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PAIN AFTER STROKE AND ITS SUBSEQUENT EFFECT ON HEALTH-RELATED QUALITY OF LIFE.

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PAIN AFTER STROKE AND ITS SUBSEQUENT EFFECT ON HEALTH-RELATED QUALITY OF LIFE.

Submitted by **Maliha Hossain Meem**, for the partial fulfilment of the requirement for the degree of Bachelor of Science in Physiotherapy (B.sc. PT).

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DECLARATION

I declare that the work presented here is my own. All sources used here have been cited appropriately. Any mistakes or inaccuracies are my own. I also declare that for any publication, presentation or dissemination of information of the study, I would be bound to take written consent from ~~Head of~~ the Department of Physiotherapy of Bangladesh Health Professions Institute (BHPI).

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Acronyms

BHPI : Bangladesh Health Profession's Institute

CRP : Centre for the Rehabilitation of the Paralysed

IRB: Institutional Review Board

WHO : World Health Organization

SPSS : Statistical Package for the Social Sciences

QoL : Quality of Life

HRQoL: Health Related Quality of Life

BMRC: Bangladesh Medical Research Council

ADL : Activity of Daily Living

IASP: International Association for the Study of Pain

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ABSTRACT

Purpose: The purpose of this study was to evaluate the effect of pain on health related quality of life patients with stroke. **Objectives:** The objectives of this study were to evaluate the presence of pain, level of pain intensity, to know whether there is any association between pain, age and overall quality of Life. Objectives also were to know about any association between pain intensity and socio-demographic information like age, sex, co-morbidity, types of stroke, affected side, and duration of pain. **Methodology**: The study design was cross-sectional. Total 127 samples were selected conveniently for this study from Centre for the rehabilitation of the paralyzed (CRP), Neurology unit, at Savar. Data was collected by using of questionnaire, Pain intensity was measured by visual analogue scale and health-related quality of life (HRQOL) was assessed by the (SF-36v2) health survey questionnaire. The study was conducted by descriptive and inferential analysis through using SPSS software 20.0 version. **Results:** This study found the level of pain among patients who experienced stroke. Pain intensity was severe among 16.5% participants, 42.7% had moderate pain, 18.9% had mild pain and rest of 17.3% participants had no pain. A significant association was found in between average pain intensity & quality of life after Stroke. Statistically significant association also found in between age & quality of life. No association found between some sociodemographic information such as Age, gender, co-morbidity, types of stroke, affected side with intensity of pain. **Conclusion:** Pain after stroke is a common condition which has an influence on physical and psychological aspects of Quality of life (QoL). Stroke itself has a negative impact in QOL it can raise pain and pain also has a adverse effect on QoL. After stroke, when pain intensity becomes high, it causes hamper in a person's activity of daily living in both physical and mental way. It seems like that if pain intensity is high the overall quality of life become lower. So early detection and proper management of this condition is essential during rehabilitation to prevent more complications and to improve quality of life for individuals with stroke.

Key words: Stroke, Pain, Quality of life.

CHAPTER-I **INTRODUCTION**

1.1 Background:-

A disease named Stroke is a neurological disease which mostly affects those arteries that supplies blood to all over the brain. Stroke occurs when arteries that carries oxygen and nutrients enriched blood to the brain is either blocked by a clot or bursts (or ruptures) (Johnson et al., 2016).

According to World Health Organization," a clinical syndrome consisting of rapidly developing clinical signs of focal (or in case of coma) disturbance of cerebral function lasting more than 24 hours or leading to death with no apparent cause other than a vascular origin"(Coupland et al.,2017).

Among all non-communicable disease Stroke places second-leading cause of death as well as plying a major role that causes various type of disabilities such as mental and physical. Most Importantly, long term disability followed by stroke, which has a bad influence on quality of life, attitude, perception and performance(Kim et al., 2015).By the meantime, due to increasing knowledge and awareness about stroke and advance treatment in acute phase helps in fast recovery (Feng & Belagaje, 2013). On the other hand another report projects that survival rate after stroke will rapidly increase upto 90% (Silva et al., 2013).

Lower- middle economic country like Bangladesh, has a higher prevalence rate of Non-communicable disease like stroke. Day by day it becomes a burden of health care system as it causes severe disease and disability (Cohen et al., 2015). About 10.3 million new cases of stroke occurs all over the world, and the death rate is 6.5 million (Feigin et al., 2015).

Likewise, Bangladesh also has a high prevalence rate of stroke which is about 11.39 per 1000 adult lives (Mondalet al., 2021). Comparatively, this rate is much higher than other low and middle economic countries but lower than high economical countries. If it

compares with the country of our sub-continent then the prevalence rate is almost similar with India, higher than Srilanka and much lower than Pakistan (Kalkondeet al., 2016).

Pain after stroke is a very common event for a stroke survivor. Pain after stroke can be manifest as various types such as- neuropathic pain, central-post stroke pain, musculoskeletal pain (nociceptive pain),spasticity-related pain etc. (Paolucci et al., 2016).Previous studies showed that various type of post stroke pain range from 10% to 45.8% and central post stroke pain range from on average 1% to 12% (Hansenet al.,2012).

Kumar & Elavarasi (2016) stated that, pain; world widely acts as a pointer of any disease. It often originates for different reason. Sometimes from injury and sometimes from any major hidden disease. Famous Greek philosopher "Plato" said that a feeling named pain, arises from within the body and indicating that pain is more of an emotional experience.

According to the International Association for the Study of Pain (IASP) 1994, - "An unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage"(Williams & Craig, 2016).

Mainly pain can be categorized into various ways, among them acute, sub-acute and chronic category are supposed to be the main sub-category of pain. According to the definition of acute pain- pain which lasts 2-6 weeks is called acute pain. Sun-acute pain occurs when pain last less than 3 months or last 6-12 weeks. And chronic pain - pain which persists more than 3 months is considered as chronic pain. Sometimes it lasts for months to year. The time course of chronic pain is about < 12 weeks. (Banerjee & Argaez, 2019).

Usually after stroke, chronic pain become a common complication. However, the chronic pain syndromes are reported to be a common complication after ischemic stroke. Additionally, the cause for this consequences is still not properly understandable, but reportedly it has a negative effect on health related quality of life(O'Donnell et al., 2013).

Chronic pain is a very common condition after stroke and the incidence rate of chronic pain is about 45-65% (Hansenet al.,2012). Importantly, many patients experience pain differently after stroke. As in they never felt similar pain before stroke (Klit, H et al., 2011). Research shows that, there has a significant difference between pain before stroke and pain after stroke so health care providers should be aware of this condition for proper rehabilitation (Haslamet al., 2020).

Stroke with others disabilities cause lowering of quality of life. Moreover, stroke itself cause long term disability(Hung et al., 2012). Many studies previously showed that quality of life specially, sleep, cognitive function, mobility, emotions, mental feeling, etc. decreased after stroke. As well as physical activity is related to quality of life(Baumann et al.,2014).

Quality of life and different consequences of stroke is usually inversely proportional. Stroke directly affects the health related quality of life of a patient (Kimet al., 2015).Some factors negatively affect the quality of life such as - Cognitive impairment after stroke, advanced age, depression, functional impairment, disability, medical problems (Kilic et al., 2015).

Along with other secondary complications, pain itself can create its own secondary disabilities which decrease patient functional activities. Also, it can be effect on the recovery or rehabilitation phase after stroke. Thus, it prevents one optimal participation during rehabilitation which can eventually bring negative impact on a patient's future quality of life. Moreover, Pain after stroke, specially, chronic pain, used to respond incompletely towards medication or other treatments. So this symptoms should be treated carefully with proper treatment procedure (Treister et al., 2017).

Health related quality of life plays a vital role in the matter of success rate after stroke. It has been proven that, stroke itself and stroke along with other complications lower the quality of life in relation to both physical and mental component t(Mahesh et al., 2018).

So, according to above articles it can be said that pain is a very common condition after stroke, and it can be felt anywhere in the body. There are many factors which causes pain

after stroke. On the other hand, stroke itself has an adverse effect on quality of life of stroke survivors. Usually, stroke itself causes poor quality of life. Considering these issues, the aim of the study is to explore the effect of pain on quality of life after stroke.

1.2 JUSTIFICATION:

Stroke is a life threating medical condition which plays one of the leading role for death and cause life long disability. Stroke mainly occurs when the brain doesn't get sufficient blood supply due to blood clot or burst / rupture of artery which supply oxygenated blood to the brain. But the presentation of stroke has a lot of variation. And a wide range of secondary complications develop after stroke which often remain underdiagnosed.

Pain, most importantly chronic pain is a common complication after stroke and it associated with the presence of depression, cognitive dysfunction, and impaired quality of life. Rehabilitation process of patients often hampered because of pain and health care practitioners cannot fulfill their aim because of poor quality of life of patients due to pain.

Although all over the world, there have several researches based on this topic. Where they have showed different association of pain with stroke. But, here I would like to mention that, there has no research have ever done upon "Pain after stroke and its subsequent effect on health- related quality of life" before in Bangladesh as well as CRP. Even a very few similar articles found on this topic from south Asian countries.

So according to various available literature, pain is a very common and it can be felt anywhere in the body. Subsequently, stroke has several adverse effect on quality of life of stroke survivors. Considering this issue, the purpose of my study is to explore the effect of pain on the quality of life of stroke survivors. So, my study about this topic will help to bring about a clear vision towards post stroke pain and its subsequent effect on health related quality of life. Thus, it will help in rehabilitation as well as other health professionals to give appropriate treatment before a patient fell upon pain after stroke.

1.3 Research Question:

- What is the effect of post stroke pain on health related quality of life among stroke survivors?

1.4 Study Objectives:

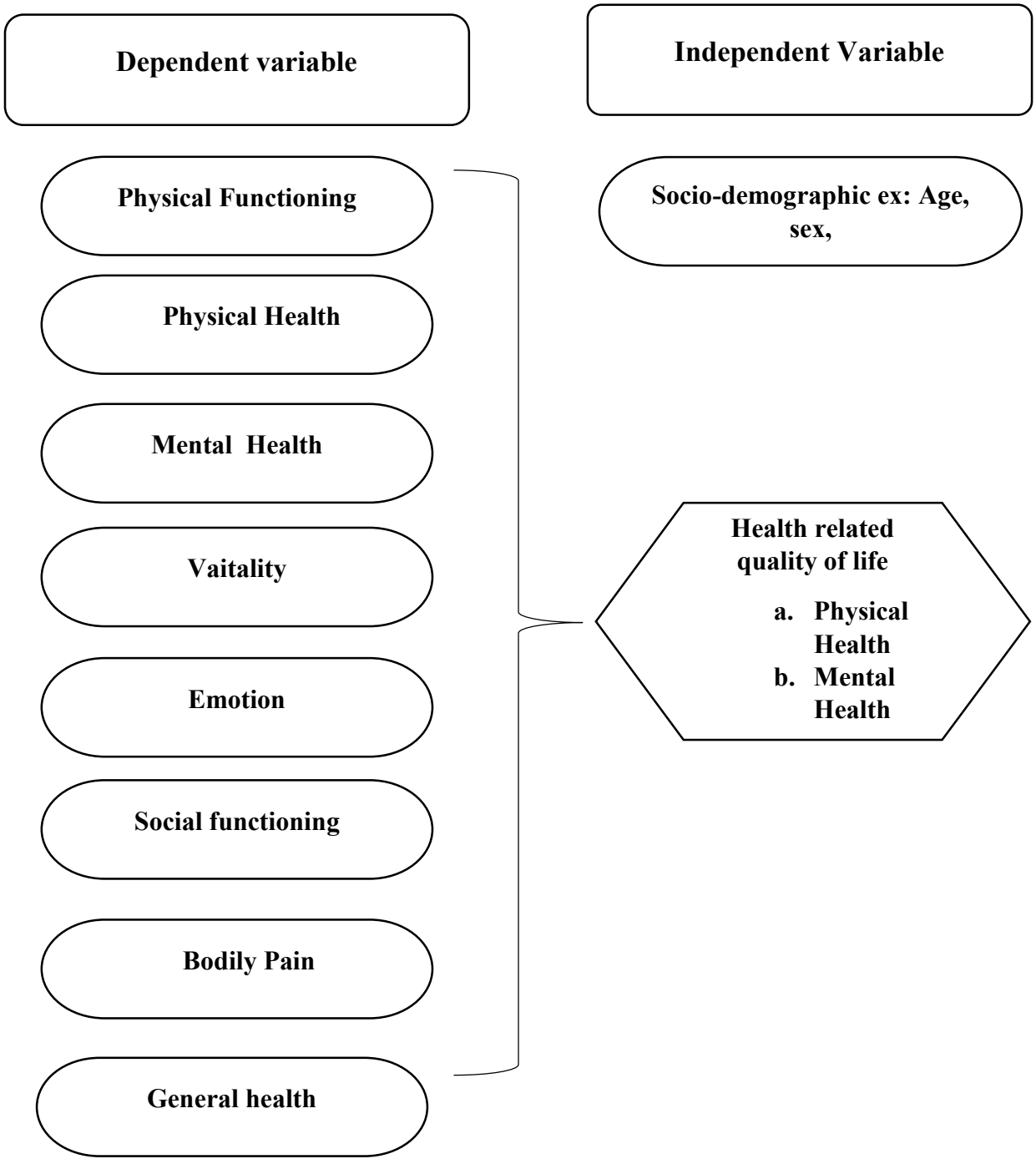
1.4.1 General objective

- To discover the effect of pain on the quality of life of the stroke survivor.

1.4.2. Specific objective

- To identify the socio-demographic information (age, gender, family history, co-morbidity etc.) of participants
- To find out the level of physical functioning, role limitation physical health, mental health, emotional status, vitality, bodily pain, social functioning, general health of participants
- To find out the relationship between different sociodemographic features, physical parameters, pain parameters and the individual domain of health related QOL

1.5 Conceptual framework:-



1.6 Operational Definition:-

Stroke:

A clinical illness characterized by rapidly growing clinical signs of focal disruption of cerebral function lasting more than 24 hours or leading to death, with no evident explanation other than a vascular origin.

Pain:

An unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage.

Chronic Pain:

pain which persists more than 3 months is considered as chronic pain. Sometimes it lasts for months to year . The time course of chronic pain is about 3-6 months.

Health:

A state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity.

Quality of life:

Quality of life as "an individual's perception of his/her position in life in the context of the culture and value systems in which he/she lives, and in relation to his/her goals, expectations, standards and concerns.

CHAPTER-II LITERATURE REVIEW

An extensive literature review was conducted through the use of the key words of the title and associated area of interest. Google, Google scholar, pubmed, PEDro, Hinari, BHPI library were the sources of the information. The literatures were taken from the different scholary articles, general scientific articles from 2003 to 2021. The review results are as follows.

Stroke:-

The word "Stroke" arises from the Greek word "Apoplexia". Apoplexy is a term which usually use to describe a condition where, suddenly all activities of mind becomes abolished but the respiration and pulse rate remain preserved. According to apoplexy, experiencing sudden pain, losing speech with asphyxia, inability to move any body part, loss of bowel control, usually consider as it's symptom. However, this concept of stroke cant not properly define the modern's definition of stroke (Coupland et al.,2017).

In 1970, the World Health Organization defined stroke as- 'rapidly developed clinical signs of focal disturbance of cerebral function, lasting more than 24 hours or leading to death, with no apparent cause other than of vascular origin'.

Though this definition is still using widely but however American Heart Association and American Stroke Association consider it as an outdated version. According to them, stroke has reached in a advance nature, it course of time has changed, and clinical feature is also changing day by day(Sacco et al.,2013).

On the other hand, American Stroke Association proposed an updated definition in 2009 , where they said – "transient ischemic attack (TIA): a brief episode of neurological dysfunction caused by focal brain or retinal ischemia, with clinical symptoms typically lasting less than one hour, and without evidence of acute infarction"(Easton et al.,2009).

Cerebrovascular Accidents(CVA) or stroke plays 2nd leading cause of premature death and 3rd leading cause of disability, all over the world. It also responsible for dementia and depression. It usually occurs because of sudden lack of oxygen to the brain which cause for lack of blood supply due to sudden rupture or blockage of artery to the brain. Thus, it cause sudden death of brain cells (Johnson et al.,2016).

According to statistics, in the past two decades (1990-2010) the incidence of stroke was 84% and stroke related death was 26%. Alarmingly, the incidence of stroke has been significantly higher in the low and middle economic countries. On the other hand, within the same time the incidence of stroke has decreased noticeably in higher economic countries. Fortunately, the mortality rate after stroke has been decreased upto 25% in high income countries and 20% in low and middle income countries (Feigin et al., 2014).

In Bangladesh, after coronary heart disease and various infectious disease (like influenza, pneumonia). Stroke places 3rd position for death. According to World Health Organization rank- Bangladesh has posited 84 among all countries of the world on the basis of mortality rate due to stroke . The rate of death due to stroke rises upto 6.00%-8.57% from 2006-2011. Prevalence rate of stroke in Bangladesh is 0.3% and the male female ratio is 3.44:2.41. Like prevalence, the incidence rate has not recorded yet (Islamet al., 2013).

Symptoms and Diagnosis of stroke:-

According to Ojike et al., 2016, stroke has 5 basic criteria, and on their research they were concern about finding the awareness rate among people about symptoms. Those 5 sign includes-

- Sudden weakness or feeling of paralysis in any body part or one side of body
- Disturbed eyesight (one or both)
- Dysarthria
- Loss of equilibrium and feeling shakiness which cause difficulty in walking

- Post stroke headache

It can be said that the reason of stroke is absolute neurological deficit. What types of sign a stroke patient will show is totally depend on the affected side of the brain. And it will be more specified if the artery which is blocked or ruptured is find out. There has much similarity between ishchemic and haemorrhagic stroke on the matter of diagnostic criteria. MRI and CT scan helps in differentiate diagnosis in the very early stage of stroke (Musuka et al.,2015).

Prevalence of Stroke with types:-

A research published on 2003, by feigin et al, in their research they have found that there has a huge prevalence rate of ishchaemic stroke (67.3%-80.5%), almost 6.5-19.6% were intracerebral haemorrhagic subtype and0.8-7%were subarachnoid subtype. Rest of them (2-14.5%) were undefined type (Mondalet al., 2021).But the incidence and mortality rate varies from country to country and geographical region (Katan & Luft, 2018).

Risk Factors:-

Risk factors of stroke differ from male to female, some factor which differ female from male is hormonal issues, coagulation factor, pregnancy, child birth, immunity ,reproductive factor, migraine, obesity, metabolic syndrome, oral contraceptive pills etc. These have impact on women health, and make them more predominant to stroke. Arterial fibrilation, hypertension, age, metabolic factors, depression and stress, cerebral venous thrombosis etc. both acts as a risk factor for male and female (Bushnellet al.,2014).

Relation of Stroke with pain

Among all non-communicable disease stroke is one of the leading cause of morbidity and mortality. Additionally, it causes various physical impairment which brings a different type of long time disability such as- visual impairment, difficulty in speech, complete or partial hearing loss and many more like that. Like these mentioned diseases, chronic pain

is also a consequence of stroke. The reported prevalence of chronic pain in stroke survivors varies considerably, which ranging from 11 to 53% (Kong et al., 2004).

Pain following stroke is considered as a major problem for individual's with stroke. It has a variation in prevalence rate which range from 19-74% and it becomes an impairment for stroke survivals. This different variation in prevalence rate occurs because of study population, time since stroke onset assessment etc. Long term mortality also associates with pain after stroke. Both central and peripheral types of pain mechanism cause stroke more devastating. Pain also responsible for other complications which gradually turns into disease (Sommerfeld & Welmer, 2012).

Sensory abnormalities harmfully stimulate different types of pain pathway specially, central post stroke pain. And somatosensory system abnormalities brings nociceptive, psychogenic, or peripheral pain (Klit et al.,2011). Some research shows - quality of life (QoL) decreases about 40% in compared with life before stroke. It is obvious that pain can affect recreational activities, vocational status, and quality of sleep. Also, it has a significant importance on QoL, mood, and rehabilitation outcome (Aprile et al., 2015). It is already proved that patients with central post stroke chronic pain, is facing tremendous physical illness as well as reduced physical functioning, and eventually lowering the quality of life. Further, pain and psychological disorders are vice-versa so that pain can also affects on psychosocial functioning. Likewise, a relationship has also been found between post stroke pain and depression (Şahin et al.,2016).

Pain after stroke

On average, up to 70% of stroke survivors experience pain on a daily basis. Though there is a lot of variation present in the reported prevalence of post-stroke pain(Klit,et al.,2011).

Pain is one of the main reason for physical impairment, and various mental disorder after stroke. Devastatingly, the nature of pain is very persistent and which cause fatigue, depression and especially, decreased quality of life. Different type of pain with various nature, can be experienced by patients after stroke in different times. Among them

musculoskeletal pain such as shoulder pain is very common. Except this, neuropathic pain syndrome is also common after stroke (Choi-Kwonet al., 2017).

Normally, 15-49% of patient experience pain after stroke within first two years, but this issue often overlooked. Various types of pain usually experienced by stroke survivors among them most common pain feature is, headache, shoulder pain, central post stroke pain, post stroke headache. Prevalence rate of post stroke headache is ranging from 27-31% and most of the time patients experienced it within first 3 month or in acute phase of stroke (Hansenet al., 2012).

There are various medical conditions which are associated with pain after stroke. Like stroke, pain is also common in diabetes (57.8%), and multiple sclerosis (66%) etc. Some research found prevalence of pain after stroke which is between 33.3% - 49%. There are some basic characteristics such as – female sex, Higher education level, fatigue, and anxiety symptoms. Post stroke pain causes decrease of cognitive and motor abilities and increased mortality rate. Post stroke pain has an alarming impact on the matter of quality of life (Tang,et al.,2015).

Chronic pain helps to make stroke as a burden. When pain consistently persist more than 3 months; its considered as chronic pain. And the reported prevalence of chronic pain is about 40-60%.Stroke survivors used to experience the pain intensity become moderate to severe day by day. Unfortunately, adverse effect of pain directly and indirectly affect one's quality of life very badly and it often cause depression, fatigue, anxiety disorder (Haslam,et al.,2021).

Prevalence of chronic pain is much higher than the incidence rate of stroke, where chronic pain prevalence is 45-65% and incidence of stroke ranges from 19-30%. Though pain has an adverse effect on quality of life but very few evidence found on this issue (Haslam,et al.,2020).

Measurement of pain:

In this study, the intensity of pain was measured by visual analouge scale. It is one of the most common pain measurement tool. This scale usually ranges from 0-10 cm or 0-

100mm. Score 0-4mm is considered as no pain, 5-45mm is considered as mild pain, 46-74mm is considered as moderate pain and 75-100mm considered as severe pain (Jensen et al.,2003).

Pain has been categorized in different ways. It widely classified as nociceptive and neuropathic pain. Nociceptive pain cause when damage occurs on muscle, bone, skin or internal organ. On the other hand, neuropathic pain causes for damage on nerve (Ohand Seo,2015).

Common Post-Stroke Pain Subtypes:

In fact Stroke localization also has a role, for creating different types of pain. There has a lot of pain types which usually occur after stroke. Such as –

Neuropathic pain:-

Pain has various category. Neuropathic pain is one of them. Further it can be divided into central and peripheral neuropathic pain which based on anatomic locations of lesion or disease. Among them central neuropathic pain is most common after stroke, which often known as central post stroke pain (Oh &Seo,2015).

Neuropathic pain is highly related with higher spasticity sensory deficits. With association of neuropathic pain and sensory deficit, the possibility of developing abnormal brain plasticity become higher (Şahinet al.,2016).

Central Post stroke pain:-

Central post stroke pain is a type of neuropathic pain. CPSP is a specific pain condition in which pain is assumed to be the result of a lesion of the normal pain pathways. CPSP was previously defined as ‘‘a neuropathic pain syndrome following stroke characterized by pain and sensory abnormalities in parts of the body that correspond to the cerebrovascular lesion where no other obvious nociceptive, psychogenic, and peripheral neurogenic origin for the pain is present’ (Klitet al.,2011).

Central post stroke pain is a type of neuropathic pain because it happens for any lesion of central nervous or any type of dysfunction. When stroke involve any part of the sensory tract than this pain symptom can be present. In this type of pain, patient described they feel burning, icy and squeezing type of symptom (Kumaret al.,2009).Up to 12% patients can go through CPSP after stroke (Konget al.,2004).

Central post stroke pain affects individual's health related quality of life. Usually,20-30 days is enough after stroke to develop post stroke pain. This pain has various types of feature. Sometimes it can be felt as, burning, freezing, squeezing, or lacerating at the same time. Additionally, this pain can be felt anywhere of the body part (Şahinet al.,2016).

Spasticity-Related Pain:-

Most of the patient who experience pain after stroke have spasticity. Approximately 72% of patients experience pain with plasticity (Sommerfeld&Welmer,2012). Clinical characteristics of Spasticity-Related Pain shows some abnormal pattern of muscle activation with externally imposed perturbation. In that case muscle tone develops within 1 week and nearly one quarter of patients face it after stroke. Spasticity itself has various forms among them - upper motor neuron syndrome include spastic dystonia, spastic co-contraction, and exaggerated reflexes (Harrison& Field,2015).

Shoulder Complex Pain: Glenohumeral Subluxation and Contractures:

Pain in shoulder is one of the most common complication after stroke and its prevalence rate between 50-80% of and subsequently it causes upper extremity disability. There are many factors contribute to shoulder pain and it causes decreased motor function, somatosensory impairments, decreased range of motion. Some studies have showed that, activity of daily living and quality of life remarkably reduced with shoulder pain in comparison to other who don't have shoulder pain (Lindgren & Brogard, 2018).

After stroke, approximately 16.4% of survivor experience pain in shoulder area, especially on their affected side (Hansen et al.,2012).

According to its Prevalence, Shoulder complex pain as well as shoulder subluxation (inferior glenohumeral joint displacement) and contracture is a common nociceptive pain syndrome after stroke. There are mainly two main type of musculoskeletal shoulder pain. Those are, shoulder subluxation (inferior glenohumeral joint displacement) and contractures.

The reported prevalence of hemiplegic shoulder pain is 16–72% of stroke patients. Usually symptoms begin to start within 3 weeks after the stroke .There are some risk factor for developing post stroke musculoskeletal shoulder pain. It includes upper extremity weakness, stroke severity, sensory abnormalities, abnormal rheumatologic exam, spasticity, right hemispheric lesions (Harrison & Field, 2015).

Shoulder pain also affect in rehabilitation. When shoulder becomes very painful, one's may not prefer to move shoulder independently thus it could affects on rehabilitation. An immobile shoulder not only causes problem in upper limb but also it causes problem in balance, transfers and most importantly self care activities (Turner and Jackson, 2002).

Shoulder complex pain, alarmingly, reduce Health related quality of life within 12 month after acute stroke. Proper precautions may help to prevent this complication (Adey-Wakelinget al.,2016).

Complex Regional Pain Syndrome:-

Clinical features of Complex regional pain syndrome (CRPS) refers to pain, edema, vasomotor changes, and specially patchy bone demineralization of an extremity. Complex regional pain syndrome can be referred also. It may be referred as reflex sympathetic dystrophy, causalgia, and Sudeck's atrophy; or shoulder-hand syndrome. Complex regional pain has two types of varities .They are-

Type I:- In this type there has no definable nerve lesion,

Type II:- There has some definable nerve lesion.

But basically most stroke patient categorized as type 1 complex regional pain syndrome. It has a variable incidence among patient and the range between 2 to 49% . (Yu, 2008).

Post Stroke Headache:-

Prevalence of post stroke headache is about 27-31%. And importantly, the prevalence rate totally depends on the type of stroke. Sometimes, recurrent headache felt at least 3 months before occurring stroke and this rate is up to 10.9% (Hansenet al.,2012).

Generally, post stroke headache remains poorly characterized in the literature. But, there have 10% patient who suffer from chronic headache after stroke. The time of onset of occuring it at 6 months after stroke. Mainly, post-stroke headache has been characterized as a tension-type headache (Lan Nguyen Hoanget al.,2012).

Different joint pain:-

17.1% of stroke survivor experience different types of joint pain within 3 months, on the other hand 26.6% experience within 6 months. Noticeably, 9.8% of people felt different joint pain before stroke (Hansen et al.,2012).

For stroke patient, pain is a very common phenomenon .There has numerous factor that contribute to the mechanism for post stroke pain as well as post stroke pain syndrome. Moreover, the identification of pain after stroke is very much challenging. Proper physical examination, use of pain rating scale and obviously proper inquiry may help to identify this problem and led to proper treatment. Thus, proper treatment may improve patient all over quality of life includes mood, rehabilitation and comfort in activity in daily living **(**Harrison & Field2015).

Relation of Pain with quality of life:-

Patients with post stroke pain more likely to have greater cognitive and functional disability, lower quality of life, depression, fatigue in fact it can be a predictor of suicidality after stroke. It is very obvious that severity of pain correlates with severity of cognitive impairment as well as depression (O'Donnellet al.,2013).

On the other hand, another research has shown that, over 65 years old patients are likely to have less quality of life and have more difficulty on activity of daily living and pain has an adverse effect upon this phenomenon. Various studies similarly reported that depression, sleep disorders, fatigue, poor physical condition, mood changes and stress is associated with pain after stroke (Kilic et al.,2015).

CPSC affect the functional outcome. A study stated that central post stroke is not disturbing at all, moreover it does not limit daily activities. On the other hand studies previously showed that, central post stroke pain affects both physical and mental functions very badly. This various result of different studies happened because of protocol of various controlled studies (Şahinet al., 2016).

Pain with high stress and emotion causes pain symptom more worsen and they have a negative effect on quality of life also. So, pain can be controlled by, controlling stress and emotion. Pain usually identified by biophysical approach to understand its nature and development. There are some medical technique which is used for reducing post stroke pain, such as- deep brain stimulation, motor cortex stimulation or cognitive behavioral therapy. These treatments also improve quality of life for stroke patients. A comprehensive pain management program is required for treatment of pain after stroke. Some regular skilled based exercise usually prescribe to the patient under the supervision of a health worker. Thus, gradually patient can improve their quality of life (Tang et al.,2015).

Stroke and Health Related Quality of Life

World Health Organization, in 1948 stated health as "a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity". In 1993, WHO defined quality of life as "an individual's perception of his/her position in life in the context of the culture and value systems in which he/she lives, and in relation to his/her goals, expectations, standards and concerns" (Donkor, 2018).

Stroke itself cause lowering of health-related quality of life. But, quality of life noticeably get worsen with left side hemispheric stroke rather than right side. Importantly, difficulty

in speech often found with left side hemispheric lesion. Because of language impairments, cognitive function and functional level both become lower gradually. Thus, people face more difficulty in activities of daily living, which causes gradual lowering of quality of life (Ramos-Limaet al.,2018).

Many studies previously showed that quality of life specially, sleep, cognitive function, mobility, emotions, mental feelings, etc. decreased after stroke (Baumannet al.,2014). Sometimes facial palsy also occur and thus it could be a cause of lowering quality of life. Previous research showed that 21%to38%of post stroke patients go through communication disabilities (Dark &Sander, 2014).

Physical activity is significantly related to quality of life. Some special symptoms specially weakness or paralysis is the most obvious symptom after stroke. Its very common that patients could have face some difficulties on vision such as sudden loss of sight with fascial palsy. Sometimes eating disorder can be occurd. Patients who have facial palsy, visual problem, eating disorder, low communication skill have much lower quality of life than patient who doesn't have this problem after stroke. Moreover, lower quality of life after stroke is extremely related with mortality (Kimet al.,2015).

The quality of life associated with one's health in determining the success rate following a stroke. Stroke has been shown to reduce the quality of life in terms of both physical and mental components (Mahesh et al.,2018).

Stroke has become a global burden for governments. Stroke is a major health issue in Europe, and it is still one of the main causes of mortality. Nearly half of stroke survivors experience difficulties with daily activities, social communication, and mood swings. These issues have a significant impact on stroke survivors' health-related quality of life (Nicholset al.,2013).

According to Leach et al., 23 percent of stroke survivors' health related quality of life becomes very low after seven years (Leach et al.,2011). According to several research, health-related quality of life is significantly lower in 20% of survivors who have had a stroke for at least 5 years. In another study, researchers discovered that six years

following a stroke, health related quality of life as measured by the SF-36 scale had deteriorated significantly in terms of overall health and physical functioning (De Wit, et al.,2017).

After a stroke, a variety of factors influence health-related quality of life, although some factors, such as emotional functioning, involvement, and life satisfaction, are used to measure health-related quality of life. The optimal time to study health-related quality of life is usually within 6 months of a stroke, but it can also be determined over a longer period of time (Van Mierloet al.,2016).

Some criteria should be examined when deciding whether or not a person's quality of life will be affected following a stroke. Age, gender, education, socioeconomic level, marital status, family status, health care services, hypertension, smoking status, functional disability, depression, dementia, post-stroke sequelae, and especially stroke severity are all factors to consider (Khalid et al.,2016).

Factors that affect Quality of life after stroke usually evaluate with multidisciplinary approach in accordance with patient's previous evaluation. Some factors such as – spiritual factor specially within the first year of stroke, economical status, current functional capability have been worked as indicator of quality of life. Higher functional indipendence generally relay on the level of quality of life. Usually, quality of life impaired within the first 3 months after stroke. Less indipendence in activity of daily living(19%), participation restriction, post stroke pain syndrome, depression (12%), poverty and low economic status(10%) and unemployment have a significant effect and thus causes lowering of quality of life (killic et al., 2015).

There have different techniques, used in measuring health related quality of life. Among them SF36 used most commonly as generic tools in the assessment of quality of life. It consists of 8 individual domains which is related to quality of life. Eight domains included, physical function, role limitation physical health, role limitation mental health, vaitality, emotion, bodily pain, social function and general health, all these developed with a conceptual framework. This SF36 questionnaire can be administered as, self-

administered questionnaire or an interviewer- administered questionnaire (Maheshet al.,2018).

Measurement of QOL:

In this study, quality of life of the participants measured through SF 36 v2 questionnaire. This questionnaire has 36 individual question and each question carries equal mark. That 36 question is further subdivided into 8 domains. The score 0-100 is subdivided into four section. Score 0-25 indicates very poor status, Score 26-50 indicates poor status, Score 51-75 indicates fair status and Score 76-100 indicates good status of all domains.

This 8 domain have different item, concerning physical functioning (10 items), role limitations due to physical problems (4 items), bodily pain (2 items), general health perceptions (5 items), vitality (4 items), social functioning (2 items), role limitations due to emotional problems (3 items) and mental health (5 items). The respondents are asked about how the situation is now with regard to all items of the physical functioning scale and the general health scale, and about how the situation has been during the last 4 weeks with regard to all items of the other scales (Widar, et al.,2004).

Score (0-25)	Very poor status
Score (26-50)	poor status
Score (51-75)	Fair status
Score (76-100)	Good status

Fig: Scoring Categories of SF-36v2 scale

CHAPTER III: METHODOLOGY

3.1 Study design

The purpose of the study was to find out the effect of pain on health related quality of life among the stroke patients. The **cross sectional** study was chosen to conduct and it was found to be an appropriate design to find out the objectives. Cross sectional studies measure simultaneously the exposure and health outcome in a given population and in given geographical area at a certain time. This study included the maximum portion of stroke patients who came for receiving treatment from July 2021 to September 2021 at the OPD of CRP. Moreover, this study was cost and time effective for the researcher compare to an experimental study. According to Hamed and Tanzania, (2015) stated that cross sectional study is relatively cheap among the observational studies and can be conducted in a short time.

3.2 Population and sample

Population: Population is the set of all elements or set of all events of observation on which a research is carried out. **Sample:** A sample is a representative part of a population (Hannan, 2016).

The study population were stroke and selected from the neurology unit of Centre for the Rehabilitation of the paralysed (CRP), from July 2021 to September 2021.Sample size was 127 which were selected conveniently.

3.3Study site and study area

The researcher was collected data from the Neurology unit of Centre for the Rehabilitation of paralysed (CRP), Savar, Dhaka. The study area was Neurological condition (stroke) of the patient.

3.4 Sampling technique

A convenient sampling technique was selected by the researcher to draw out the sample from the population. It is one of the easiest, cheapest, and quicker method of sample selection. Convenient sampling is a type of non-probability sampling in which people are sample simply because they are "Convenient" sources of data for researches. In non random sampling the number of target population meet certain practical criteria such as easy accessibility, geographical proximity, availability at a given time, or the willingness to participate are included for the purpose of the study (Etikan et al., 2016).

3.5 Sample Size calculation

When the sample frame is finite, The equation of finite population correction in case of cross sectional study is –

$n = \frac{Z2pq}{d2}$ ((Hannan, 2016).

$= \frac{(1.96)2 \times 0.3 \times 0.7}{(0.05)2}$

$= 322.56$

$= 323$

Here, Z (confidence interval) = 1.96. P (prevalence) = 0.3(Islam et al.,2013)

q= (1-p) =(1-0.3)= 0.7 and

d= precision (.05)

The actual sample size was, n=323. As it is academic thesis, self funding and data was collected from a single specialized rehabilitation center. Moreover, due to COVID 19 pandemic situation, the academic activities were closed and interrupted which influenced the data collection procedure, therefore 127 sample were selected conveniently.

3.6 Inclusion and Exclusion criteria

3.6.1 Inclusion criteria:

- Both male and female patient who had stroke for at least 3 months ago
- All age group was selected
- All type of stroke
- Subject who are willing to participate in the study
- Subject who are co-operative and conscious about their health condition

3.6.2 Exclusion Criteria

- Medically unstable patient
- Patients who have cognitive problem confirmed by psychiatrist
- Patients who are affected with covid 19, and serious infectious disease like tumors, cancer etc.

3.7Outcome measurement Tool:

Visual Analouge scale and

SF36 v2 Questionnaire

3.8 Data collection tools

Questionnaire, consent forms, pen, papers, pen drive, eraser, white paper, clip board.

3.9 Data collection procedure

A written consent was taken from the patients. A Questionnaire was used to accumulate data by face to face conversation. Before collecting data researcher clarified all the procedure of data collection to data collectors. All the data were collected by the selective data collectors with the presence of researcher to avoid the errors. Every questionnaire was rechecked by researcher for missing information or unclear information.

3.10 Data analysis procedure

After completing the initial data collection, every answer was cross checked to find out mistakes or unclear information. Then data was inserted into SPSS version 20 to analyze the collected data. Microsoft Exel worksheet 16 was used to create most of the graphs and charts. Then data was analyzed through descriptive and interferential statistics. In descriptive part in case of parametric data the central tendency and the measure of dispersion was presented through mean and standard deviation. The categorical data was presented as frequency and percentage of proportion through different visualization tool such as pie chart, bar chart, column chart. To find out the relationship between socio-demographic, physical parameters and health related quality of life, chi- square test for independence and pearson's co-relation test was applied. In case of two categorical variable chi- square test and for two continuous variable pearson correlation test was applied. In this study the level of significance is considered as 5% (p= <.05).

3.11 Informed consent

In this study interested subjects were given consent forms and the purpose of the research and consent forms were explained to the subject verbally. They were told that participation is fully voluntary and they have the right to withdraw at any time. They were also told that confidentiality will be maintained. Information might be published in any presentations or writing but they will not be identified. The study results might not have any direct effects on them but the members of Physiotherapy population may be benefited from the study in future.

3.12 Ethical consideration

Permission was taken from BHPI ethical committee for research project then permission was taken from physiotherapy department for data collection. The participants were explained the purpose and goals of the study. This study followed the World Health Organization (WHO) & Bangladesh Medical Research Council (BMRC) guidelines and strictly maintained the confidentiality. Meanwhile, it was purely an observation research, so nothing was intervene through which the research is considered as limited ethical issue.

CHAPTER IV RESULT

A descriptive and inferential statistical analysis have been conducted to find out the result. In the descriptive section the categorical variables were measured in percentage and have been showed in different bar diagrams, pie charts and tables. The continuous variable's central tendency and measure of dispersion was calculated through mean and standard deviation. In the inferential section, chi-square of independence and pearson's co-relation test were conducted to find out the association between different dependent and independent variables.

1. Male Female Ratio:-

Out of 127 participants, the majority was male 70.90% (n=90) and Female was 29.1% (n=37).

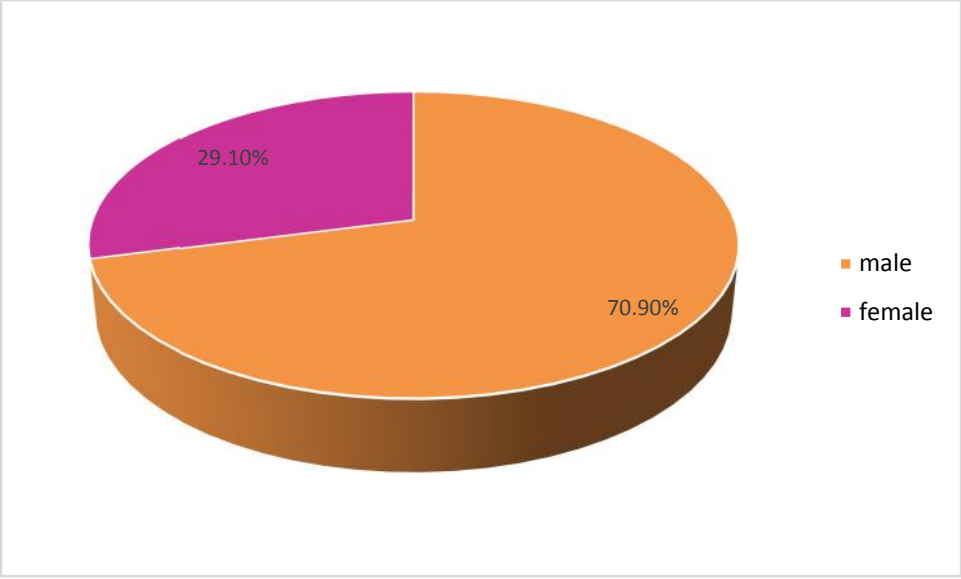


Fig:1- Gender of the participants.

2. Age of the participants:-

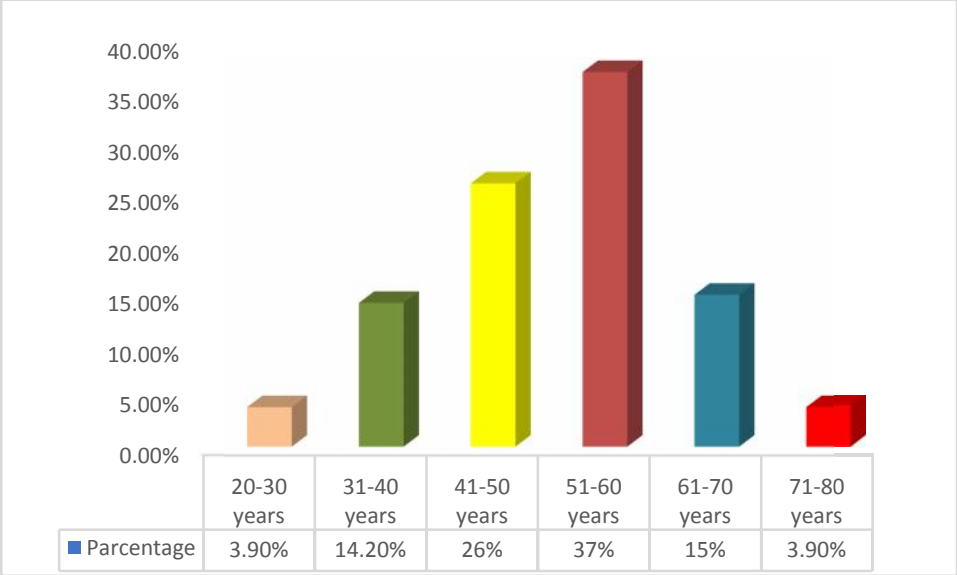


Fig 2- Age range of the patient

Among 127 participants, age range between 20-30 years were 3.90% (n=5) , age range 31-40 years were 14.20% (n=18) , age range 41-50 years were 26% (n=33) , and age range 51-60 years were 37% (n=47) , age range between 61-70 years were 15% (n=19) and rest of 71-80 years were 3.90% (n=5).

3. Previous Family history of the participants:-

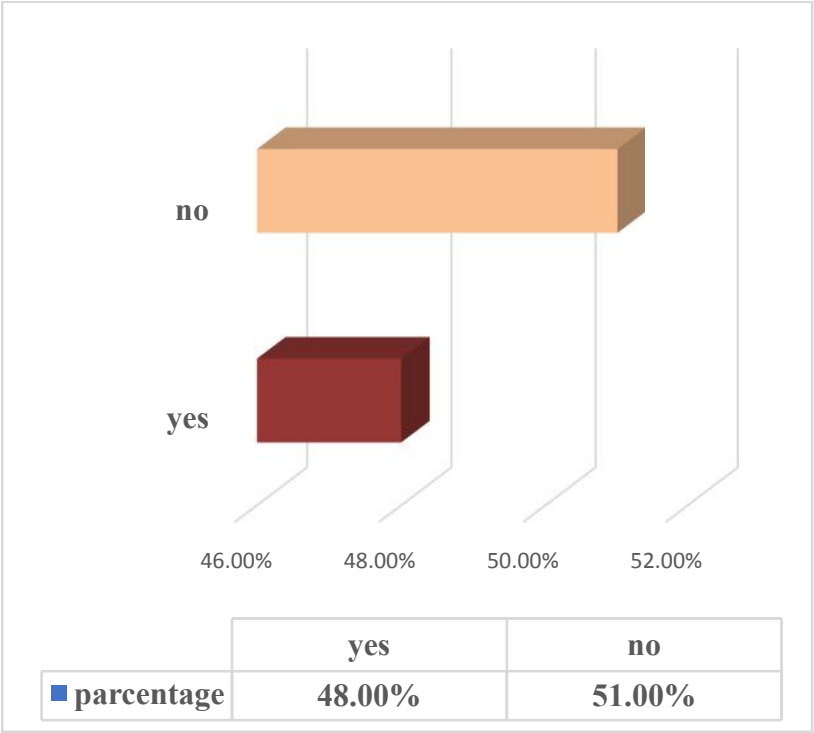


Fig 3: family history of the participants

Among 127 participants, 49% of them had a positive family history where (n=62) which means there was a previous history of stroke on their family and rest of 51% (n=65) didn't have previous history of stroke.

4. Type of stroke:-

Total participants was 127. Among them (n=24) had haemorrhagic type of stroke and rest of participants (n=103) had Ishchemic type of stroke.

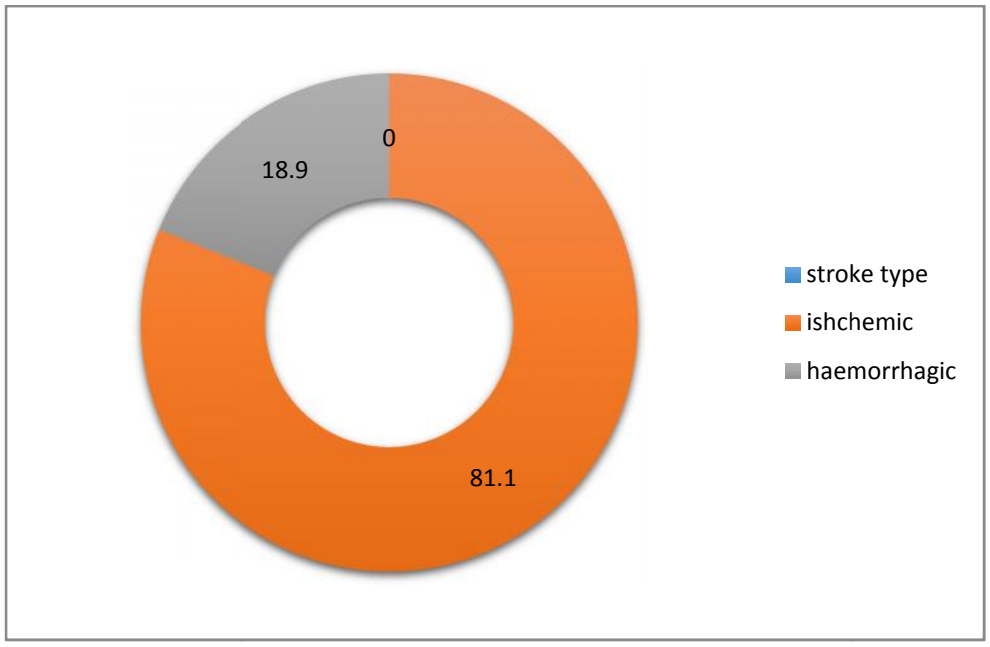


Fig 4: Type of stroke

5. Affected side in relation with stroke type .

Among 127 participants, there were (n=63) who had ishchemic stroke and right affected side and (n=40) participants had ishchemic stroke with left affected side. (n=24) participants had haemorrhagic stroke, where (n=12) had right affected side and (n=12) had left affected side.

Type of stroke	**Affected side**	
	Right	Left
Ishchemic (n=103)	63	40
Haemorrhagic (n= 24)	12	12

Table 1. Affected side with stroke type.

6. Co-morbid status of the participants.

	Frequency(n=127)	**Parcentage (100)**
No comorbidity	9	7.1%
High blood pressure	37	29.1%
Diabetes	9	7.1%
Heart disease	5	3.9%
Cholesterol	1	.8%
Lung disease	3	2.4%
HTN+DM	43	33.9%
HTN+ Heart disease	4	3.1%
DM+ Heart disease	1	.8%
DM+Lung disease	1	.8%
HTN+DM+HD+others	3	2.4%
HTN+DM+LD	2	1.6%
HTN+DM+HD	9	7.1%

Table 2. Co-morbid status of the participants.

7. presence of pain

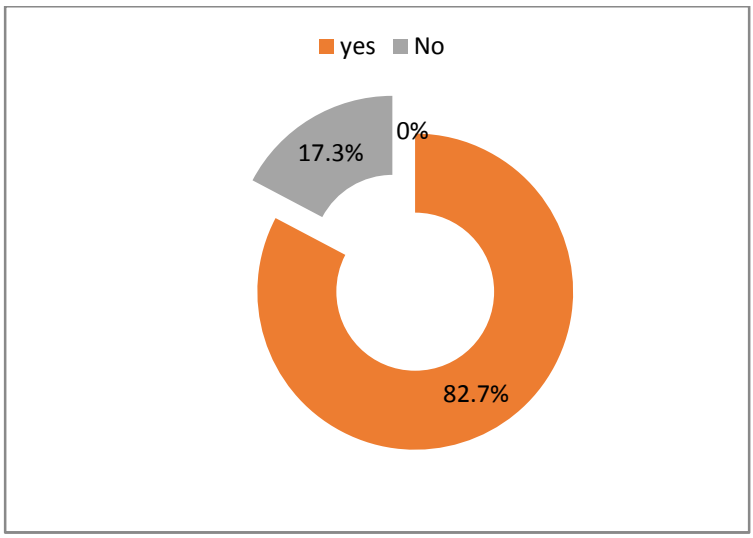


Fig 5:- Presence of pain

17.3% participants (n=22) among 127, didn't reported any feeling of pain during the survey and others 82.7% participants (n=105) reported of having pain after stroke.

8. Category of pain

Among 127 participants, 17.3% (n=22) reported no pain after stroke, about 16.5% (n=21) of participants experienced acute pain. About 22% of participants (n=28) reported sub-acute pain and rest of 44.1% (n=56) felt pain which is chronic in nature.

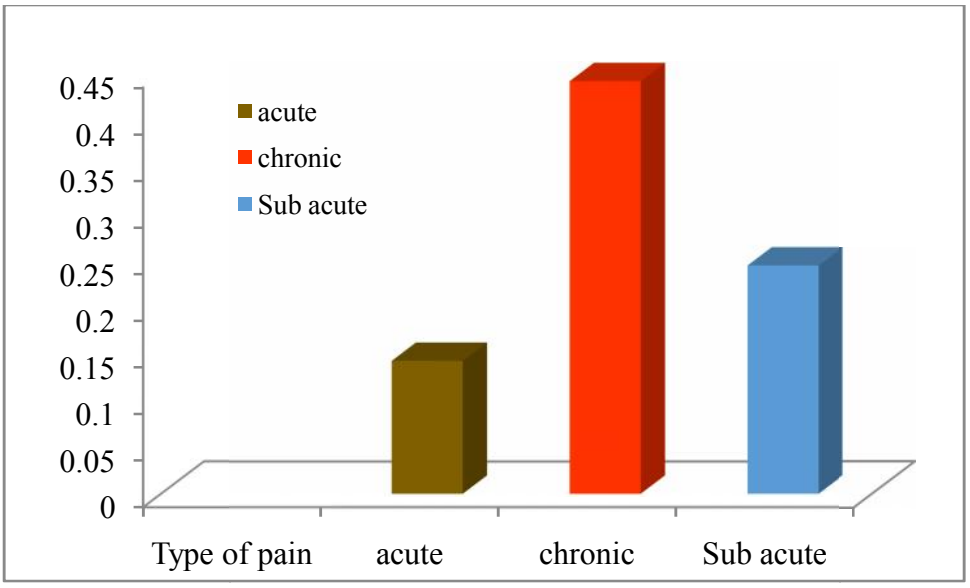


Fig 6: Pain category of the participants

9. Physical Functioning:

Between all participants, 59% had very poor physical functioning (n=75) which is ≤ 25 and 41% had poor physical functioning (n=52) which is ≤50. Rest of two item "Fair" and "Good" didn't found in any participant (n =0).

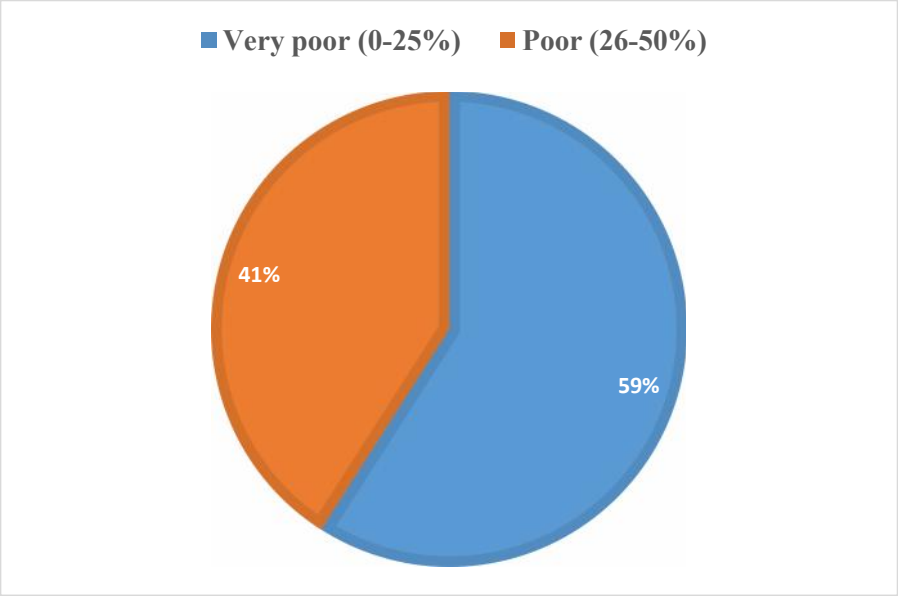


Fig 7 : Physical function status of the participants.

10. Role limitation physical health:

Between all participants, 70.9% had very poor physical health (n=90) which is ≤ 25 and21.1% had poor physical health (n=37) which is ≤50. Rest of two item "Fair" and "Good" didn't have any participant (n =0).

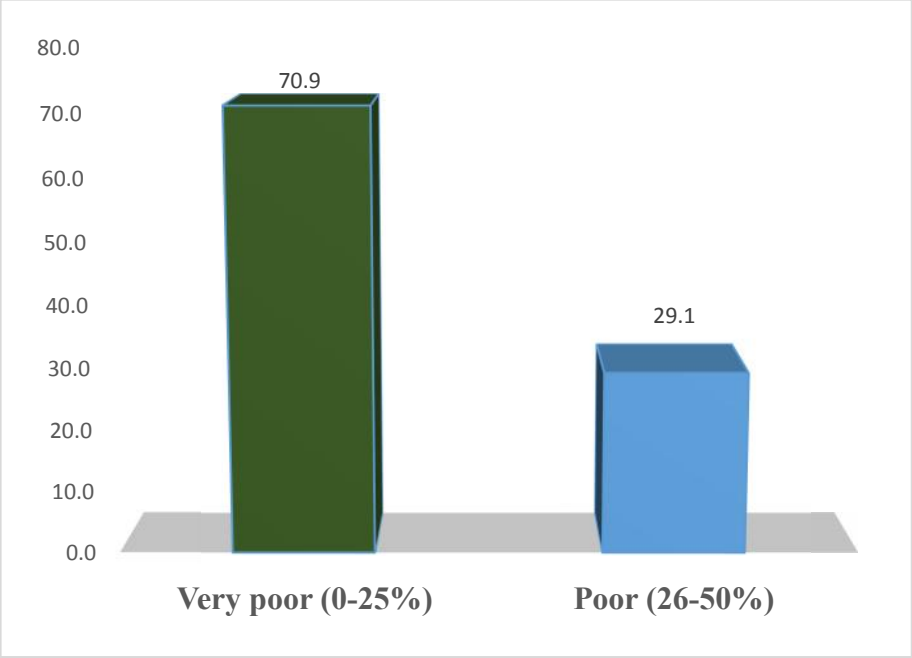


Fig 8: Role limitation physical health of the participants.

11. Mental Health

Between all participants, 24.4% had very poor mental health condition(n=31) which is ≤ 25 and 59.8% had poor mental health condition (n=76) which is ≤50 and rest of 15.7% had fair mental health condition (n= 20) which is ≤ 75. No participant had good mental health condition.

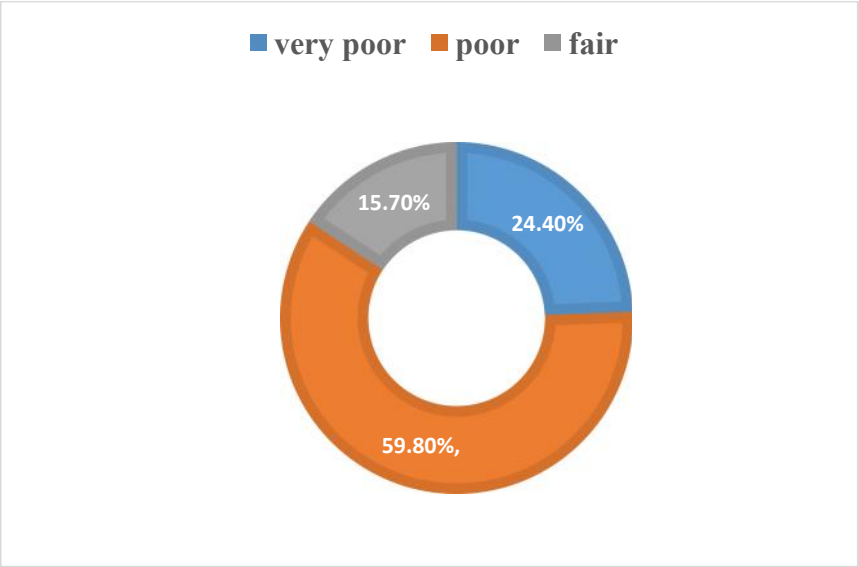


Fig 9: Mental health status of the participants

12. Energy/ fatigue:-

Among 127 participants, 66% had poor energy level (n=84) which is ≤50 and rest of 34% had fair energy level (n= 43) which is ≤ 75. Among them no participant (n=0) found who had very poor and good energy level.

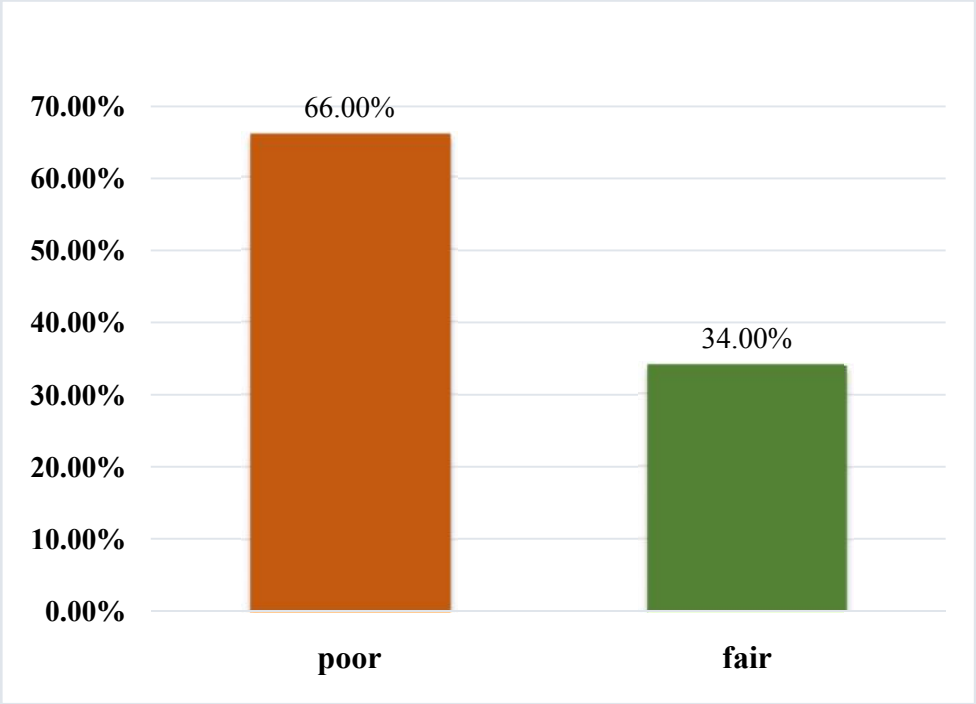


Fig 10: Vitality level of the participants.

13. Emotional well being:-

Among 127 participants, 42.5% had poor emotional well-being (n=54) which is ≤50 and rest of 57.5% had fair emotional well-being (n= 73) which is ≤ 75. (n=0) ,0% participants had very poor and good emotional well being.

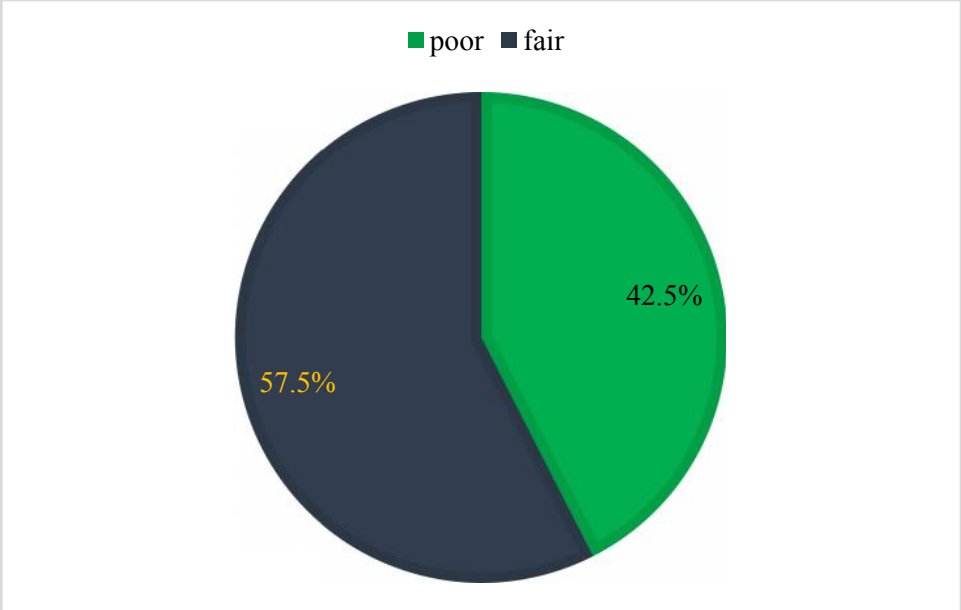


Fig 11: Status of emotional well being of the participants.

14. Social function:-

Among 127 participants, 48% had very poor social functioning (n=61) which is ≤25 and rest of 52% had poor social functioning (n= 66) which is ≤ 50. Fair and Good physical functioning found in none of participants (n=0).

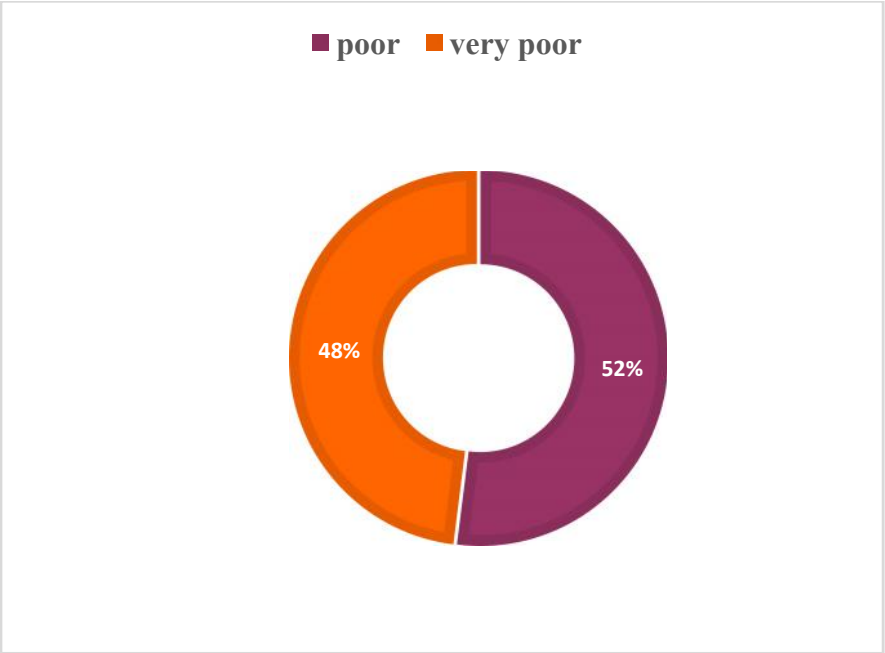


Fig 12: status of social function of the participants.

15. Bodily pain:

Between all participants, 16% had very poor Pain status (n=20) which is ≤25 and 47% had poor pain status (n=60) which is ≤50 and 19.70% had fair Pain status (n= 25) which is ≤ 75 and rest of 17.30% had good Pain status (n= 22) ≤ 100.

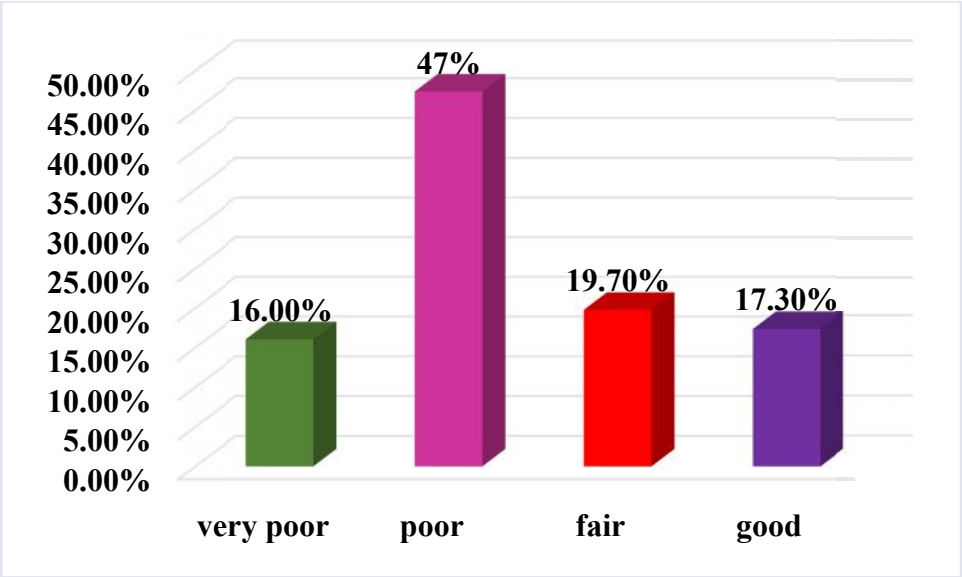


Fig 13: status of bodily pain of the participants.

16. General health:-

Among 127 participants, 60% had poor general health (n=76) which is ≤50 and rest of 40% had fair general health (n= 51) which is ≤ 75. 0 participants,(n=0) had very poor and good general health.

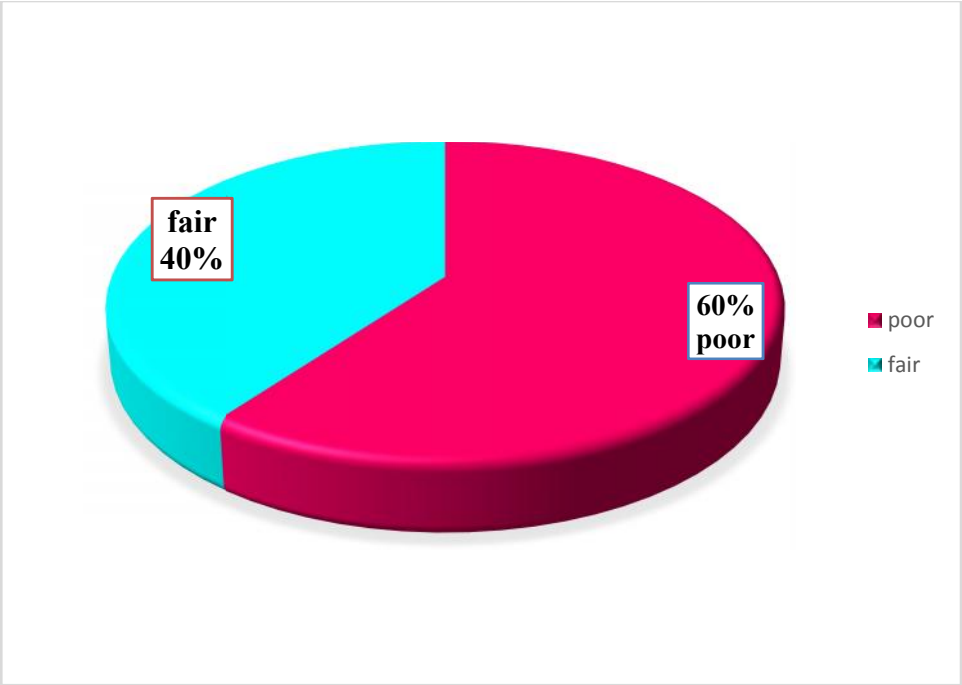


Fig 14: General health status of the participants.

17. A brief comparison between participants with pain and with out pain.

Variable	With pain	Without pain
Age 53±10.56 51.99 ± 9.58		
Gender		
Male (n) 71	19	
Female (n) 34	3	
Smoking		
Yes (n) 49	11	
No (n) 56	11	
Family history		
Yes (n) 48	14	
No (n) 57	8	
Type of stroke		
Ishchemic (n) 86	17	
Haemorrhagic (n) 19	5	
Affected side		
Right (n) 62	13	
Left (n) 43	9	
SF 36 Domains Score		
Physical Function	255.24±79.94	290.91±93.39
Physical Health	107.38± 25	115.91±30.41
Mental Health	123.57±43.27	152.27±48.74
Energy	197.6±34.5	209±55.39
Emotion	271.6±52.2	301.14±55.89
Social Function	62.14±26.2	76.14±24.9
Pain	95.95±39.5	188.64±30.5
General Health	253.5±46	273.86±49.68

Table 3: A comparison between participants of with pain and without pain

18. A comparison among participants of with and without Chronic pain

Variable	Without chronic pain	Chronic pain
Age	51.20 ±10.40	52.88±9.47
Type of stroke		
Ishchemic (n)	41	45
Haemorrhagic (n)	8	11
Average pain intensity	moderate moderate	
Location of pain (n)		
CPSP	5	5
Muscle pain	8	5
Shoulder girdle pain	11	12
Joint pain	6	12
Spasticity related pain	1	4
Post stroke headache	3	0
Muscle pain+ headahe	2	3
Joint pain+ headache	3	3
Joint pain + spasticity	4	3
Joint pain+ muscle pain	4	6
Muscle + shoulder girdle	2	1
Joint+ shoulder	0	2
SF 36 Domains Score		
Physical Function	256.25±82.8	254±78.04
Physical Health	112.24± 24	103.12±23.3
Mental Health	124.49±45.7	122.77±41.36
Energy	198.98±34	195±29.5
Emotion	268.86±54.27	271.43±42.2
Social Function	62.76±25	61.16±26.5
Pain	100±343	92.41±36.2
General Health	255.10±47	252.68±45.8

Table 4: A comparison between participants of with acute pain and chronic pain

Inferential statistical analysis

19. Association between Age with domain of SF36

Null hypothesis (H_0): There has no association between age category and the 8 domains of SF 36 score category.

Alternative hypothesis (H_A):-There has association between age category and the 8 domains of SF 36 score category.

Test assumption:

1. two categorical variables including two or more subcategories.

2. 0-1 cells (0%-20%) have expected count less than 5.
Level of significance (P value < .05)

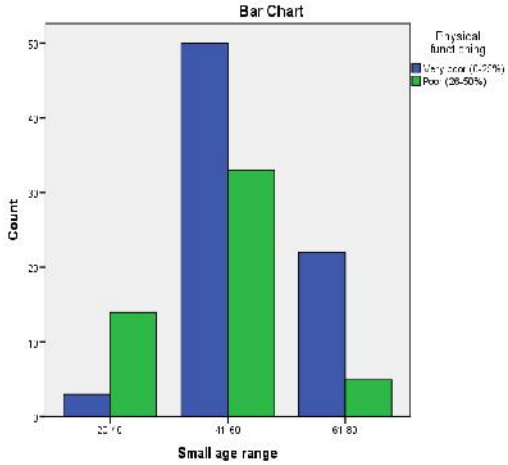
Age Groups of the participants	Component of SF-36	Chi-square value ($\chi 2$)	p-value
Age category of participants	Physical functioning	17.719	0.000 (significant)
	Role limitation physical health	14.748	0.001 (significant)
	Role limitation mental health	8.433	0.077 (not significant)
	Energy	5.465	0.055 (significant)
	Emotion	1.570	0.456 (not significant)
	Social function	11.722	0.003 (significant)
	Pain	5.193	0.519 (not significant)
	General health	10.170	0.006 (significant)

Table 5: Association between Age with domain of SF36

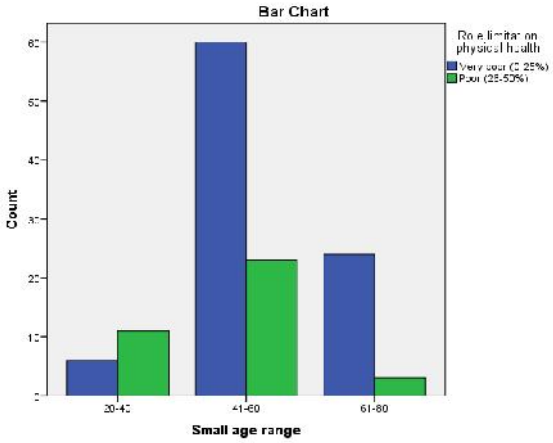
Result: There was association between age category 20-40 (n=17), 41-60 (n=83), 61-80 (n=27) and physical functioning, Role limitation physical health, Energy, social function and general health, their level of significance was<.05. So, for these domain, null

hypothesis is completely rejected. On the other hand, role limitation mental health, emotion and body pain had significance level more than .05.So, these domain is not associated with age of the participant. So, in that case null hypothesis can not be rejected.

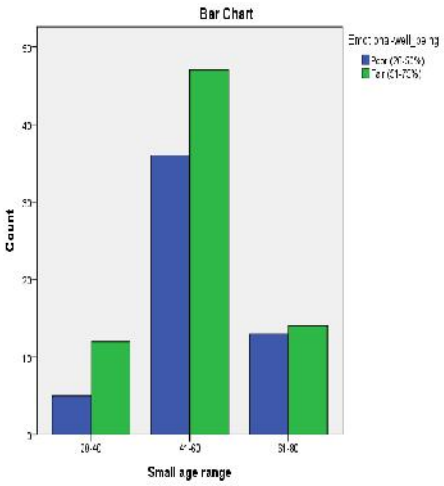
Below the bar charts showing association of age with SF36 domains.



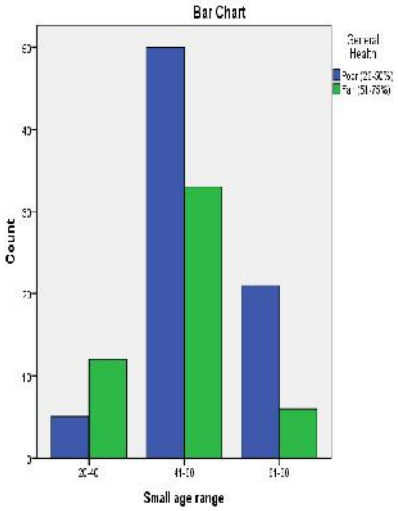
Physical function



Physical health



Emotional well being



General health

20. Association between type of stroke with category of SF 36 domains

Null hypothesis (H_0) :- There has no association between type of stroke and domain of SF 36 score category.

Alternative hypothesis (H_A):- There has association between type of stroke and the 8 domains of SF 36 score category.

Test assumption:

1. two categorical variables including two or more subcategories.

2. 0 cells (0%) have expected count less than 5.
Level of significance (P value < .05)

Type of stroke	Component of SF-36	Chi-square value ($\chi 2$)	p-value
Type of stroke	Physical functioning	.709	0.400(not significant)
	Role limitation physical health	.000	0.997 (not significant)
	Role limitation mental health	1.923	0.382 (not significant)
	Energy	.175	0.675(not significant)
	Emotion	.305	0.581(not significant)
	Social function	1.315	0.252(not significant)
	Pain	.788	0.940(not significant)
	General health	.876	0.768(not significant)

Table 6: Association between type of stroke with category of SF 36 domains

Result: There was no association found between type of stroke and all the 8 domains of SF36 in chi-square test. The significant value found more than .05. The value was physical functioning, Role limitation physical health, Role limitation mental health, Energy, emotion, social function, Pain and general health. So, for this consequences it can be said that these domain is not associated with stroke type of the participant. So in that case null hypothesis can not be rejected.

21. Association between intensity of pain with sociodemographic information and stroke related information..

Null (H_0):-There has no association between intensity of pain with age, gender, co-morbidity, type of stroke, affected side and category of pain.

Alternative (H_A):- There has association between intensity of pain with age, gender, co-morbidity, type of stroke, affected side and category of pain.

Test assumption: 1. two categorical variables including two or more subcategory

Level of significance (P value < .05)

Variable I	**Variable II**	**Chi- square(x^2)/ Fisher's exact test**	**P value**
Intensity of pain	Age	7.657	0.253 (not significant)
	Gender	3.563	0.313 (not significant)
	Co-morbidity	1.940	0.585 (not significant)
	Type of stroke	1.511	0.709(not significant)
	Affected side	9.75	0.807 (not significant)
	Category of pain	13.857	0.000 (significant)

Table 7: Association between intensity of pain with socio-demographic and stroke related information.

Result: Above the table showing result of association between, average intensity of pain with sociodemographic and stroke related information. There was no association found between age, gender, co-morbidity, type of stroke and affected side. Because all of them had significant level more than .05. So, in that case the null hypothesis cannot be rejected. But a strong association found between intensity of pain and pain category. For, this the null hypothesis can be rejected and the alternative hypothesis is accepted.

22. Association between average intensity of pain with SF36 domains.

Null hypothesis (H_0) :- There has no association between intensity of pain and domain of SF 36 score category.

Hypothesis (H_A):- There has association between intensity of pain and the 8 domains of SF 36 score category.

Test assumption :1. two categorical variables including two or more subcategories.

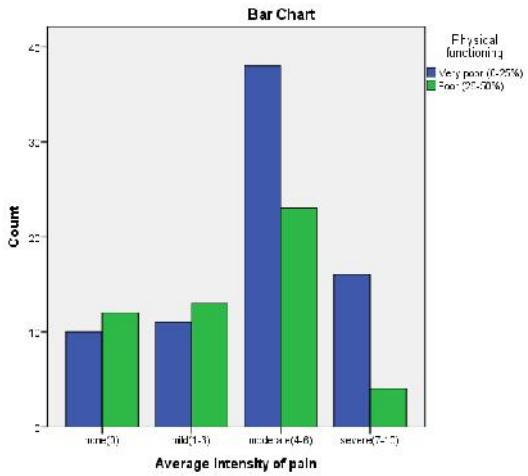
2. 0 cells (0%) have expected count less than 5.

Level of significance (P value < .05)

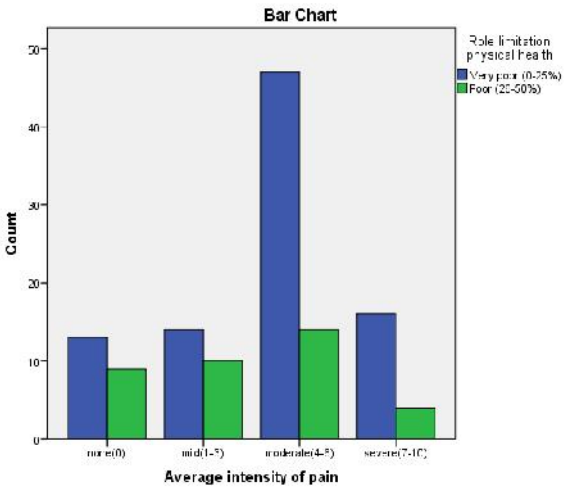
Variable I	**Variable II (SF36 domain category)**	**Chi-Square (x^2)**	**P value (<.05)**
Intensity of pain	Physical functioning	7.752	0.051 (significant)
	Physical health	5.731	0.125 (not significant)
	Mental health	22.525	0.001 (significant)
	Energy	8.900	0.003(significant)
	Emotion	12.609	0.006 (significant)
	Social function	2.605	0.457 (notsignificant)
	Pain	22.391	0.000 (significant)
	General health	3.565	0.312(not significant)

Table 8: Association between intensity of pain with domains of SF36

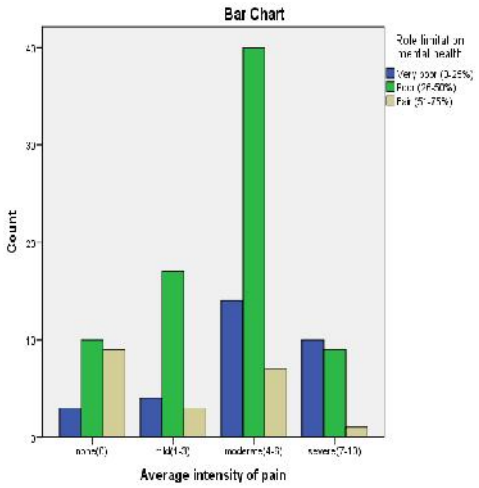
Result: above the table showing association between average intensity of pain and 8 individual domains of SF36. Here, significant association found between most of the domain of SF36 where significance level was less than .05. Except three domain, Social function and general health and physical health, there significant level was more than.05. So, for those domain null hypothesis can not be rejected.



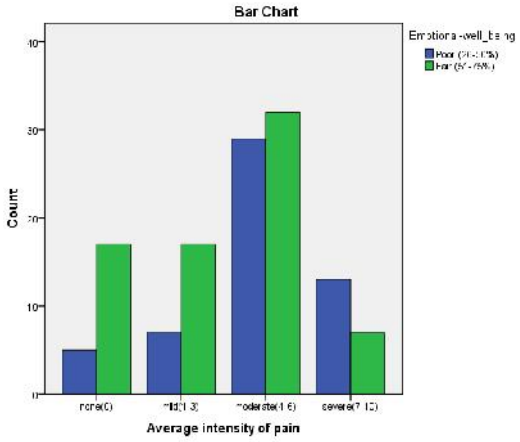
Physical functioning



Physical health



Mental Health



Emotional well being

23. Co-relation between age with 8 domain of SF36.

Null H_0 - there has no co relation between age and 8 domains of SF36.

Hypothesis (H_A)- there has co-relation between age and 8 domains of SF36.

Test assumption: 1. Two continuous variable

2. Normally distributed

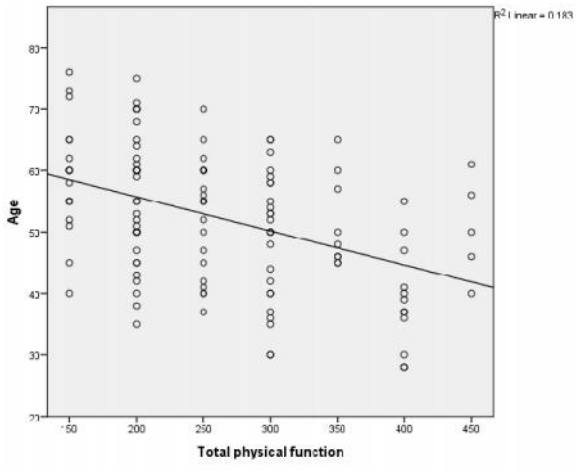
3. Presence of linear association

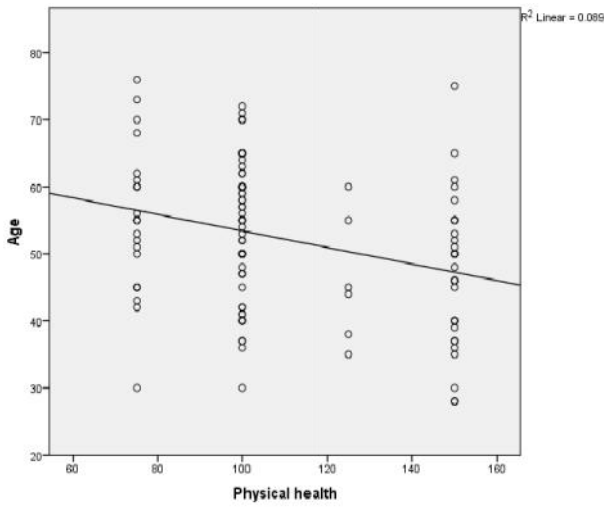
Level of significance (P value < .05)

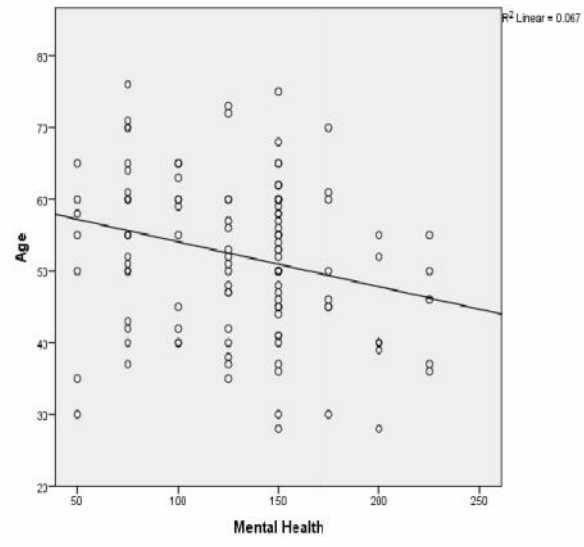
Variable 1	**Variable 2**	**Pearson correlation (r)**	**Significant level (p= <.05)**
Actual Age of participants	QOL (8 domain)		
	1.Physical function	-.428	0.000 (significant)
	2.Physical Health	-.311	0.000 (significant)
	3.Mental Health	-.258	0.003 (significant)
	4.energy	-.332	0.000 (significant)
	5.Emotion	-.169	0.057 (significant)
	6.Social function	-.338	0.000 (significant)
	7.Pain	-.059	0.507(not significant)
	8.General Health	-.347	0.000 ((significant)

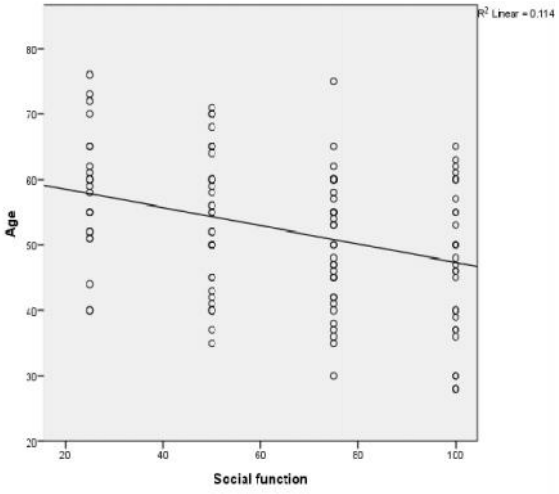
Table 9: Co-relation between age with 8 domain of SF36.

Result: A negative mild co-relation relation found in every domain of SF36 , except bodily pain. And their significant value was physical functioning (.000*), Physical health (.000*), Mental health(.003*), energy (.000*), Emotion (.057*), Social function(.000*), General health(.000*). The significant value of pain was (.507) which is more than(>.05). Bodily pain is not corelated with age because some participants don't have pain . Further bodily pain creates a noticible difference in SF36 scoring. So, for "Bodily pain domain, the null hypothesis can not be rejected. And for rest of 7 domains, the alternative hypothesis is accepted.









24. Co-relation between pain intensity (VAS) and QOL

Null H_0 - there is no co-relation between pain intensity and 8 domains of SF36.

Hypothesis (H_A)- there is corelation between pain intensity and 8 domains of SF36.

Test assumption: 1. Two continuous variable

2. Normaly distributed

3. Presence of linear association

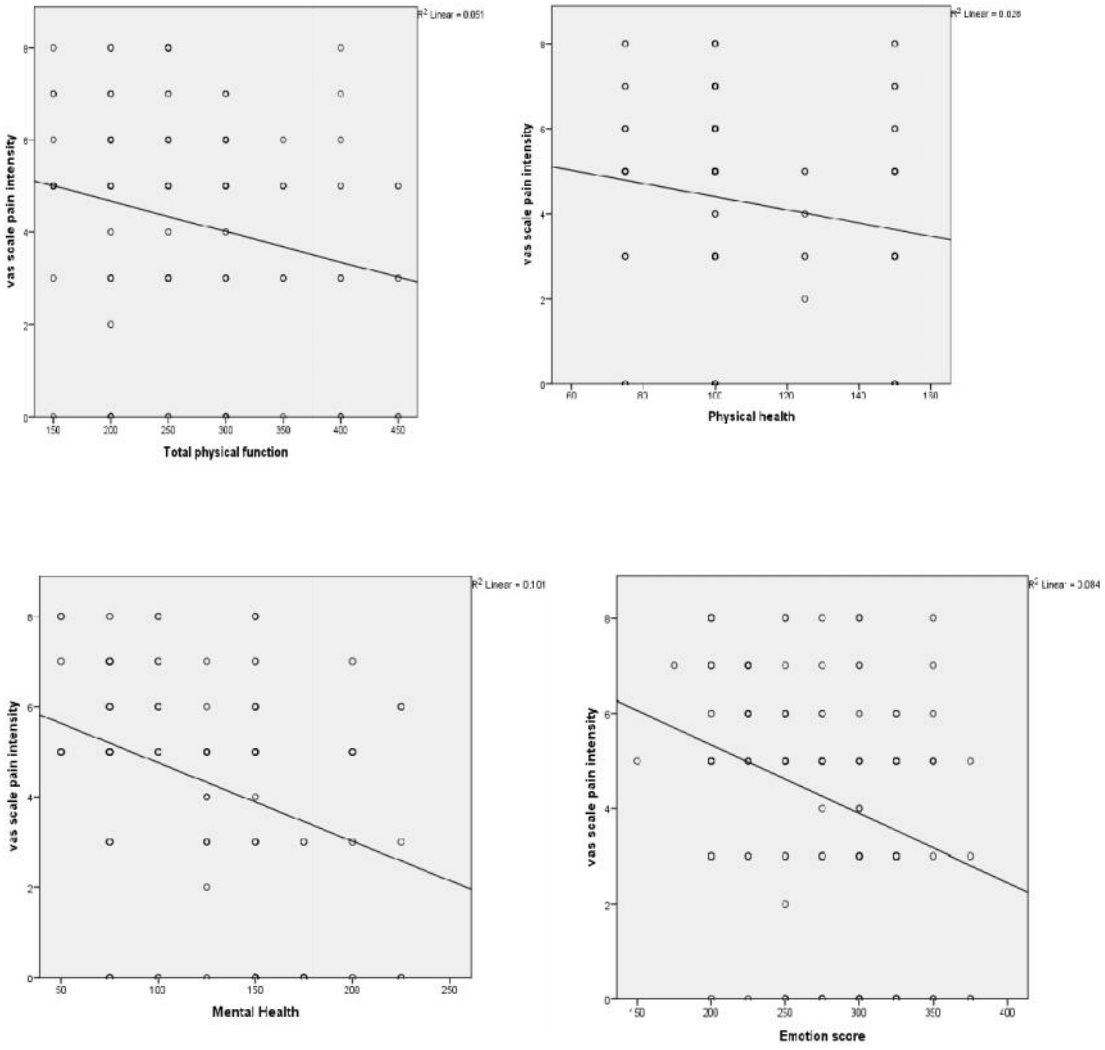
Level of significance (P value < .05)

Variable 1	Variable 2	Pearsons value (r)	Significance (<.05)
Intensity of pain	QOL (8 domain)		
	1.Physical function	-.201	0.023((significant)
	2.Physical Health	-.174	0.050(significant)
	3.Mental Health	-.324	0.000 (significant)
	4.energy	-.189	0.034 (significant)
	5.Emotion	-.296	0.001 (significant)
	6.Social function	-.267	0.002(significant)
	7.Pain	-.846	0.000 (significant)
	8.General Health	-.188	0.034 (significant)

Table 10: Co-relation between pain intensity and QOL

Result: A significant negative mild correlation relation found in every domain of SF36 with intensity of pain except domain bodily pain. Intensity of pain has a strong negative

correlation with bodily pain because the correlation value is nearly (-1). And their significant value was ≤.05. That means there has a significant co-relationship between all the domain of SF 36and intensity of pain. So, the null hypothesis is completely rejected and alternative hypothesis is accepted.



CHAPTER V DISCUSSION

Stroke is a such type of disease which consists of a various range of associated factors such as, pain, cognitive disorder, speech problem, visual equity, balance problem etc. Now -a-days, factor associated with stroke and their effect on health related quality of life has become an important topic for research, because the findings of these thesis will help to bring about a clear concept on this issue and thus will help in proper treatment and evaluation.

In this study the responses were measured by the SF 36 questionnaire which consists of 8 individual domains. A descriptive and inferential statistical analysis have been conducted to find out the result. In the descriptive section the categorical variables were measured in percentage and have been showed in different bar diagrams, pie charts and tables. The continuous variable's central tendency and measure of dispertion was calculated through mean and standared deviation. In the inferential section, chi-square of indipendence and pearson's co-relation test were conducted to find out the association between different dependent and independent variables.

In this study the result showed physical health such as, physical functioning, role limitation physical health, social functioning. Social functioning is much more lower than the mental health such as, role limitation mental health, emotion, energy etc.

This study was conducted through a cross sectional method and the aim of the study is to explore the effect of pain on health related quality of life. As this study is a cross sectional study, this study can be further modifiable and though it consider as a preliminary study but this study also have some valuable information related about stroke , pain and health related quality of life.

The mean age of participants of this study population was 52.31±10.7 among 127 participants, this is almost similar to the findings of (Froes et al., 2011). They found the more affected mean age was 58.8±11.72 among 64 stroke survivors. Another study was done by (kong et al., 2004), they have found mean age of the study group was 60.9±10.9 and the study population was 107.

In this study, a significant lowering of score in 3 domains of SF 36 have been found. Those are physical functioning, Role limitation physical health, and social functioning.

All of them have scored ≤50. On the other hand, (Froes et al., 2011) found physical functioning, physical role and emotional role scored below average (≤50). Both findings seem to be similar except emotional role. Score of "Bodily pain" made a significant difference, because participants without pain had a higher score in the domain of bodily pain.

Result of this research have showed a significant association of age with some of the domains of SF 36 through chi-square test. Among them there was no association found between mental health, emotion and bodily pain. This is almost similar with the findings of (Serda et al.,2015), according to them older age is significantly associated with lower post stroke quality of life. They stated elderly people are more vulnerable of having lowering health related quality of life after stroke.

Like association, a significant co-relation was also found through pearson's correlation test, test result showed all the domain of SF36 negatively corelated with age and the relation were significant except "bodily pain", which means there has a negative relation of age with quality of life. The relation is inversely proportional; the more the age is increased the lower the quality of life become. Likewise, another research has showed that age had an inverse relationship in the matter of quality of life. Patients who were more independent and younger had better health related quality of life especially in relation to the physical functioning domain (Froes et al.,2011).

This study found no association between type of stroke and SF36 domains. The significant value was more than .05 which is beyond acceptance. So, it can be said that, stroke type weather it is ischemic or hemorrhagic have no association with quality of life of stroke survivor. In 2010,Dayapoglu& Tan found that a stroke patient's quality of life significantly related to the site of lesion rather than type of stroke. According to (Kariyawasam et al., 2020), patients who had right hemispheric lesion has better quality of life than left hemispheric lesion. Like this, (Owolabi, 2010) stated that, stroke frequency and stroke type had no significance influence on generic or specific health related quality of life.

In this study, no association have been found between intensity of pain with age, gender, co-morbidity stroke type, affected side. On the other hand (Paolucci et al., 2016) had

found that, risk factor of stroke like co-morbidity, age and gender significantly influenced post stroke pain. According to them patients younger than 65 years and women have a higher risk of suffering from pain after stroke. These findings are not similar to the findings of this study. But this study found another association between pain intensity and pain category.

In this study, we found 82.7% patients have pain and 17.3% patients didn't have pain among 127 participants. This percentage is quite similar with the findings of (Olawale et al., 2017). They found pain prevalence upto 88.1% and no pain prevalence is 11.9%.

Findings of this study showed that, prevalence rate of chronic pain is 44.10% and nonchronic is 38.60%.This is similar with the findings of (Klit et al., 2009). They have stated that, Prevalence of chronic pain varies widely from 11 to 55%.

Findings of this study showed that, Prevalence of chronic pain and sub-acute pain is higher than prevalence of acutepain. Similar result found in another study, where they stated that, the prevalence of stroke-related pain is higher in the subacute and chronic stages (Paolucci, et al.,2016).

In this study, shoulder girdle pain found most common type of post stroke pain in both acute and chronic pain. This also shows similarity with the findings of (Olawale et al., 2017) and (kong et al., 2004). Both of the studies found hemiplegic shoulder pain or musculoskeletal pain involving shoulder is most common type of pain after stroke.

This study reflects the average pain intensity is 4.78±2.6 (moderate). A moderate pain intensity found in every pain category which seems similar with the findings of (Tang, et al.,2015).

Additionally, this research found that intensity of pain has a negative correlation with every domain of SF 36 except "emotion" which can be interprate as, intensity of pain has a opposite relationship with quality of life. If the intensity of pain increases, the quality of life decreases. This findings is similar with the findings of (Tang et al., 2015). According to them severity of pain negatively affected patients physical health, sometimes mental health. Presence of pain and intensity of pain have significant negative effect on health related quality of life of stroke survivor.

According to findings of this result, it can be said that there has a noticeable difference in the mean score of SF36 all domains of participants with pain and without pain. Moreover, we noticed comparatively less difference in scoring of SF36 in participants of acute and sub-acute pain and chronic pain. So, considering these statistics it can be said that quality of life is higher in patients who have no feeling of pain after stroke, compared to who have pain after stroke. This is also similar with the findings of (Olawale et al., 2017). They found, Patients without chronic pain are presumed to be more comfortable and can enjoy life better compared to patients with chronic pain. Chronic pain after stroke lowers the health related quality of life after stroke.

5.1 Limitations:

There might be some limitations in every research. This research also had a number of limitations and barriers which may affect the accuracy of the research. For this research project, the first limitation was sample size which was small because of time due to COVID 19 pandemic. Data were collected only from neurology unit of CRP savar. So, this might not represent the whole population of stroke in the context of Bangladesh. Moreover, we wanted to apply hospital based random sampling technique but our academic activities were closed because of COVID 19 pandemic situation as a result convenient sampling technique was applied. Another major limitation was budget, if we had sufficient budget we will able to increase our data collection area to achieve the targeted sample size. Importantly, this research project was done by a undergraduate student and it was her first research, so the researcher had limited experience with techniques and strategies in terms of the practical aspects of research. As it was the first survey of the researcher so there were some mistakes that might be overlooked by the supervisor and the honorable teachers.

CHAPTER-VI CONCLUSION & RECOMMENDATION

6.1 Conclusion

Though the research was conducted through a small sample but this research provides valuable insight into the effect on quality of life for individuals following stroke. Various literature have been showed that stroke itself causes lowering of QOL. But pain along with stroke comparatively makes quality of life much lower in the sense of SF36 scoring. Study shows that pain causes lower quality of among survivors and intensity of pain have a significant association and co-relation with quality of life. According to the result of this research, intensity of pain affects both physical and mental component of participants, and age is also associated and co-related with pain. On the other hand, socio-demographic information is not associated with pain intensity. So, pain is not associated with one's age, gender or co-morbid status.

Quality of life is a term used to evaluate individual's well-being in a wide range of contexts. For patients with stroke, achieving a satisfactory health related quality of life is a primary goal of treatment and rehabilitation. Health professionals should be aware about generating pain after stroke, thus it causes lowering of quality of life of stroke survivors. Along with greater awareness and proper counseling, necessary steps should be taken to minimize or prevent pain to improve the physical and mental health of persons with stroke, in order to improve their quality of life.

6.2 Recommendation:

Pain has an adverse consequence after having stroke and has negative influence on quality of life of patients with stroke. So, it is necessary to give more and more attention to this aspect after stroke. There are so many studies based on stroke and quality of life but there are few amount of studies related to the concept on effect of pain in QOL after stroke. So my recommendation is if other authors want to do further related study, they are recommended to do their study in whole country perspective with increased sample size.

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APPENDIX

CONSENT FORM

(Please read out to the participants)

Assalamualaikum, my name is Maliha Hossain Meem. I am 4th year student of B.Sc. in Physiotherapy program at Bangladesh Health Professions Institute (BHPI). For my study purpose I am conducting a study on stroke patients and my study title is "Pain after stroke and its subsequent effect on health related quality of life."

I would like to know about some personal and other related information regarding stroke. This will take approximately 20-30 minutes. This is an academic study and will not be used for any other purpose. The researcher is not directly related to neurology unit, so your participation in the research will have no impact on your present or future treatment in neurology unit. Researcher will maintain confidentiality of all procedures. Your data will never be used without your permission. Your participation in this study is voluntary and you may withdraw yourself at any time during this study therefore any type of remuneration will not be provided. No additional intervention will be provided.

If you have any query about the study or your right as a participant, you may contact with me or my research supervisor, Asma Islam, Assistant Professor of physiotherapy, Bangladesh Health Professions Institute (BHPI), CRP-Savar, Dhaka-1343.

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

Yes / No

Signature of the Participant ……Date……

Signature of the Interviewer …… Date ……..

Signature of the Researcher ……Date……

Questionniare (English)

1. **Respondent Identification:**

Name of Respondent:……ID no……..Address:…….....

Contact number where possible: …….

2. Patients socio-demographic information

	Question	**Response**
2.1	Age	Year
2.2	Sex	Male Female
2.3	Marital status	1=Married 2=Unmarried 3=Widow/widower 4=Divorcee
2.4	Educational status	1= No formal education 2=Primary education 3=Secondary education 4=Higher secondary 5=Bachelor degree or above
2.5	Occupation	
2.6	Living area	1=Rural 2=Semi Urban 3= Urban
2.7	Average monthly income of the person before stroke	
2.8	History of stroke in family	1=No 2=Yes

3. Patients Personal physical information

3.1	Alcohol consumption	1=No 2=Yes
3.2	Smoking	1=No 2=Yes
3.3	If yes, number of cigarette per day / year	
3.4	Past medical history	1=Hypertension 2=diabetes mellitus 3=heart disease 4=lung disease 5=Other Risk factor of stroke

4. Stroke and treatment related information

4.1	Date of stroke	
4.2	Type of stroke?	1= Ischemic 2= Hemorrhagic
4.3	Affected side?	1= Right 2 = Left
4.4	Do you have pain?	1.yes 2.No
4.5	If yes, when pain started?	
4.6	Where you feel Pain (which body part)?	
4.7	Pain type	• Central post stroke pain • Neuropathic pain

		• Musculoskeletal pain • Joint pain • Spasticity related pain • Post stroke Headache • Shoulder girdle pain
4.8	Any impairment because of stroke	• Visual impairment • Speech difficulty • Hearing loss • Impaired balance

5. Visual Analouge Scale (in mm):

Choose the number from 0-100 that best describes your pain

Intensity of pain:

I.....I.....I.....I.....I.....I.....I.....I.....I.....I.....I

0 100

No pain Unbearable pain

6. Quality Of Life Scale (SF-36 V2 Health Survey)

This survey asks for your views about your health. This information will help keep track of how you feel and how well you are able to do your usual activities.

1. In general, would you say about your health related quality of life?

a. Very good b. good c. fair d. Poor

2. Compared to one year ago, how would you rate your health in general now?

a. Much better now than a year ago b. Somewhat better now than a year

c. About the same as one year ago d. Somewhat worse now than one year ago

e. Much worse now than one year ago

3. The following items are about activities you might to do during a typical day. Does your health now limit you in these activities? If so, how much?

3.1 Vigorous activities, such as running, lifting heavy object, participating in strenuous sports.

a. Yes, limited a lot b. Yes, limited a little c. No, not limited at all

3.2 Moderate activates, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf?

a. Yes, limited a lot b. Yes, limited a little c. No, not limited at all

3.3 Lifting or carrying groceries -

a. Yes, limited a lot b. Yes, limited a little c. No, not limited at all

3.4 Climbing several flights of stairs

a. Yes, limited a lot b. Yes, limited a little c. No, not limited at all

3.5 Climbing one flight of stairs.-

a. Yes, limited a lot b. Yes, limited a little c. No, not limited at all

3.6 Forward bending, kneeling or stooping -

a. Yes, limited a lot b. Yes, limited a little c. No, not limited at all

3.7 Walking more than a mile -

a. Yes, limited a lot b. Yes, limited a little c. No, not limited at all

3.8 Walking several hundred yards -

a. Yes, limited a lot b. Yes, limited a little c. No, not limited at all

3.9 Walking one hundred yards -

a. Yes, limited a lot b. Yes, limited a little c. No, not limited at all

3.10 Bathing or dressing yourself -

a. Yes, limited a lot b. Yes, limited a little c. No, not limited at all

(4). During the past 4 weeks, how much of the time have you had any of the following problems with your work or other regular daily activities as a result of a physical health?

4.1 Cut down on the amount of time you spent on work or other activities

a. All of the time b. Most of the time c. Some of the time d. A little of the time

e. None of the time

4.2 Accomplished less than you would like?

a. All of the time b. Most of the time c. Some of the time d. A little of the time

e. None of the time

4.3 Were limited in the kind of work or other activities?

a. All of the time b. Most of the time c. Some of the time d. A little of the time

e. None of the time

4.4 Had difficulty performing the work or other activities (for example, it took extra time)

a. All of the time b. Most of the time c. Some of the time d. A little of the time

e. None of the time

(5). Have you had any of the following problems with your work or other regular daily activities as a result of any emotional problems (such as feeling depression or anxious)?

5.1 Cut down the amount of time you spent on work or other activities?

a. All of the time b. Most of the time c. Some of the time d. A little of the time

e. None of the time

5.2 Accomplished less than you would like?

a. All of the time b. Most of the time c. Some of the time d. A little of the time

e. None of the time

5.3 Didn't do work or other activities as carefully as usual -

a. All of the time b. Most of the time c. Some of the time d. A little of the time

e. None of the time

6. What extent has your physical health or emotional problems interfered with your normal social activities with family, friends, neighbors or groups?

a. Not at all b. Slightly c. Moderately d. Quite a bit e. Extremely

7. How much bodily pain have you had during the past 4 week?

a. Not at all b. Slightly c. Moderately d. Quite a bit e. Extremely

8. How much pain interferes with your normal work (including both work outside the home and housework?

a. Not at all b. Slightly c. Moderately d. Quite a bit e. Extremely

(9). These questions are about how you feel and how things have been with you during the past 4 weeks. For each question, please give the one answer that comes closest to the way you have been feeling. How much of the time during the past 4 weeks.

9.1 Did you fell full of pep?

a. All of the time b. Most of the time c. Some of the time d. A little of the time

e. None of the time

9.2 Have you been a very nervous person?

a. All of the time b. Most of the time c. Some of the time d. A little of the time

e. None of the time

9.3 Have you felts so down in the dumps nothing could cheer you up?

a. All of the time b. Most of the time c. Some of the time d. A little of the time

e. None of the time

9.4 Have you felt calm and peaceful?

a. All of the time b. Most of the time c. Some of the time d. A little of the time

e. None of the time

9.5 Did you have a lot of energy?

a. All of the time b. Most of the time c. Some of the time d. A little of the time

e. None of the time

9.6 Have you felt downhearted and blue?

a. All of the time b. Most of the time c. Some of the time d. A little of the time

e. None of the time

9.7 Did you feel worn out?

a. All of the time b. Most of the time c. Some of the time d. A little of the time

e. None of the time

9.8 Have you been a happy person?

a. All of the time b. Most of the time c. Some of the time d. A little of the time

e. None of the time

9.9 Did you feel tired?

a. All of the time b. Most of the time c. Some of the time d. A little of the time

e. None of the time

10. How much of the time physical or emotional problems interfere your social activities (like visiting friends, relative neighbors etc.)?

a. All of the time b. Most of the time c. Some of the time d. A little of the time

e. None of the time

(11). How true or false is each of the following statements for you?

11.1 I seem to get sick a little easier than other people-

a. Definitely true b. Mostly true c. Don't known d. Mostly false e. Definitely false

11.2 I am as healthy as anybody I know-

a. Definitely true b. Mostly true c. Don't known d. Mostly false e. Definitely false

11.3 I expect my health to get worse-

a. Definitely true b. Mostly true c. Don't known d. Mostly false e. Definitely false

11.4 My health is excellent-

a. Definitely true b. Mostly true c. Don't known d. Mostly false

e. Definitely false

সম্মতিপত্র

(অংশগ্রহণকারীকেপড়েশুনাতেহবে)

আসসালামু আলাইকুম, □□□ □□□ □□□□□ হোসেন মী□। □□□ □□□□□□□ হেলথ প্রফেশনাল ইন্সটিটিউ □□ □□□□□□□□□ □□□□□ □□□□ ছাত্রী। □□□ □□□□□ □□□□ জন্য □□ স্ট্রোক রোগীদের উপ□ একটি □□□□□ □□□□□ □□□ □□□ □□□ অধ্যয়ণ □□□□□□ – " স্ট্রোক পরবর্তী ব্যাথা এ□ স্বাস্থ্য সম্পর্কিত □□□□□□□ □□□ □□ প্রভাব"

এক্ষেত্রে □□ □□□□ □□□ স্ট্রোক সম্পর্কে আনুষাঙ্গিক কিছুতথ্য জা□□ চাচ্ছি। □□□ প্রায় ২□-□□ □□□ □□ □□ □□□ □□□□। এটি একটি শিক্ষাগত গ□□□□ □□ অন্য কোনো উদ্দেশ্যে ব্যাবহার ক□ □□□□। □□□□ □□□□ □□□□□□□ □□□□□ □□□ সম্পৃক্ত □□, □□ □□□□□ □□□□ অংশগ্রহণ □□□□□□ □□□□ □□□□ বর্তমান বা ভবিষ্যতের চিকিৎসায় কোনো প্রভাব ফেলবেনা। □□□□ □□□□□ প্রতিটি ধা□ গোপনীয়তা ব□□ □□□□□। □□□□ তথ্য □□□□ □□□□ □□□ কোথাও ব্যাবহৃত হ□□□। □□ □বেষণায় □□□□ অংশগ্রহণ সম্পূর্ণ ইচ্ছাকৃত □□□ অধ্যয়ণের যেকোনো সম□ □□□□□ প্রত্যাহার ক□□ □□□□□।

□□□□ অংশগ্রহনকারী হি□□□ □□□□ □□ অধ্যয়ন সম্পর্কে কোনো প্রশ্ন □□□□ □□□ □□□ □□□ □□□ শিক্ষক □□□ □□□□ (□□□□ অধ্যাপক, □□□□□□□□ □□□□-□□□□□□□□) □□ সঙ্গে যোগাযোগ কর□ □□□□□ |

□□ □□□□ □□□□ □□□□ সাক্ষাত ক□ শুর □□□□ চাচ্ছি?

হ্যা / □□

অংশগ্রহনকারীর স্বাক্ষর..... □□□

উপাত্ত সংগ্রহকারীর স্বাক্ষর..... □□□

□□□□□□ স্বাক্ষর .....□□□

প্রশ্নপ

পর্ব১ –: অংশগ্রহনকারীর ব্যাক্তিগত

…… রোগীর ত]

ঠিকানা.....

যোগাযোগের নাম্বার (য সম্ভব).....

পর্ব২- রোগীর আর্থ জনতাত্ত্বিক তথ্য

ক্রমিক ন	প্রশ্ন	অংশগ্রহনকারীর উত্তর
.১		
.২	লিঙ্গ	• পুরুষ •
.৩	বৈবাহিক অবস্থা	• • • / বিপত্নিক • বিচ্ছিন্ন
.৪	শিক্ষাগত যোগ্যতা	• কোনো প্রাতিষ্ঠানিক শিক্ষা ন • প্রাথমিক শিক্ষা • মাধ্যমিক শিক্ষা • উচ্চমাধ্যমিক শিক্ষা • স্নাতক/ স্নাতকোত্তর • অন্যান্য
.৫	পেশা	
.৬	স্থান	• গ্রাম • •

□.□	স্ট্রোক □□ □□□ ব্যক্তির মা□□ □□	
□.□	□□□□□□ স্ট্রোকের ইতি□□□	• □□□ • □□□

পর্ব৩- রোগির ব্যাক্তিগত □□□□□□ তথ্য

□.□	মদ্যপান	• হ্যাঁ • □□
□.□	□□□□□	• হ্যাঁ • □□
□.□	□□ হ্যাঁ □□ □□□□□ দৈনিক/ □□রে কতটি গ্রহণ □□□□?	
□.□	পূর্বে সংঘটিত কোন রোগের □□□□□ □□□□□ □□?	• উচ্চরক্তচা • বহুমূত্র রোগ • হৃদরোগ • □□□□□□ রোগ • স্ট্রোকের জন্য দ্বায়ী বি□□□ কোনো রোগ

পর্ব৪- স্ট্রোক সম্পর্কিত তথ্য

৪.১	স্ট্রোকের [illegible]	
৪.২	স্ট্রোকের ধরণ	• ইশ্চেমিক • হেমোরেজিক
৪.৩	ক্ষতিগ্রস্থ [illegible]	• [illegible] • [illegible]
৪.৪	[illegible] [illegible] ব্যথা [illegible]ছে?	
৪.৫	[illegible] [illegible] ,[illegible] [illegible] [illegible] কোথায়?	
৪.৬	[illegible] থেকে ব্যথা শুরু [illegible]?	
৪.৭	[illegible] [illegible] ব্যথা ?	• সেন্ট্রাল পোস্ট স্ট্রোক পেইন • স্নায়ুবিক কার[illegible] ব্যথা • [illegible] ব্যথা • অস্থিসন্ধির ব্যথা • [illegible] [illegible] ব্যথা • [illegible] শক্ত [illegible] [illegible] [illegible] ব্যথা • স্ট্রোক পরবর্তী ম[illegible] ব্যথা
৪.৮	স্ট্রোকের কার[illegible] অন্যান্য শ[illegible] সমস্যা	• [illegible] [illegible] সমস্যা • শোনায় সমস্যা • দৃ[illegible] শক্তি [illegible] [illegible] • [illegible] ভারসাম্য [illegible] সমণ্বয় [illegible] [illegible]

□. ভিজ্যুয়াল এ□□□□ স্কেল

ব্যাথারতীব্রতা:

□□□□□ ব্যাথার তীব্রতা প্রকাশ □□□□ জন্য ০-□□□□ □□ মধ্যে যে□□□□□ □□□□□□ টিক□□□

|.....|.....|.....|.....|.....|.....|.....|.....|.....|.....|.....|

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কোনো ব্যথা নেই অত্যন্ত ব্যাথা

পর্ব৬ : □□□□ যাত্রার ম□□ (□□□□-□□স্বাস্থ্য জরি□)।

□□ প্রশ্নগুলোতে □□□□□ স্বাস্থ্য সম্পর্কে □□□□□ □□□□□ □□□□□ □□□□□ □□□□□□□ □□ তথ্য গুলি দ্বারা অ□□□ □□ □□□□□ □□□□ □□□ □□□□ □□□□□□□ □□□□□ প্রাত্যাহিক কর্মসম্পাদনে সক্ষম সে ব্যাপারে নজ□ □□□□□ সাহায্য ক□□□□ □□ সমীক্ষাটি সম্পূর্ণ □□□□ জন্য □□□□□□ ধন্যবাদ।

নিম্নলিখিত প্রতিটি প্রশ্নের উত্তর গুলোর ম□□□ যেটিবে □ □□□□ □□□□□□ সঠিক □□□ □□□ □□, অনুগ্রহপূর্বক সেগুলোতে টিক চিহ্ন □□□

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- চমৎকার
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- মোটামুটি ভা□
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□□ **নিম্নলিখিত প্রশ্নগুলে □ □□□ একটি □□□□□□ □□□□ যেসব কাজকর্ম ব□□□ □□□□□ সেই সম্পর্কিত। □ □□□□ স্বাস্থ্য কি □ □□□□ কাজকর্ম ব□□□ □□□ □□□□□□□□? □□□ □□,□□□ কতটুকু?**

□.□□ □□পরিশ্রমসাধ্য কাজগুলি, যেমন দৌড়ানো, ভ□□ □□□□ তোলা, শ্রমসাধ্য খেলাধুলা ব□□ –

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□.□□ অপেক্ষাকৃত □□ পরিশ্রমসাধ্য কাজগুলি, যেমন টেবিল □□□□□□, □□ ঝারু দেওয়া, □□□□□ □□□ □□□ □□□□ □□□□□□ □□□□□□ –

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□.□□ □ □□□□ কর্মস্থলে এ□□ অন্যান্য কাজগুলোতে অ□□ □□ □□□ □□□□□□□-

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□.□□ □□□□ কর্মস্থলে এ□□ অন্যান্য কাজগুলোতে অ□□ □□ □□□ □□□□□□ –

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□□□ □□□□ □□□ সপ্তাহে, ত□□□□ □□□□□ □□□ □□□□□ সমস্যাগুলো ত□□□□ □□□□□ কার্যক্রমে কি □□□□□ □□□□ সৃষ্টি ক□□□□? (যেমন – বন্ধু-বান্ধব □□□ আত্মীয়স্বজনদের □□□ দেখা ক□□□ □□□□)।

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□□□ নিম্নলিখিত বি□□□গুলো প্রত্যেকটি আ□□□ ক্ষেত্রে কতটুকু সত্য ন□ মিথ্যা?

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Permission Latter

Date: January 17, 2021

Head

Department of Physiotherapy

Centre for the Rehabilitation of the Paralysed (CRP)

Chapain, Savar, Dhaka-1343

Through: Head, Department of Physiotherapy, BHPI.

Subject: Prayer for seeking permission to collect data for conducting research project.

Sir,

With due to respect and humble submission to state that I am Maliha hossain , a student of 4th year B.Sc. in physiotherapy at Bangladesh Health Professions Institute (BHPI). The Ethical committee has approved my research project entitled: "**Prevalence of chronic pain after stroke and its subsequent effect on health related quality of life.**" under the supervision of Asma Islam, Assistant professor, Department of Physiotherapy, BHPI. I want to collect data for my research project from the Department of Physiotherapy at CRP. So, I need permission for data collection from the neurology Unit of Physiotherapy Department at CRP-Savar, Dhaka-1343. I would like to assure that anything of the study will not be harmful for the participants and the Department itself.

I, therefore pray and hope that you would be kind enough to grant my application and give me permission for data collection and oblige thereby.

Yours faithfully,
Maliha
Maliha Hossain Meem

4th Year B.Sc. in Physiotherapy

Class Roll:18; Session: 2015-16

Bangladesh Health Professions Institute (BHPI) (An academic Institution of CRP) CRP-Chapain, Savar, Dhaka-1343.

Asma
17/01/21

Approved
17.01.21
MUHAMMAD ANWAR HOSSAIN
Senior Consultant &
Head of Physiotherapy Dept
Associate Professor, BHPI
CRP Savar, Dhaka-1343

বাংলাদেশ হেল্‌থ প্রফেশন্স ইনস্টিটিউট (বিএইচপিআই)
Bangladesh Health Professions Institute (BHPI)
(The Academic Institute of CRP)

Ref: CRP/BHPI/IRB/01/2021/437

Date: 17/01/2021

To
Maliha Hossain Meem
4th year B.Sc. in Physiotherapy
Session: 2015-2016, Student ID: 112150289
BHPI, CRP, Savar, Dhaka- 1343, Bangladesh

Subject: Approval of the thesis proposal "**Pain after stroke and its subsequent effect on health related quality of life**" by ethics committee.

Dear Maliha Hossain,

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

Sr. No.	Name of the Documents
1	Dissertation/thesis/research Proposal
2	Questionnaire (English & / or Bengali version)
3	Information sheet & consent form.

The purpose of the study is to find out the effects of pain after stroke and its subsequent consequence on health related quality of life. The study involves use of a questionnaire that may take 20to30minutes to answer the questionnaire and there is no likelihood of any harm to the participants. Data collectors will receive informed consents from all participants and any data collected will be kept confidential. The members of the Ethics committee have approved the study to be conducted in the presented form at the meeting held at 10:00 AM on 1st March, 2020 at BHPI 23rd IRB Meeting.

The institutional Ethics committee expects to be informed about the progress of the study, any changes occurring in the course of 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,

Muhammad Millat Hossain
Assistant Professor, Dept. of Rehabilitation Science
Member Secretary, Institutional Review Board (IRB)
BHPI, CRP, Savar, Dhaka-1343, Bangladesh