19	52	52	23	156	

4.4.5: Association between age of the participant and depression level of the participant

The table shows that the chi value was 25.275 and the P-value was 0.006. So, there is no significant Association between age of the participant and depression level of the participant.

Table no:10- Association between age of the participant and depression level of the participant

Association between age of the participant and depression level of the participant									
								P value	Chi value
		Level of depression						.275	2.0065
		Normal	Mild	Moderate	Severe	Extremely severe	Total		
Age of the participant Total	16-36	1	3	14	20	24	62		
	37-57	0	1	5	13	48	67		
	>57	1	0	1	6	19	27		
Total		2	4	20	39	91	156		

4.4.6: Association between age of the participant and anxiety level of the participant

The table shows that the chi value was 23.294 and the P-value was .003. So, there is significant Association between age of the participant and anxiety level of the participant.

Table no:11- Association between age of the participant and anxiety level of the participant

Association between age of the participant and anxiety level of the participant								P value	Chi value
		Level of anxiety						.003	23.294
		Normal	Mild	Moderate	Severe	Extremely severe	Total		
Age of the participant Total	16-36	11	9	14	6	22	62		
	37-57	3	1	12	16	35	67		
	>57	1	1	6	3	16	27		
Total		15	11	32	25	73	156		

The amputation of a limb brings about several changes in the psychological and social functioning of an individual. The researcher said that, One of the most serious complications of diabetes mellitus (DM) is a diabetic foot ulcer (DFU), with lower extremity amputation (LEA). Rate of mortality, re-amputation and healing, 10 months after LEA were 9.4%, 27.5% and 61.7%, respectively. Anxiety, at baseline, was negatively associated with healing. However, depression was not an independent predictor of mortality. None of the psychological factors was associated with reamputation. 99 patients with DMT2 and DFU treated with LEA were enrolled in the trial, and their postoperative care was monitored for 10 months (between 194 and 652 days). At the time of the baseline assessment, 69 patients (46.3%) had already undergone LEAs; of these, 14 (20.3%) had major LEAs, and 55 (79.7%) had minor amputations. There were no differences in sociodemographic or clinical variables between patients who left the study during the follow-up period and the study sample at T0, with the exception of the history of prior amputation, i.e., patients who left the study had fewer or no prior amputations (Pedras et al., 2020).

The median age of the participants was 43.8 years (SD = 12.6, range 21–77 years). The majority of participants (50.0%) had a high school graduation, were married (41.9%), and were men (71.0%). The lower limbs of 50 subjects (80.6%) were amputated. More than half (59.7%) had been coping with an amputation for less than five years, and the majority (91.9%) wore a prosthetic. Other demographic and amputation-related variable frequencies. Displays descriptive statistics for the study variables. When the effects of age and amputation-related factors (such as amputation level, reason for amputation, time since amputation, and use of prosthesis) on the important study variables were studied, no associations were identified for any of the variables taken into consideration. Significant correlations between attachment anxiety, state anxiety, trait anxiety, and depression were found using Pearson 'The amputation of a limb brings about several changes in the psychological and social functioning of an individuals correlations, as well as significant correlations between attachment anxiety, emotion-oriented coping, and avoidance-oriented coping, task-oriented coping, state anxiety, and trait anxiety, and emotion-oriented coping, state anxiety, trait anxiety, and depression. Attachment avoidance was substantially correlated with emotion-

focused coping, depression, trait anxiety, and state anxiety. There were no meaningful connections between perceived social support and any of the other variables. These variables were chosen to test the mediating role of emotion-oriented coping on the effect of insecure attachment on depression and anxiety in adults with amputation because of relationships between insecure attachment (anxiety and avoidance), emotion oriented coping, and negative emotions (depression and anxiety) variables (Falgares et al., 2019).

Of the 933 participants, 558 attended CCMU in Beijing (94.4% agreed to participate), and 375 attended HUST in Wuhan (79.6% consented to participate). In the knowledge questions that were correctly answered, graduate students pursuing Masters of Public Health degrees performed better than undergraduates (p 0.001). It is significant to note that the Chinese system has undergraduate medical students who can pursue specialties such as public health, pediatrics, etc. before graduating; if they choose the public health specialty, they can then choose to major in epidemiology and statistics, environmental health, etc. at the graduate level. Women were more likely than men to have an anxiety condition (p = 0.015) and depression (p 0.001). Wuhan students had more anxiety disorders than CCMU students did. 773 people (82.9%) were classified as having no anxiety disorder, 117 (12.5%) as having mild anxiety, 30 (3.2%) as having moderate anxiety, and 13 (1.4%) as having severe anxiety problem. When it came to depression, 697 students (74.7% of the class) were categorized as normal, 165 (17.7%) as having mild depression, 43 (4.6%) as having moderate depression, 18 (1.9%) as having moderate to severe depression, and 10 (1.1%) as having severe depression. In Wuhan, which was much more severely affected by COVID-19, the prevalence of anxiety disorder was substantially higher (p = 0.001) than in the other two institutions. Between the two colleges, Wuhan had a higher prevalence of depression, albeit this could simply have been due to chance being substantially higher than in men. Wuhan students had more anxiety disorders than CCMU students did (Xiao et al., 2020).

Depression is thought to be linked to a worse prognosis for morbidity in patients with critical limb ischemia, including major limb amputation. Anxiety and despair are frequent after significant amputations. We wanted to know whether elderly people with critical limb ischemia, particularly those who had major limb amputations, experienced

depression or anxiety symptoms. The total number of patients was 128 7. 44 patients had a significant limb amputated within a year. Patients with greater anxiety against those who did not did not have substantially lower amputation-free survival (X2 [1] 14 0.689, P 14 0.407), and neither did those who had more depressive symptoms versus those who did not (X2 [1] 14 0.614, P 14 0.433). The anxiety scores for either group did not significantly change over time. When compared to the baseline measurement, depressed symptoms in amputees significantly decreased at median follow-up times of 336.5 days and 365 days, at 8.5 vs. 4.5 (95% CI 1.76e7.48, P 14 0.002) and 8.5 vs. 4.3 (95% CI 0.61e9.82, P 14 0.027), respectively. Similarly, after a median follow-up of 365 days, nonamputees had a significantly lower total score for depressive symptoms (10.1 vs. 4.1, 95% CI 4.49 to 6.90, P < 0.001) (Peters et al., 2019).

The study aimed to identify the level of Stress, Anxiety, and depression following traumatic limb amputation. The data was collected by the researcher himself. Structured questions were used with both open-ended and close-ended questions in the questionnaire. This study's participant means and standard deviation of participant age where are Mean± SD= 41.16±.; here 16-36 years were 39.7%, 37-57 years 42.9% and >57 years 17.3% of the participant. In this study n=136 (87.2%) participant were male and n=20 (12.8%) participant were female. In this study n=100 (61.4%) participant were living in rural, n=16 (9.6%) participant were living in semi urban and n=41 (26.3%) participant were living in urban. In this study n=37 (23.7%) were PSC, n=21 (13.5%) were JSC, n=23 (14.7%) were SSC and n=7 (4.5%) were HSC, n= 10 (6.4%) were Honours, n=3 (1.9%) were Masters and n=55 (35.3)% were others. In this study n= 86 (55.1%) were nuclear and extended was n=70 (44.9%). This study's participant means and standard deviation of participant income was Mean ± SD= 6134.62±.10059.235; here 0 20000 taka were 95.5%, 21000-41000 taka were 2.6% and >41000 taka 1.9%, of the participant. In this study n=148 (94.9%) religion were muslim and n=8 (5.1%) religion were hindu. In this study n= 120 (77%) were married and n=36 (23%) were unmarried. In this study n=18 (11.5%) were upper limb and n= 138 (88.5%) were lower limb. In this study n=1 (.6%) shoulder disarticulation, n= 64 (41.0%) were below knee, n=58 (37.2%) were above knee, n=7 (4.5%) below elbow, n=9 (5.8%) above elbow, n=10 (6.4%) knee disarticulation and n=3 (1.9%) were ankle disarticulation. In this study were 63.5% right, 36.6% were left side and 1.9 were both. This study's participant means and standard deviation of participant depression level

where are Mean ± SD= 29.03±.8.169; here Normal were 1.3%, Mild were 2.6%, Moderate 12.8%, Severe 25.0% and Extremely sever 58.3% of the participant. This study's participant means and standard deviation of participant anxiety level where are Mean ± SD= 18.14±.8.169; here Normal were 9.6%, Mild were 7.1%, Moderate 20.5%, Severe 16.0% and Extremely sever 46.8% of the participant. This study's participant means and standard deviation of participant stress level where are Mean ± SD= 25.36±.7.024; here Normal were 6.4%, Mild were 12.2%, Moderate 33.3%, Severe 33.3% and Extremely sever 14.7% of the participant.

In this study the chi value was .082 and the P-value was 8.284. So, there is no significant Association between amputation level of the participant and depression level of the participant. the chi value was .158 and the P-value was 6.605. So, there is no significant Association between amputation level of the participant and anxiety level of the participant. the chi value was .243 and the P-value was 11.301. So, there is no significant Association between amputation level of the participant and stress level of the participant.

In this study the chi value was 23.294 and the P-value was .003. So, there is significant Association between age of the participant and anxiety level of the participant. In this study the chi value was 25.275 and the P-value was 0.006. So, there is no significant Association between age of the participant and depression level of the participant. In this study the chi value was 25.385 and the P-value was .001. So, there is significant Association between age of the participant and stress level of the participant.

CHAPTER-VI   CONCLUSION AND RECOMMENDATION

The aim of this study to assess the level of stress, anxiety and depression following traumatic limb amputation. In this study researcher found that, among traumatic limb amputation patients, maximum suffering from extremely severe level of depression. More than half of participants suffering from extremely severe level of anxiety and also similarly suffering from moderate and severe level of stress.

In this case, the researcher finds out the result that association between age and level of anxiety and level of stress are significant. But association between age and level of depression in not significant. Researcher also found that, there was no significant association between level of amputation and level of stress, anxiety and depression. Amputation is one of the leading causes of poor functioning, hampered daily living activities and a socioeconomic challenge. This is particularly true for developing countries like Bangladesh, where health support system including the rehabilitation system is not within the reach of ordinary people. It is clear that, this destructive condition not only affects the patient but also their family. Bangladesh is a developing country with low socio-economic condition where people are not enough concerned about psychological terms and implications. Health services are not sufficient in the Government and non-government sector. Although the level of stress, anxiety, and depression may not be clearly described by this study, a viewpoint may be expressed nonetheless. There is no related research in our country, so it will help further level for next several years.

RECOMMENDATIONS:

- If further study were done with large sample size, result may have generalized better.

- The researcher believe that better result can be found if data collection were

  done by using different type of scale or measurement tools in this study.

- In this study, if other variable were measured then better result were obtained.

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Consent Form

Assalamualaikum/Namashkar,

I am Aysharza Khan Zaba 4th Professional B.Sc. in Physiotherapy student, Saic college of medical science and technology under the Faculty of Medicine, University of Dhaka. To obtain my Bachelor degree, I have to conduct a research project and it is a part of mystudy. My research title is **Anxiety and Depression Following Traumatic Limb Amputation**. To fulfill my research project, I need to some information from you collect data. So, you can be respected participants of this research and the convenient time will be 20-30 minutes. I would like inform you that is a purely academic study and the information will not to be used for any purpose. I assure that all data will be kept confidential. Your participation will be voluntary. You may have the rights to withdraw consent and discontinue participation at any time of the experiment. You also have the rights to reject a particular question that you don't like.

May I start the interview? (Put the tick mark)

Yes

No

Signature of the participant and Date……………………………..

Signature of the interviewer and Date………………………………

সম্মতিপত্র

প্রিয় অংশগ্রহণকারী,

আমি ঐশ্বর্য খাঁন জবা, ঢাকা বিশ্ববিদ্যালয় দ্বারা অনুমোদিত "সাইক কলেজ অফ মেডিকেল সায়েন্স এন্ড টেকনোলজি" (এস সি এম এস টি) ফিজিওথেরাপি বিভাগে ব্যাচেলর অফ ফিজিওথেরাপি প্রোগ্রামের ছাত্রী। শিরোনামের অধ্যয়ন পরিচালনা করা হল-

"আঘাতমূলক অঙ্গবিচ্ছেদকৃত ব্যক্তিদের উদ্বেগ এবং বিষন্নতার মাত্রা"

আমার ব্যাচেলর ডিগ্রীর আংশিক পূর্ণতার জন্য থিসিসটি একটি অংশ হিসেবে কাজ করা। সামাজিক জনসংখ্যা সংক্রান্ত তথ্য, স্বাস্থ্যগত আচরণ এবং আর্থ সামাজিক অবস্থা অন্তর্ভুক্ত করে এমন প্রশ্নের একটি তালিকা রয়েছে যা আপনাকে পূরণ করতে হবে। এটি প্রায় ১৫-২০ মিনিট সময় নেবে সম্পূর্ণ তথ্য সংগ্রহ করার জন্য আমাকে একবার আপনার সাথে সাক্ষাৎ করতে হবে। আমি আপনাকে জানাতে চাই যে, এটি সম্পূর্ণ একটি একাডেমিক অধ্যয়ন এবং প্রাপ্ত তথ্য অন্য কোন উদ্দেশ্যে ব্যবহার করা হবে না। আপনার দ্বারা প্রাপ্ত সমস্ত তথ্য গোপন রাখা হবে এবং তথ্যের উৎসও বেনামী থাকবে, এই গবেষণায় আপনার অংশগ্রহণ স্বেচ্ছায় এবং সেই সাথে সাক্ষাৎকারের সময় আপনি পছন্দ করেন না বা উত্তর দিতে চান না এমন প্রশ্নের উত্তর না দেওয়ার অধিকার আপনার রয়েছে।

আমি শুরু করার আগে আপনার কোন প্রশ্ন আছে ?

তাহলে, সাক্ষাৎকার নিয়ে এগিয়ে যেতে আমি কি আপনার সম্মতি পেতে পারি ?

হ্যাঁ   না

অংশগ্রহণকারীর স্বাক্ষর: তারিখ:

গবেষকের স্বাক্ষর: তারিখ:

স্বাক্ষীর স্বাক্ষর: তারিখ:

স্বাক্ষীর মোবাইল নং:

আইডি নম্বর: ঠিকানা:

Anxiety and Depression Following Traumatic Limb Amputation

(Questionnaire)

Code no : [ ][ ][ ]   **Date**

Participant name:……………………………………………………...........

Address   : ……………………………………………………………

Phone No.   : …………………………………………...................

Section: 1. Sociodemographic information.

Q.N	Question	Ans.
1.	What is your age?	
2.	What is your gender? 1. Male 2. Female 3. Others	
3.	Where do you live? .... 1. Urban 2. Semi urban 3. Rural	

4.	What is your education level? 1. PSC 2. JSC 3. SSC 4. HSC	

	5. Honours 6. Masters 7. Others	

5.	Types of your family?
	
	  1. Nuclear
	
	  2. Extended
	
	  3. Others
		▭

6.	What's about your monthly income? ………………………………………..	▭

7.	What is your religion?
	
	  1. Muslim
	
	  2. Hindu
	
	  3. Buddhist
	
	  4. Christian
	
	  5. Others
		▭

8	What is your marital status?
	   1. Married
	
	   2. Unmarried	

Section: 2- Amputation related questions

9.	Where in your amputation level ? 1| Upper 2| Lower	

10.	Where in your amputation level ?
	
	   1. Above elbow
	   2. Below elbow
	   3. Above knee
	   4. Below knee
	   5. Knee disarticulation
	   6. Ankle disarticulation
	   7. Shoulder disarticulation
	   8. Upper limb
	   ৯. Lower limb	

11.	Which side is amputation on ?
	   1. Right
	   2. Left
	   ৩. Both	

Section: 3- DASS21

Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you **over the past week**. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

0   Did not apply to me at all

1   Applied to me to some degree, or some of the time

2   Applied to me to a considerable degree or a good part of time

3   Applied to me very much or most of the time

1	I found it hard to wind down	0	1	2	3
2	I was aware of dryness of my mouth	0	1	2	3
3	I couldn't seem to experience any positive feeling at all	0	1	2	3
4	I experienced breathing difficulty (e.g. excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3
5	I found it difficult to work up the initiative to do things	0	1	2	3
6	I tended to over-react to situations	0	1	2	3
7	I experienced trembling (e.g. in the hands)	0	1	2	3
8	I felt that I was using a lot of nervous energy	0	1	2	3
9	I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
10	I felt that I had nothing to look forward to	0	1	2	3
11	I found myself getting agitated	0	1	2	3
12	I found it difficult to relax	0	1	2	3
13	I felt down-hearted and blue	0	1	2	3
14	I was intolerant of anything that kept me from getting on with what I was doing	0	1	2	3
15	I felt I was close to panic	0	1	2	3
16	I was unable to become enthusiastic about anything	0	1	2	3
17	I felt I wasn't worth much as a person	0	1	2	3
18	I felt that I was rather touchy	0	1	2	3
19	I was aware of the action of my heart in the absence of physical exertion (e.g. sense of heart rate increase, heart missing a beat)	0	1	2	3
20	I felt scared without any good reason	0	1	2	3
21	I felt that life was meaningless	0	1	2	3

আঘাতমূলক অঙ্গবিচ্ছেদকৃত ব্যক্তিদের চাপ, উদ্বেগ ও বিষন্নতার মাত্রা

কোড: ◻◻◻   তারিখ:

অংশগ্রহণকারীর

নাম:...

ঠিকানা:...

মোবাইল নম্বর:...

অধ্যায়-১ সামাজিক জনসংখ্যার তথ্য

ক্রঃ নং	প্রশ্ন	উত্তর
১.	আপনার বয়স কত?	....................বছর
২.	আপনার লিঙ্গ কি ? ১। পুরুষ ২। মহিলা ৩। অন্যান্য	◻
৩.	আপনার ধর্ম কি ? ১। ইসলাম ২। হিন্দু ৩। খ্রিষ্টান ৪। বৌদ্ধ ৫। অন্যান্য	◻
৪.	আপনার বৈবাহিক অবস্থা কি ? ১। বিবাহিত ২। অবিবাহিত ৩। তালাকপ্রাপ্ত ৪। অন্যান্য	◻

৫.	আপনি কোথায় বাস করেন ? ১। শহর ২। উপ-শহর ৩। গ্রাম	
৬.	আপনার শিক্ষাগত যোগ্যতা কি ? ১। পি এস সি ২। জেএসসি ৩। এসএসসি ৪। এইচএসসি ৫। অনার্স ৬। মাস্টার্স ৭। অন্যান্য	
৭.	আপনার পরিবারের ধরণ কেমন ? ১। একক ২। যৌথ ৩। অন্যান্য	
৮.	আপনার মাসিক আয় কত ....?	

অধ্যায়-২ অঙ্গচ্ছেদ সম্পর্কিত তথ্য

৯.	আপনার অঙ্গচ্ছেদের স্তর কোথায় ? ১। উপরের অঙ্গ ২। নিচের অঙ্গ	
১০.	আপনার অঙ্গচ্ছেদের জায়গা ? ১। কাঁধ বিচ্ছিন্নকরণ ২। কনুইয়ের উপরে ৩। কনুইয়ের নিচে ৪। কজি বিচ্ছিন্নকরণ ৫। নিতম্বের বিচ্ছিন্নকরণ ৬। হাঁটুর উপরে ৭। হাঁটুর নিচে ৮। হাঁটুর বিচ্ছিন্নকরণ ৯। গোড়ালি বিচ্ছিন্নকরণ ১০। অন্যান্য	
১১.	আপনার অঙ্গচ্ছেদ কোন পাশে ? ১। ডান ২। বাম ৩। উভয়	

অধ্যায়-৩ ডাস-২১

অনুগ্রহ করে নিচের প্রতিটি বিবৃতি পড়ুন এবং ০,১,২ অথবা ৩ এর মধ্যে গত সপ্তাহ ব্যপী আপনার জন্য প্রযোজ্য যেকোন একটি সংখ্যায় গোল চিহ্ন দিন। এখানে কোন সঠিক বা ভূল উত্তর নেই। কোন বিবৃতির জন্য বেশি সময় ব্যয় করবেন না। মানদন্ড (রেটিং স্কেল) নিম্নরূপ:

০ আমার জন্য একেবারেই প্রযোজ্য নয়

১ আমার জন্য অল্পমাত্রায় বা কখনো কখনো প্রযোজ্য

২ আমার জন্য বেশ কিছুমাত্রায় বা বেশীরভাগ সময়ের জন্য প্রযোজ্য

৩ আমার জন্য খুব বেশী বা বেশীরভাগ সময়ের জন্য প্রযোজ্য

১.	কোন উৎকণ্ঠা বা উত্তেজনামূলক কাজের পর আরামদায়ক অবস্থায় ফিরে আসা আমার জন্য কঠিন ছিল।	০	১	২	৩
২.	আমি বুঝতে পারতাম যে আমার গলা শুকিয়ে আসছে।	০	১	২	৩
৩.	ইতিবাচক কোন অনুভূতিই আমার মধ্যে কাজ করত না।	০	১	২	৩
৪.	আমার শ্বাসকষ্টের অনুভূতি হত (যেমন অতিদ্রুত শ্বাসপ্রশ্বাস, শারিরীক পরিশ্রম ছাড়াই নিঃশ্বাস বন্ধ হয়ে আসা)	০	১	২	৩
৫.	নিজে উদ্যোগী হয়ে কোন কাজ শুরু করা আমার জন্য কঠিন হত।	০	১	২	৩
৬.	আমার মধ্যে বিভিন্ন পরিস্থিতিতে অতিরিক্ত প্রতিক্রিয়া করার প্রবনতা ছিল।	০	১	২	৩
৭.	আমার শরীর কাঁপার অভিজ্ঞতা হয়েছিল (যেমন: হাত কাঁপা)।	০	১	২	৩
৮.	আমার মনে হতো যে আমি খুব বেশী স্নায়ু চাপে ভুগছি।	০	১	২	৩
৯.	আমি এমন পরিস্থিতি সম্পর্কে দুশ্চিন্তাগ্রস্থ ছিলাম যেখানে আমি তীব্রভাবে আতঙ্কিত হতে পারি এবং এমন কোন কাজ করতে পারি যাতে অন্যরা আমাকে বোকা মনে করবে।	০	১	২	৩
১০.	আমার মনে হচ্ছিল, ভবিষ্যতে আমার ভালো কিছুরই আশা নাই।	০	১	২	৩
১১.	আমি অনুভব করতাম যে আমি খুব অস্থির হয়ে যাচ্ছি।	০	১	২	৩
১২.	আরাম বোধ করা আমার জন্য কঠিন হত।	০	১	২	৩
১৩.	আমি মনমরা এবং বিষণ্ণ অনুভব করতাম।	০	১	২	৩

১৪.	আমার কাজে বাধা হয় এমন যে কোন জিনিসই আমার কাছে অসহ্য লাগত।	০	১	২	৩
১৫.	আমার মনে হত এই বুঝি আমি হঠাৎ তীব্রভাবে আতঙ্কগ্রস্ত হচ্ছি।	০	১	২	৩
১৬.	কোন কিছুতেই আমি বেশী আগ্রহী হতে পারতাম না।	০	১	২	৩
১৭.	আমি অনুভব করতাম ব্যক্তি হিসেবে আমার বিশেষ কোন মূল্য নেই।	০	১	২	৩
১৮.	আমি অনুভব করতাম আমি একটুতেই মনে ব্যথা পাই।	০	১	২	৩
১৯.	শারীরিক পরিশ্রম না করলেও আমি হৃদপিন্ডের কাজ করা বুঝতে পারতাম (যেমন: হৃদস্পন্দন বৃদ্ধির অনুভূতি বা বুক ধড়ফড় করা, হৃদপিন্ডের স্পন্দনে ব্যাঘাত)।	০	১	২	৩
২০.	যথাযথ কারন ছাড়াই আমি ভীত-সন্ত্রস্ত বোধ করতাম।	০	১	২	৩
২১.	জীবনটা অর্থহীন বলে মনে হত।	০	১	২	৩

APPENDIX-IV

SAIC COLLEGE OF MEDICAL SCIENCE AND TECHNOLOGY

Approved by Ministry of Health and Family Welfare
Affiliated with Dhaka University

Ref :

Ref.No: SCMST/PT/ERB-2017-18/1-2023/07

Date : ....

3rd January'2023

To

Aysharza Khan Zaba

4th Professional B.Sc. in Physiotherapy

Saic College of Medical Science and Technology (SCMST)

Mirpur-14, Dhaka-1216.

Sub: Permission to collect data

Dear Zaba,

Ethical review board (ERB) of SCMST pleased to inform you that your proposal has been reviewed by ERB of SCMST and we are giving you the permission to conduct study entitled "Anxiety and depression following traumatic limb amputation" and for successful completion of this study you can start data collection from now.

Wishing you all the best.

Thanking You,

11.01'23

Head of ERB

Ethical Review Board

Saic College of Medical Science and Technology

11. 01.23

Principal

Saic College of Medical Science and Technology

Mirpur-14, Dhaka-1216

Green Life Bangladesh

Proprietor

22.02.23

Permitted

Easy Life For Bangladesh

Chairman

09.02.23

Permitted

Permitted

15/2/23

Abdus Salam

Director (Marketing & Sales)

Dynamic Limb Center

Address: Saic Tower, M-1/6, Mirpur-14, Dhaka-1216.Mobile:01936005804
E-mail: simt140@gmail.com, Web:www.saicmedical.edu.bd

APPENDIX-V

SAIC COLLEGE OF MEDICAL SCIENCE AND TECHNOLOGY

Approved by Ministry of Health and Family Welfare
Affiliated with Dhaka University

Ref :

Date : ....

Ref.No: SCMST/PT/ERB-2017-18/1-2023/07

6th February'2023

To

The Director,

National Institute of Traumatology & Orthopedic Rehabilitation,

Sher-E-Bangla Nagar, Dhaka-1207

Sub: Permission to collect data

Dear Mam/Sir,

Ethical review board (ERB) of SCMST pleased to inform you that Aysharza Khan Zabu of final year B.Sc. in Physiotherapy student from Saic College of Medical Science and Technology doing a thesis entitle of "Anxiety and depression following traumatic limb amputation" which has been reviewed by ERB of SCMST.

I hope you will give kind permission to her to collect data to complete her study successfully and oblige thereby.

Thanking You,

Head of ERB

Ethical Review Board

Saic College of Medical Science and Technology

Principal

Saic College of Medical Science and Technology

Mirpur-14, Dhaka-1216

Address: Saic Tower, M-1/6, Mirpur-14, Dhaka-1206. Mobile: 01936005804
......zmst140@gmail.com. Web:www.saicmedical.edu.bd

Gant Chart

Activities/ Month	July 22	Aug 22	Sep 22	Oct 22	Nov 22	Dec 22	Jan 23	Feb 23	Mar 23	App 23	May 23	Jun 23
Proposal Presentation	■											
Introduction	■	■										
Literature Review	■	■	■	■	■	■	■	■	■	■	■	■
Methodology			■	■								
Data collection						■	■	■				
Data Analysis									■			
Result									■			
1st progress presentation										■		
Discussion											■	
Conclusion and Recommendation											■	
2nd progress presentation										■		
Communication with supervision	■	■	■	■	■	■	■	■	■	■	■	■
Final Submission												■

APPENDIX-VII