Stress among the stroke caregivers at the centre for the rehabilitation of the paralyzed (CRP), Bangladesh

Raju Ahmed
Part II, M. Sc. in Rehabilitation Science
BHPI, CRP, Savar, Dhaka-1343
Session: 2016-2017
DU Registration No.:134

Submitted in Partial Fulfillment of the Requirements for the Degree of
MSc in Rehabilitation Science
May, 2018

Bangladesh Health Professions Institute (BHPI) Faculty of Medicine
University of Dhaka

SUPERVISOR’S STATEMENT

As the supervisor of Raju Ahmed Thesis work, I certify that I consider her thesis “**Stress among the stroke caregivers at the centre for the rehabilitation of paralyzed (CRP), Bangladesh** ” to be suitable for examination.

………………………
Dr. Kamal Ahmed

Associate Professor

IHT, Mohakhali, Dhaka.

(Supervisor)

Date: 06. June.
2018

We, the undersigned, certify that we have carefully read and recommended to the Faculty of Medicine, University of Dhaka, for acceptance of this thesis entitled “Stress among the stroke caregivers at the centre for the rehabilitation of the paralyzed (CRP), Bangladesh” submitted by Raju Ahmed, for the partial fulfillment of the requirements for the degree of M. Sc. in Rehabilitation Science.

…………………………………….
Dr. Kamal Ahmed
Associate Professor,
IHT, Mohakhali, Dhaka

…………………………………….
Md. Anwar Hossain
Associate Professor,
Department of Physiotherapy
BHPI, CRP, Savar, Dhaka-1343, Bangladesh

…………………………
Prof. Dr. Alamgir Kabir
Professor, Department of Statistics,
Jahangirnagar University,
Savar, Dhaka-1343, Bangladesh

…………………………………….
Muhammad Millat Hossain
Assistant Professor and Co-ordinator
Department of Rehabilitation Science
BHPI, CRP, Savar, Dhaka-1343, Bangladesh

Date of approval: ……………

DECLARATION

- This work has not previously been accepted in substance for any degree and is not concurrently submitted in candidature for any degree.

- This dissertation is being submitted in partial fulfillment of the requirements for the degree of MSc in Rehabilitation Science.

- This dissertation is the result of my own independent work or investigation, except where otherwise stated. Other sources are acknowledged by giving explicit references.
  A Bibliography is appended.

- I confirm that if anything identified in my work that I have done plagiarism or any form of cheating that will directly awarded me fail and I am subject to disciplinary actions of authority.

- I confirm that the electronic copy is identical to the bound copy of the Thesis.

Signature:

Name: Raju Ahmed

Date: 06, June, 2018

ACKNOWLEDGEMENT

First of all, I would like to pay my gratitude to God who gave me the passion to complete this study. The second acknowledgement must go to my family members who have always inspired me and provided me all necessary support. Then I gratefully acknowledge my honorable supervisor, Associate Professor, **Dr. Kamal Ahmed** for his supervision, guidance and feedback during study period.

In addition, I am thankful to all of my honorable teachers specially course coordinator and Assistant Professor, **Muhammad Millat Hossain**, Department of Rehabilitation Science , **S.J.M. Ummul Ambia**, Lecturer- Department of Rehabilitation Science, **Shamima Islam Nipa**, Lecturer- Department of Rehabilitation Science for their valuable suggestions and guidance throughout the study period.

I thank all of my friends specially **Mr. Delowar Hossain Chowdhury & Mr. Niraj Singh Tharu** for their direct and indirect inspiration, suggestion as well as support. I would like to extend my heartfelt gratitude to all the volunteers who helped me continuously throughout the study in data collection. My sincere thanks to all the patients and caregivers who took part in my study without whom this study would not have been possible. Lastly I would like to thank all the people who are directly or indirectly involved with the study.

TABLE OF CONTENTS

List of Table

List of Figure

List of Annexure

List of abbreviation

CG	Care Giver
FIM	Functional Independent Measurement
PSS	Perceived Stress Scale
WHO	World Health Organization

CHAPTER I: INTRODUCTION

1.1 Introduction

Approximately, every year 15 million people worldwide suffer a stroke. Of these 5 million die and another 5 million are left permanently disable, placing a burden or stressor on family and community. Stroke is the third leading cause of death in Bangladesh. The World Health Organization ranks Bangladesh's mortality rate due to stroke as number 124 in the world. The reported prevalence of stroke in Bangladesh is 6.72%, although no data on stroke incidence have been recorded. Hospital-based studies conducted in past decades have indicated that hypertension is the main cause of ischaemic and haemorrhagic stroke in Bangladesh. The high number of disability-adjusted life-years lost due to stroke (53.59 per 100 000 people) show that stroke severely impacts Bangladesh's economy (WHO 2014). A stroke is caused by the interruption of the blood supply to the brain, usually because a blood vessel bursts or is blocked by a clot. This cuts off the supply of oxygen and nutrients, causing damage to the brain tissue (WHO, 2013).

We generally use the word "**stress**" when we feel that everything seems to have become too much - we are overloaded and wonder whether we really can cope with the pressures placed upon us. Anything that poses a challenge or a threat to our well-being is a stress. A caregiver is defined as someone who regularly helps and provides care for a person who is disabled or ill with tasks like dressing, shopping or household tasks, or who offers other sorts of practical or emotional support. A caregiver may be a family member, a parent, a spouse, a son, a daughter, or other relatives or friends (Bugge et al., 2000 and Dewey et al., 2002). Several studies have reported great burden and stress among family members caring for chronically disabled relatives who have stroke disorders. In addition, poor health of stroke patients has been associated with the desire by family members to institutionalize the patients (Visser-Meily et al., 2006).The caregiver's health and functional ability are recognized as factors that contribute to stress or burden, lower levels of physical and mental well-being and limit their ability to perform care giving tasks (Allender & Spradley, 2002). Caregivers across the world, who are often unrecognized and under-supported, are deeply and personally impacted by the care they provide. Despite the burdens they shoulder, many caregivers need resources and support to sustain this loving and valuable care of those with neurological disorders (Pryor, 2008).Families caring for stroke patients are unlike other illness, coping with a degenerating brain disease which is much different than dealing with physical disability (May & Thompson, 2005). Families` members and their providers often accept responsibility for the care of those with chronic health needs. Typically, they do this for emotional and economic reasons, because they are proficient and feel comfortable with the type of care required or accepted to assume the role of caregiver without being feared for the possible emotional, physical and financial consequences (Ahmed, 2009). Caregiver stressor is a perception that the care giving responsibilities have negative effects on the emotional or physical health of the caregiver. The stress of the helping relationship for the caregiver may lead to a sense of burden, of not being appreciated, or of being confined to the care giving role. If there is an agreement of the response, such as the whole family disassociating, caregiver burden may still exist because of the losses incurred to maintain intense focus on the ill person. Losses could include minimal social activities, private time, or personal rewards, in addition to the physical or emotional exhaustion of care giving duties (Kitze et al., 2002 and Kalra et al., 2004). Caring for someone who cannot perform activities of daily living such as bathing, grooming and personal care activities; compound with high rates of depressive symptoms and mental health stress among caregivers, put many caregivers at series risk for physical and mental health outcomes (Mant et al., 2005).

The stress of providing 24 hours of supervision and intensive assistance with activities of daily living coupled with the loss of social interaction for the caregiver may last for several years (Kaufer et al., 2000). In addition, higher levels of burdens may correlate with increased morbidity and mortality in caregivers, loneliness isolation from family and friends; feeling of helplessness in the caregiver is high , social isolation and lack of motivations were identified as the most problematic area of caregivers (Lehman & Poindexter, 2006). Involving caregivers in training activities is an appropriate way to increase the intensity of patients' therapeutic activities and learn them basic skills of moving and handling, facilitating activities of daily living and conducting simple care activities (Eldred & Sykes, 2008). Recent research suggests that much of the increased risk for poor caregiver outcomes is due to the amount of mental or emotional strain associated with providing care. Caregivers who subjectively reported a high amount of strain also reported poorer physical functioning, fewer social contacts, and more emotional distress than other caregivers (Clay et al., 2013).

1.2 Justification of the study

The feeling of stress often experienced as shameful, and stroke people may also fear being or becoming a burden. Thus, they are reluctant to admit their normal life. In addition, their caregivers may live in their homes with mental stress and communicate very few contacts with the social and health care services. This study would strengthen the knowledge base of stroke people and their caregivers stress and provides new information on community-dwelling stroke people's loneliness and depression for its alleviation. It explores the prevalence of stroke people's and caregivers stress and loneliness, its subjective causes and associated characteristics. It also explores the relationship between loneliness, social isolation and depression by differentiating them from each other. In addition, this study describes the essential elements of a successful psychosocial intervention for stroke and caregivers.

The elder or younger people who are faced stroke and their family in our country is the part and parcel of our family or society or community. Their wellbeing is closely related to our family. Because, if the senior citizen become stroke or lonely, their illness or loneliness not to be limited to his/her, definitely it will influence or reflect to the family or society, that will make a dislocation among us. Their frustration also makes us trouble and embracing situation. If we can provide them with some sort of productivity will make them in a cheerful mood, instead of boring or frustration. Moreover, they can contribute us by giving some valuable suggestions, as they are experienced about family, society and community. This study will highlight the problems about stress among stroke patient and caregivers at rehabilitation centers, homes in our society or community.

1.3 Research question

What was the level of stress among the stroke caregivers at the centre for the rehabilitation of the paralyzed?

1.4 Operational definition

Stroke is defined as a neurological condition that causes problems of physical functioning that disturbs the overall activities of daily living.

A caregiver (CG) is defined as a person who lives with the patient and is most closely involved in taking care of him/her.

Stress refers to anything that creates a challenge or a threat to our well-being is a stress. When we feel that everything seems to have become too much can be considered as stress.

CHAPTER II: LITERATURE REVIEW

In a study found that most of the stroke survivors stay at home and take domiciliary care, which in reality is a burden on CGs. Stroke, may also compromise cognition, mood, functional abilities and quality-of-life of the survivor. It also results in caregiver burden and economic stress at individual, familial and national levels (Sujata & Kumar, 2013).

Another study in India found that financial difficulties are compounded by limited employment opportunities for stroke survivors who are aged or only earners in the family, the possibility of job retrenchment because of disability or long absence or both, and continuing expenses for medicine and physiotherapy. The financial fears were more common among slum residents and less educated CG, possibly because of limited financial capability (Das et al., 2010).

Factors associated with caregiver burden that can lead to caregiver stress include the relationship quality between caregiver and patient, the patient's cognitive ability, behavioral and psychological symptoms displayed by the patient, caregiver gender, and adverse life events (Campbell et al., 2008).

A study about Assessment of stress among caregivers of the stroke survivors, they found that female caregivers are more than the male caregivers and the caregivers predominantly belonged to poor socio-economic status. More than half of the caregivers (61%) were not literate. There is lack of data in India about the implication of socioeconomic factors on the caregivers (Rajan et al., 2017).

It was found in a study done on family caregivers of people with dementia that caregivers face many obstacles as they must balance care-giving with other demands, including child rearing, career and social relationships. They were at increased burden, stress, depression, and a variety of other health complications. The effects on caregivers are diverse and complex, with many factors exacerbating or ameliorating how caregivers react and feel as a result of their role (Brodaty & Donkin, 2009).

Another study suggests that the perceived stress of stroke survivors is related to functional independence and depressive symptoms. In a longitudinal study conducted in Texas on the perceived stress of 159 stroke survivors, it was noticed that the survivors with lower functional independence had higher stress level. The depressive symptom is another factor associated with perceived stress of stroke survivors after hospital discharge. Findings are consistent with the results of cross-sectional study that aimed to identify predictors of perceived stress of 97 stroke survivors immediately after discharge, which showed that more depressive symptoms were related to higher levels of perceived stress (Ostwald et al., 2008). Also, a study conducted in the state of Georgia, in the United States, also found a strong positive correlation between perceived stress and depressive symptoms in stroke survivors. Most stress faced by the caregivers is due to untrained care giving, sleep disturbances and disturbances in managing their own family life (Ain et al., 2014).

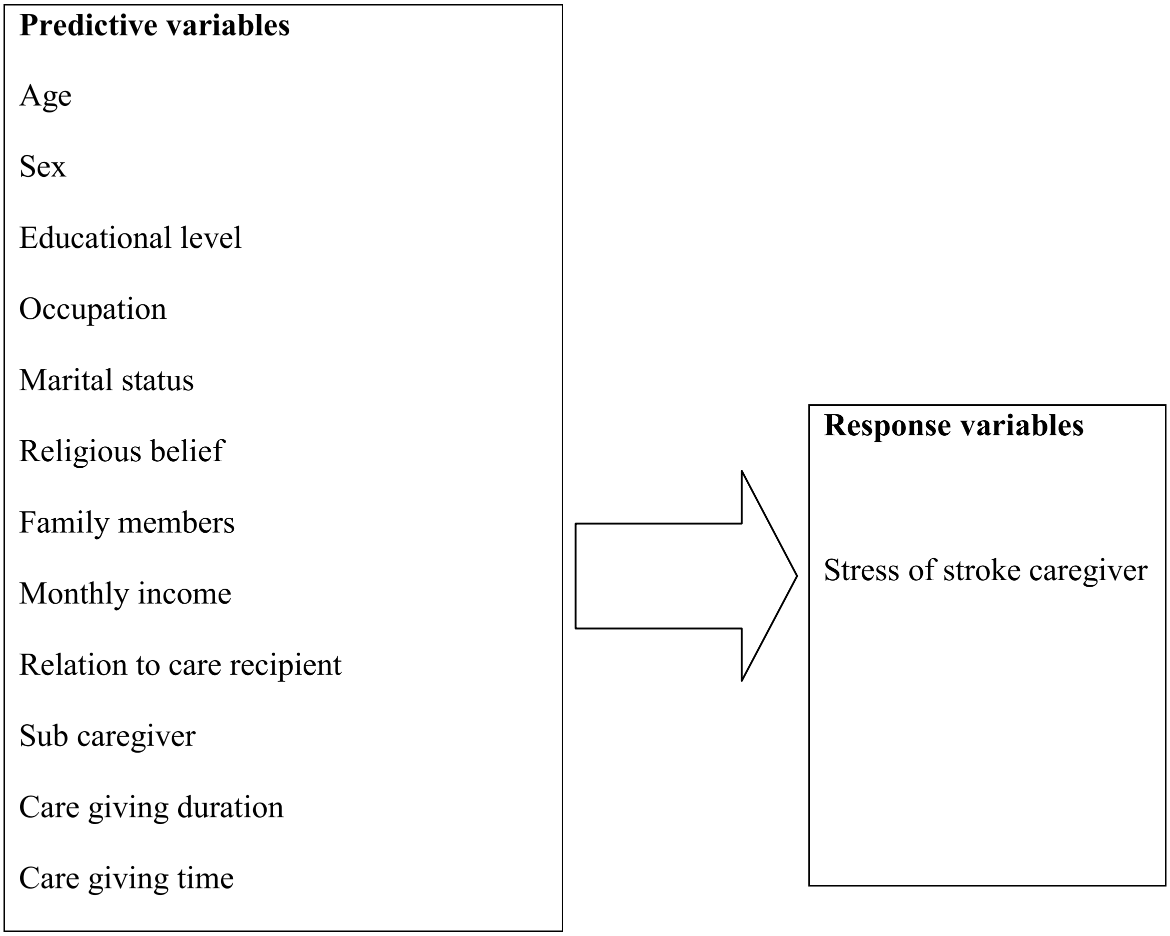
In a study spousal caregivers reported higher stress than stroke survivors, and over the year their stress decreased less. Stress has been associated with a number of factors, the most common being stroke survivor function, the relationship between the couple, coping, and social support. Stroke survivor function, was significantly associated with stress for both stroke survivors and spousal caregivers. In this study stroke survivors who reported high levels of stress throughout the year were those who had poorer function, perceived that their health was poor and felt that they were making a poor recovery from the stroke at the time of discharge. Higher stress in spousal caregivers was also predicted by poor health, in addition to being female and being younger. However, preparation for caregiving responsibilities was the strongest predictor of stress in spousal caregivers (Pierce et al., 2004).

Another study found that the absence of social support has been associated with stress in stroke survivors and family caregivers. The availability of emotional and informational support from family and friends was associated with lower stress levels in spousal caregivers. In addition, caregivers who reported more family and friends to talk also reported lower levels of stress during the year. Caregivers sometimes lose contact with their support network because the disabilities associated with stroke make transportation difficult, the time required to provide care leaves little energy for social interactions, or because they lose their connection to others, believing that they don’t understand (Secrest, 2000).

The mean age was 71.2 (SD = 8.4), ranging between 60 and 94 years. There was no difference between the mean age for men and women (p = 0.225). Most married survivors (77%) were male. About 90% of stroke survivors lived with someone, being more frequent those living with spouse (22.1%) and spouse and son/ daughter (21.1%). Among the survivors who had caregivers, 35% received care from their son/daughter and 33.3% from their spouse. There was no difference between the means of the PSS-10 with respect to gender (p = 0.134) and residence status (p = 0.08). There was also no relationship between age and perceived stress (r = -0.02, p = 0.85). Higher perceived stress level was associated with lower functional independence and more depressive symptoms. (Santos et al 2015).

CHAPTER III: RESEARCH METHODOLOGY

3.1. Conceptual frameworks



3.2 Study objectives

3.2.1 General Objective

To find out the level of stress of the stroke caregivers at the Centre for the Rehabilitation of the Paralyzed (CRP).

3.2.2 Specific objectives

- To find out socio-demographic status of stroke caregivers.
- To find out the relationship between functional independence level of patient and the stress of the caregiver.

3.3 Study Design

This was a cross-sectional study. Cross-sectional design was used to find out the quantitative information of different variable of this study. Data was collected once from the participants to expose the relationship and other variables of interest. Therefore cross sectional studies provide a picture of related characteristics in a population at a given point in time.

3.4 Study population

The study was conducted among stroke caregiver who was staying with stroke sufferers taking rehabilitation services from the Centre for the Rehabilitation of the Paralyzed (CRP), Savar, Dhaka, Bangladesh.

3.5 Study area

Centre for the Rehabilitation of the Paralyzed is the largest rehabilitation centre in the Bangladesh, even in South-Asian region. Here the people with disabilities get opportunity to have multidisciplinary treatment. In this rehabilitation centre, spinal cord injury unit, pediatric unit and stroke rehabilitation unit are well known all over the country. However, the study will be conducted in Stroke Rehabilitation Unit.

3.6 Study period

This study was finished within eight months from the date of approval of the proposal. This study was an academic part of the Masters course that's why it had to finish according to academic calendar. However it was started on August 2017 and it was finished on April 2018.

3.7 Sample size

It is very difficult to establishing the best size of sample since this decision depends very largely on the investigator which is being undertaken. Statistical studies are always better when they are carefully planned. In the study, sample must be adequate in size, relative to the goals of the study. Study sample must be “big enough” that an effect of such magnitude as to be of scientific significance will also be statistically significant.

Formula of one-sample population will be used for calculating sample size

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

Here

z= the standard normal deviation usually set at 1.96 which correspondents to 95% confidence level

p= the proportion of the target population estimated to have a particular characteristics

d= desired decision level usually set0.05

n=desired sample size

The sample size was 369 according to the prevalence of Bangladesh.

3.8 Inclusion exclusion criteria

3.8.1 Inclusion criteria

- Participants willing to take part in the study.
- Both male & female will get equally preference.
- The caregiver's minimum one month of stay with the Stroke patients.

3.8.2 Exclusion criteria

- Stroke caregiver who did not give consent.
- The caregivers not belonging to family members.

3.9 Sampling technique

A convenience sampling technique was used for sample selection.

3.10 Data collection tools

A structured questionnaire in Bangla was used to collect information on socio-demographic and family related variables such as, age, sex, religion, marital status, educational status, working status, family members, earning status. Two standard stress measurement tools were used to develop the data collection questionnaire.

The Perceived Stress Scale (PSS-10), a 10-item scale, asked stroke survivors and spousal caregivers to rate the extent to which they have felt their life to be stressful during the past month. Item scores as rated on a 5-point scale (0 = never to 4 = very often) range from 0 to 40, with higher scores suggesting higher levels of stress.

Functional Independence Measurement (FIM) Scale, an 18-item scale, measures the degree of independence in the stroke survivor on a 7-point scale (7-Complete Independence to 1-Total Assistance). The total scores range from 18–126 with higher scores representing more independent functioning.

3.11 Data collection procedures

First of all, the thesis proposal was approved by the university. Approval was taken from Institutional Review Board (IRB) of Bangladesh Health Professions Institute (BHPI). Permission was taken from concerned authority of Center for the Rehabilitation of Paralysed (CRP), Savar, Dhaka. Then individual informed consent was taken from selected participants. Questions were asked to participants that were prepared. The data collected were recorded and entered in SPSS program for analysis.

3.12 Data management and analysis

After completion of data collection, data was stored and quality control check was performed. Statistical Package for Social Science (SPSS) was used for the analysis.

3.13 Quality control and quality assurance

Before starting the data collection, the researcher was complete a field test with some selected caregivers for the survey question and face to face interview was conducted to ensure whether the question were understand by the participants. It was important to carry out a field test before collecting the final data because it helped the researcher to improve the data collection plan. This field test was performed to identify any difficulties that exist in the questionnaires. Then the researcher get chance to rearrange the questionnaires to make it more understandable, clear and enough for the participants and the study.

3.14 Ethical consideration

The study was done through collection of data from the respondents through interview. There was no physical or mental assault to the respondents. So that it was not harmful for the patient and their caregivers as well as the rehabilitation centers. The study subjects were also informed about being free to withdraw from the study at any time without giving any reason. It was maintained privacy of the personal information of each subject. The researcher was available to answer any study related question or inquiry to the participants. Consent form was developed for all participants in written form and they were guided about all rights that they preserve to explore during the study. Investigator was taken permission to conduct research from the Ethical Review board of Bangladesh Health Professions Institute as well as from the head of program of the Centre for the Rehabilitation of the Paralyzed to collect information from the stroke rehabilitation unit.

3.15 Statistical Analysis

Statistical analysis was done by using IBM SPSS 23.0 Percentage values for various categories in parameters viz. socio-demographic, relationship with the patient, presence of sub care giver, care giving duration and care giving time in a day were generated and presented as pie charts and colams.

The association between FIM scale and PSS was determined by cross tabulation followed by Chi-square test.

CHAPTER IV: RESULTS

A total of 57 respondents participated in the study.

Table 1: Distribution of the respondent according to age group (N = 57)

Age (years)	n	Percentage
≤ 20	2	3.5
21 – 30	13	22.8
31 – 40	20	35.1
41 – 50	15	26.3
51 – 60	4	7.0
61 – 70	1	1.8
≥ 71	2	3.5
Total	57	100.0

Among the 57 participants; approximately 3.5% was of ≤ 20 years, approximately 22.8% was in 21 to 30 years, 35.1% was in 31 to 40 years, 26.3% was in 41 to 50 years, 7.0% was in 51 to 60 years, 1.8% was in 61 to 70 years and 3.5% was of ≥ 70 years.

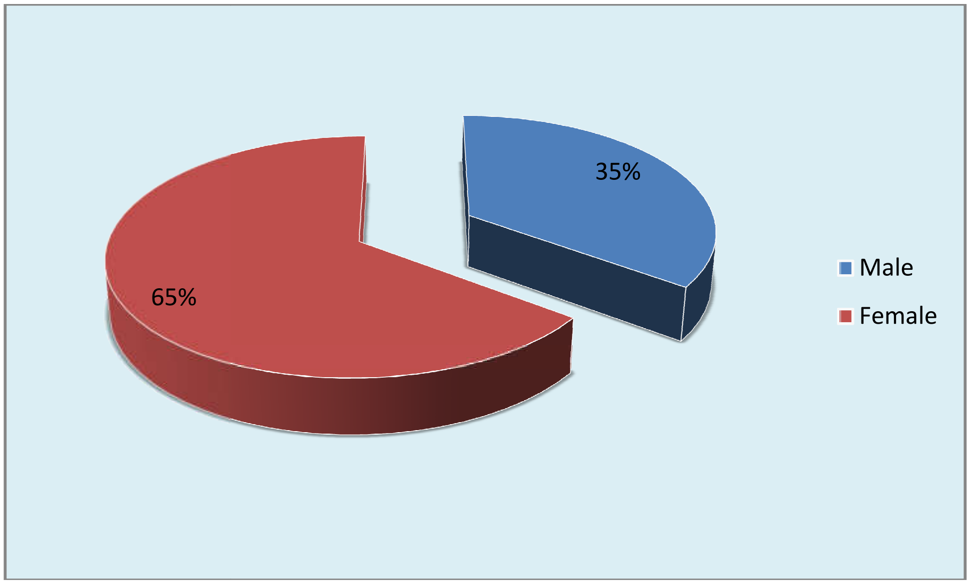


Figure 1: Distribution of the respondent according to sex.

Among the 57 participants; approximately 35.1% was male and 64.9% was female.

Table 2: Distribution of the respondent according to Educational background (N = 57)

Educational background	n	Percentage
Illiterate	2	3.5
Primary (0-5)	11	19.3
Under SSC (6-10)	17	29.8
SSC	16	28.1
HSC	10	17.5
Graduate	1	1.8
Total	57	100.0

Among the 57 participants; approximately 3.5% was illiterate, approximately 19.3% was Primary (0-5), approximately 29.8% was under SSC (6-10), approximately 28.1% was SSC, approximately 17.5% was HSC, approximately 1.8% was graduate.

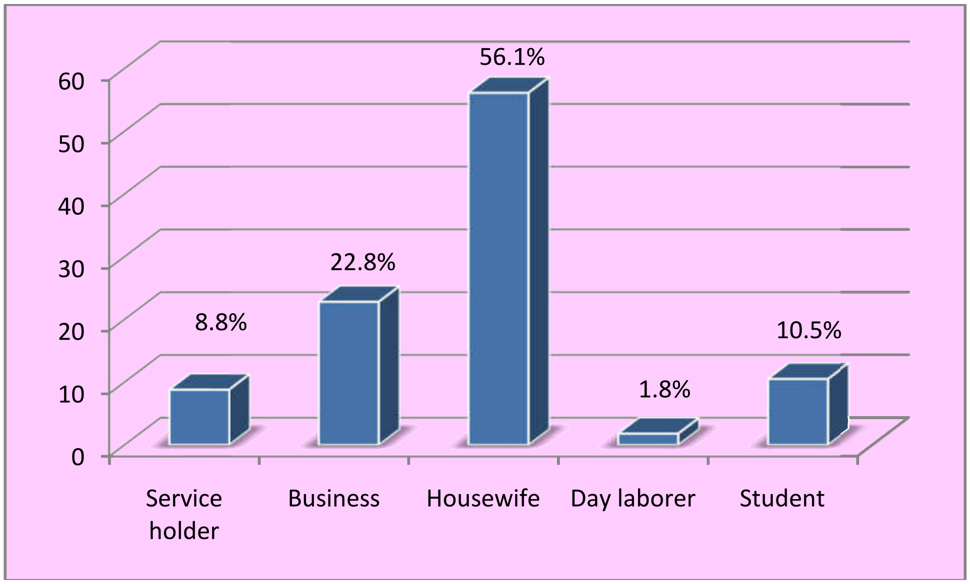


Figure 2: Distribution of the respondent according to their occupation.

Among the 57 participants; approximately 8.8% was service holder, approximately 22.8% did business, approximately 56.1% was housewife, approximately 1.8% was day laborer and approximately 10.5% was student.

Table 3: Distribution of the respondent according to marital status (N = 57)

Marital status	n	Percentage
Married	49	86.0
Unmarried	8	14.0
Total	57	100.0

Among the 57 participants; approximately 86.0% was married and 14.0% was unmarried.

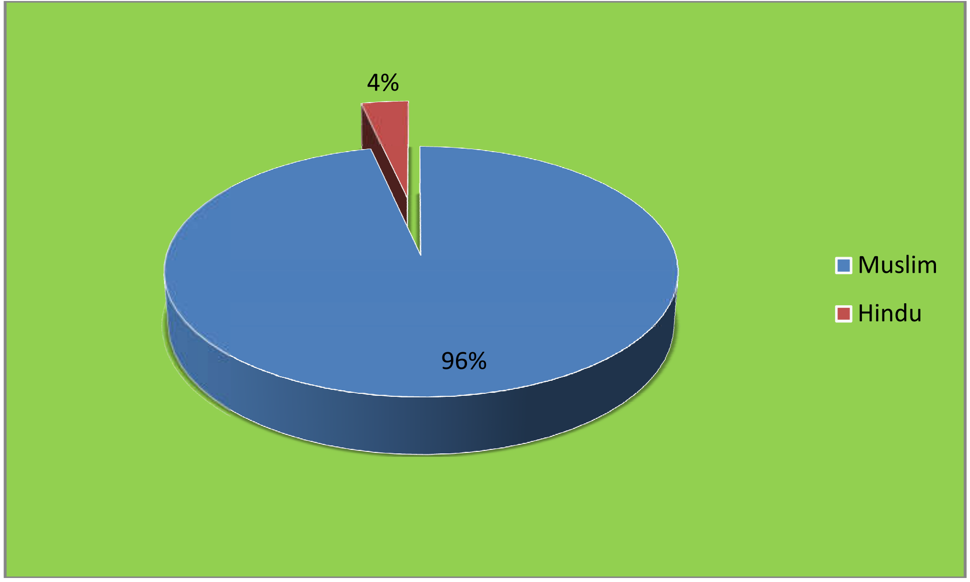


Figure 3: Distribution of the respondent according to their religious belief.

Among the 57 participants; approximately 96.5% was Muslim and approximately 3.5% was Hindu.

Table 4: Distribution of the participants according to family members (N = 57)

Family members	n	Percentage
≤ 4	9	15.8
5 to 8	45	78.9
≥ 9	3	5.3
Total	57	100.0

Among the 57 participants; approximately 15.8% have family members ≤ 4, approximately 78.9% have 5 to 8 and approximately 5.3% have ≥ 9.

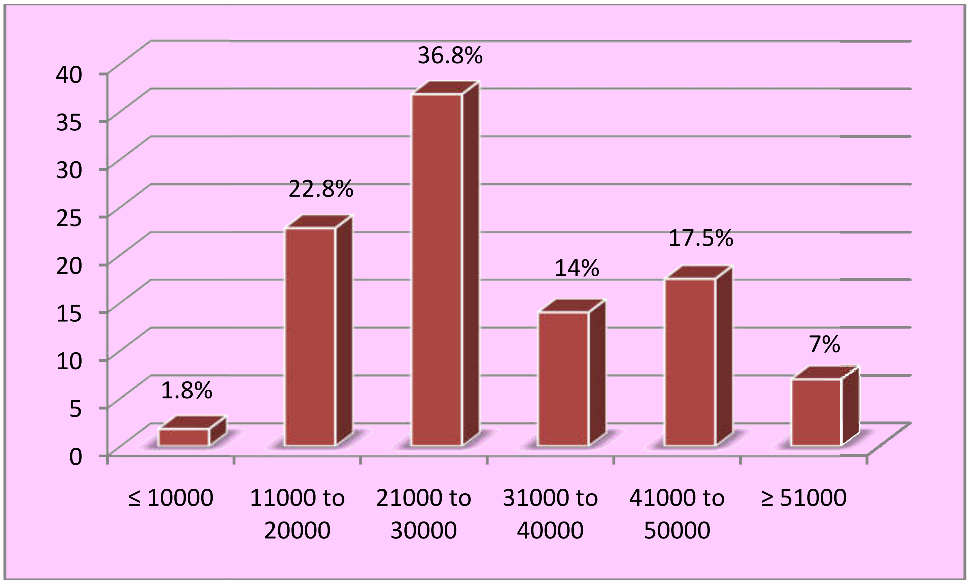


Figure 4: Distribution of the respondent according to monthly family income.

Among the 57 participants, approximately 1.8% have family income ≤ 10000 taka, approximately 22.8% have 11000 to 20000 taka, approximately 36.8% have 21000 to 30000 taka, approximately 14.0% have 31000 to 40000 taka, approximately 17.5% have 41000 to 50000 taka and approximately 7.0% have ≥ 51000 taka.

Table 5: Distribution of the respondent according to the relation with the care recipient (57)

Relation	n	Percentage
Wife	13	22.8
Husband	22	38.6
Daughter	5	8.8
Son	9	15.8
Sibling	8	14.0
Total	57	100.0

Among the 57 participants; approximately 22.8% was wife of the care recipient, approximately 38.6% was husband, approximately 8.8% was daughter, approximately 15.8% was son and approximately 14.0% was sibling of the care recipient.

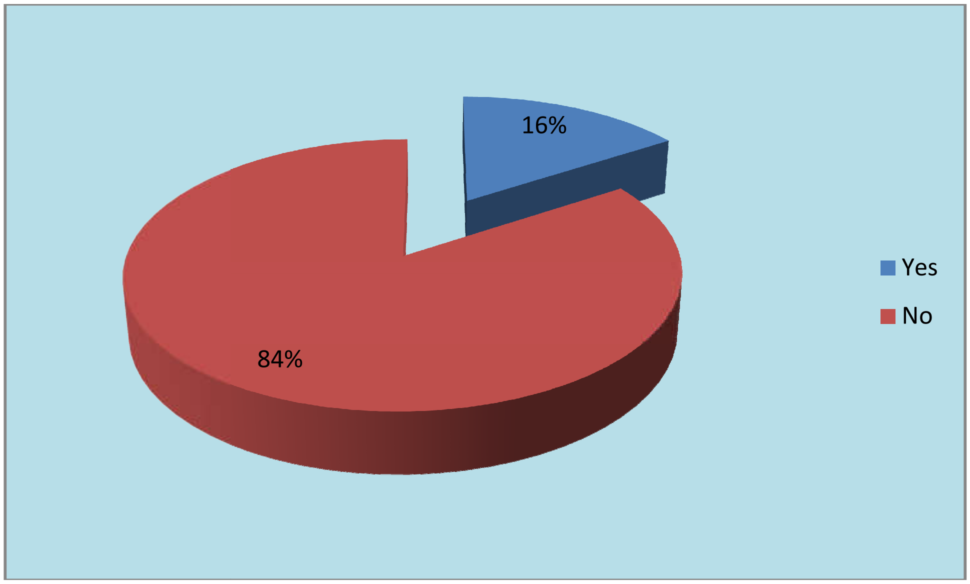


Figure 5: Distribution of the respondent according to availability of sub-caregiver.

Among the 57 participants; approximately 15.8% have sub-caregiver and approximately 84.2% have no sub-caregiver.

Table 6: Distribution of the respondent according to duration of care giving (N = 57)

Duration	**n**	**Percentage**
≤ 6 months	38	66.7
7 to 12 months	16	28.1
≥ 13 months	3	5.3
Total	57	100.0

Among the 57 participants; approximately 66.7% are caring for ≤ 6 months, approximately 28.1% for 7 to 12 months and approximately 5.3% for ≥ 13 months.

Table 7: Distribution of the respondent according to care giving time (N = 57)

Time	n	Percentage
≤ 8 hours	1	1.8
9 to 16 hours	5	8.8
≥ 17 hours	51	89.5
Total	57	100.0

Among the 57 participants; approximately 1.8% takes care for ≤ 8 hours, approximately 8.8% for 9 to 16 hours and approximately 89.5% for ≥ 17 hours.

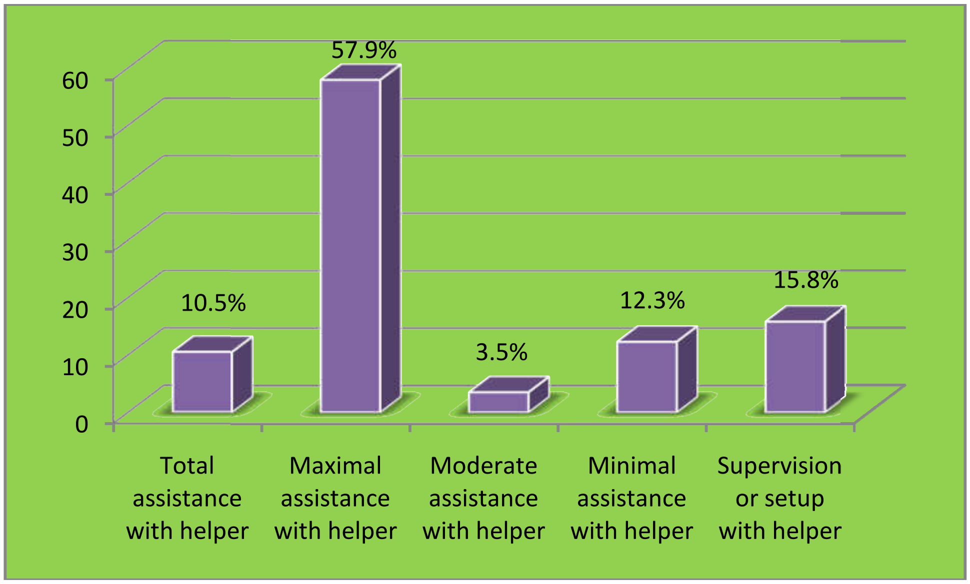


Figure 6: Distribution of the respondent according to patient's independence in eating

Among the 57 participants; approximately 10.5% need total assistance with helper for eating, approximately 57.9% need maximal assistance with helper, approximately 3.5% need moderate assistance with helper, approximately 12.3% need minimal assistance with helper and approximately 15.8% need supervision or setup with helper.

Table 8: Distribution of the respondent according to patients independence in grooming (N = 57)

Grooming	n	Percentage
Total assistance with helper	13	22.8
Maximal assistance with helper	30	52.6
Moderate assistance with helper	5	8.8
Minimal assistance with helper	2	3.5
Supervision or setup with helper	7	12.3
Total	57	100.0

Among the 57 participants; approximately 22.8% need total assistance with helper for grooming, approximately 52.6% need maximal assistance with helper, approximately 8.8% need moderate assistance with helper, approximately 3.5% need minimal assistance with helper and approximately 12.3% need supervision or setup with helper.

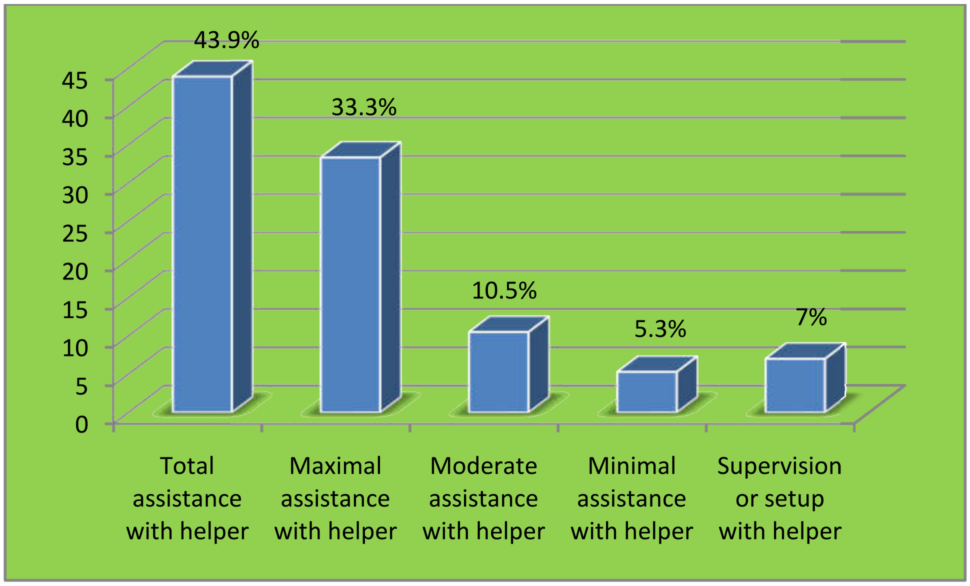


Figure 7: Distribution of the respondent according to patient's independence in bathing.

Among the 57 participants; approximately 43.9% need total assistance with helper for bathing, approximately 33.3% need maximal assistance with helper, approximately 10.5% need moderate assistance with helper, approximately 5.3% need minimal assistance with helper and approximately 7.0% need supervision or setup with helper.

Table 9: Distribution of the respondent according to patients independence in dressing upper body (N = 57)

Dressing upper body	n	Percentage
Total assistance with helper	14	24.6
Maximal assistance with helper	27	47.4
Moderate assistance with helper	6	10.5
Minimal assistance with helper	4	7.0
Supervision or setup with helper	6	10.5
Total	57	100.0

Among the 57 participants; approximately 24.6% need total assistance with helper for dressing upper body, approximately 47.4% need maximal assistance with helper, approximately 10.5% need moderate assistance with helper, approximately 7.0% need minimal assistance with helper and approximately 10.5% need supervision or setup with helper.

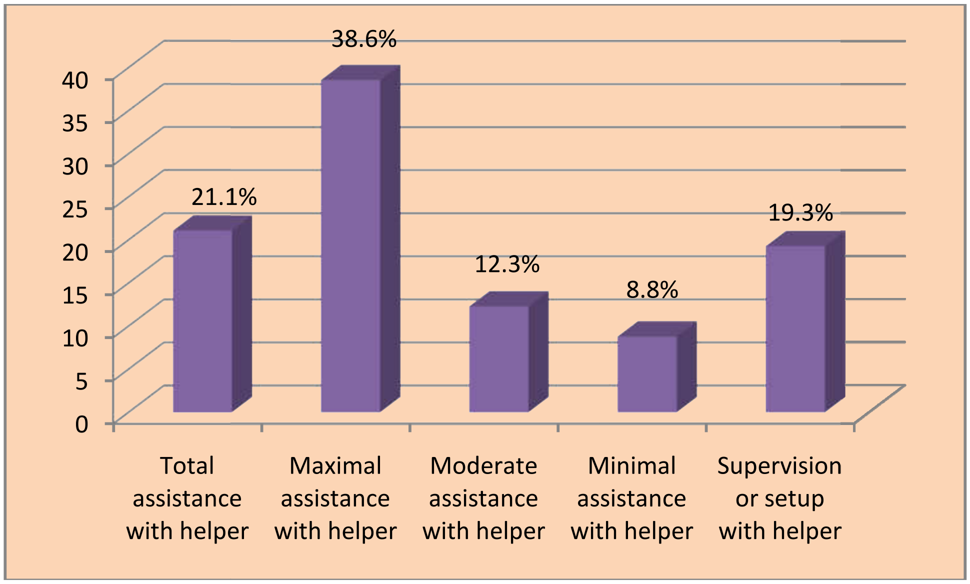


Figure 8: Distribution of the respondent according to patient's independence in dressing lower body.

Among the 57 participants; approximately 21.1% need total assistance with helper for dressing lower body, approximately 38.6% need maximal assistance with helper, approximately 12.3% need moderate assistance with helper, approximately 8.8% need minimal assistance with helper and approximately 19.3% need supervision or setup with helper.

Table 10: Distribution of the respondent according to patients independence in toileting (N = 57)

Toileting	n	Percentage
Total assistance with helper	20	35.1
Maximal assistance with helper	24	42.1
Moderate assistance with helper	3	5.3
Minimal assistance with helper	1	1.8
Supervision or setup with helper	6	10.5
Modified independence with no helper	3	5.3
Total	57	100.0

Among the 57 participants; approximately 35.1% need total assistance with helper for toileting, approximately 42.1% need maximal assistance with helper, approximately 5.3% need moderate assistance with helper, approximately 1.8% need minimal assistance with helper, approximately 10.5% need supervision or setup with helper and approximately 5.3% have modified independence with no helper.

Table 11: Distribution of the respondent according to patients independence in bladder management (N = 57)

Bladder management	n	Percentage
Total assistance with helper	18	31.6
Maximal assistance with helper	25	43.9
Moderate assistance with helper	2	3.5
Minimal assistance with helper	1	1.8
Supervision or setup with helper	8	14.0
Modified independence with no helper	3	5.3
Total	57	100.0

Among the 57 participants; approximately 31.6% need total assistance with helper for bladder management, approximately 43.9% need maximal assistance with helper, approximately 3.5% need moderate assistance with helper, approximately 1.8% need minimal assistance with helper, approximately 14.0% need supervision or setup with helper and approximately 5.3% have modified independence with no helper.

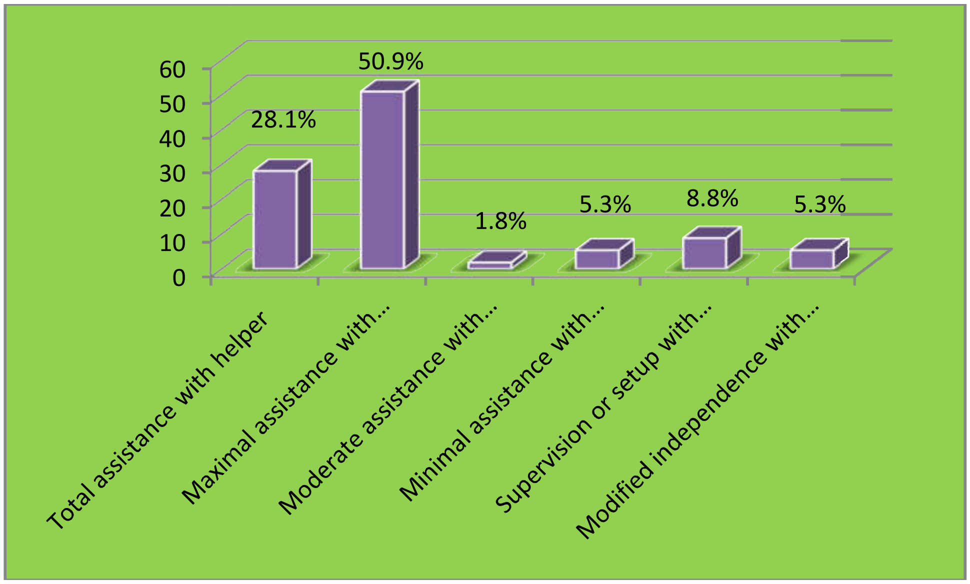


Figure 9: Distribution of the respondent according to patients independence in bowel management.

Among the 57 participants; approximately 28.1% need total assistance with helper for bowel management, approximately 50.9% need maximal assistance with helper, approximately 1.8% need moderate assistance with helper, approximately 5.3% need minimal assistance with helper, approximately 8.8% need supervision or setup with helper and approximately 5.3% have modified independence with no helper.

Table 12: Distribution of the respondent according to patients independence in transfer- bed/chair/wheelchair (N = 57)

Transfer- bed/chair/wheelchair	n	Percentage
Total assistance with helper	6	10.5
Maximal assistance with helper	18	31.6
Moderate assistance with helper	8	14.0
Minimal assistance with helper	8	14.0
Supervision or setup with helper	11	19.3
Modified independence with no helper	4	7.0
Complete independence with no helper	2	3.5
Total	57	100.0

Among the 57 participants; approximately 10.5% need total assistance with helper for transfer- bed/chair/wheelchair, approximately 31.6% need maximal assistance with helper, approximately 14.0% need moderate assistance with helper, approximately 14.0% need minimal assistance with helper, approximately 19.3% need supervision or setup with helper, approximately 7.0% have modified independence with no helper and approximately 3.5% have complete independence with no helper.

Table 13: Distribution of the respondent according to patients independence in transfer- toilet (N = 57).

Transfer- toilet	n	Percentage
Total assistance with helper	5	8.8
Maximal assistance with helper	21	36.8
Moderate assistance with helper	8	14.0
Minimal assistance with helper	11	19.3
Supervision or setup with helper	9	15.8
Modified independence with no helper	3	5.3
Total	57	100.0

Among the 57 participants; approximately 8.8% need total assistance with helper for transfer- toilet, approximately 36.8% need maximal assistance with helper, approximately 14.0% need moderate assistance with helper, approximately 19.3% need minimal assistance with helper, approximately 15.8% need supervision or setup with helper and approximately 5.3% have modified independence with no helper.

Table 14: Distribution of the respondent according to patients independence in transfer-bath/shower (N = 57)

Transfer-bath/shower	n	Percentage
Total assistance with helper	12	21.1
Maximal assistance with helper	20	35.1
Moderate assistance with helper	6	10.5
Minimal assistance with helper	8	14.0
Supervision or setup with helper	8	14.0
Modified independence with no helper	3	5.3
Total	57	100.0

Among the 57 participants; approximately 21.1% need total assistance with helper for transfer-bath/shower, approximately 35.1% need maximal assistance with helper, approximately 10.5% need moderate assistance with helper, approximately 14.0% need minimal assistance with helper, approximately 14.0% need supervision or setup with helper and approximately 5.3% have modified independence with no helper.

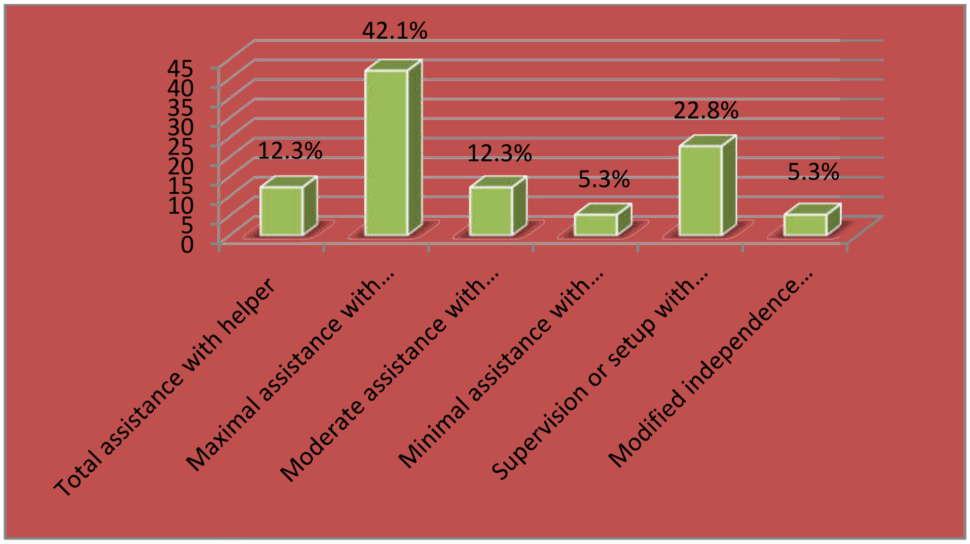


Figure 10: Distribution of the respondent according to patients independence in walk/wheel chair.

Among the 57 participants; approximately 12.3% need total assistance with helper for walk/wheel chair, approximately 42.1% need maximal assistance with helper, approximately 12.3% need moderate assistance with helper, approximately 5.3% need minimal assistance with helper, approximately 22.8% need supervision or setup with helper and approximately 5.3% have modified independence with no helper.

Table 15: Distribution of the respondent according to patients independence in stair (N = 57).

Stair	n	Percentage
Total assistance with helper	30	52.6
Maximal assistance with helper	19	33.3
Moderate assistance with helper	2	3.5
Minimal assistance with helper	4	7.0
Supervision or setup with helper	2	3.5
Total	57	100.0

Among the 57 participants; approximately 52.6% need total assistance with helper for stair, approximately 33.3% need maximal assistance with helper, approximately 3.5% need moderate assistance with helper, approximately 7.0% need minimal assistance with helper and approximately 3.5% need supervision or setup with helper.

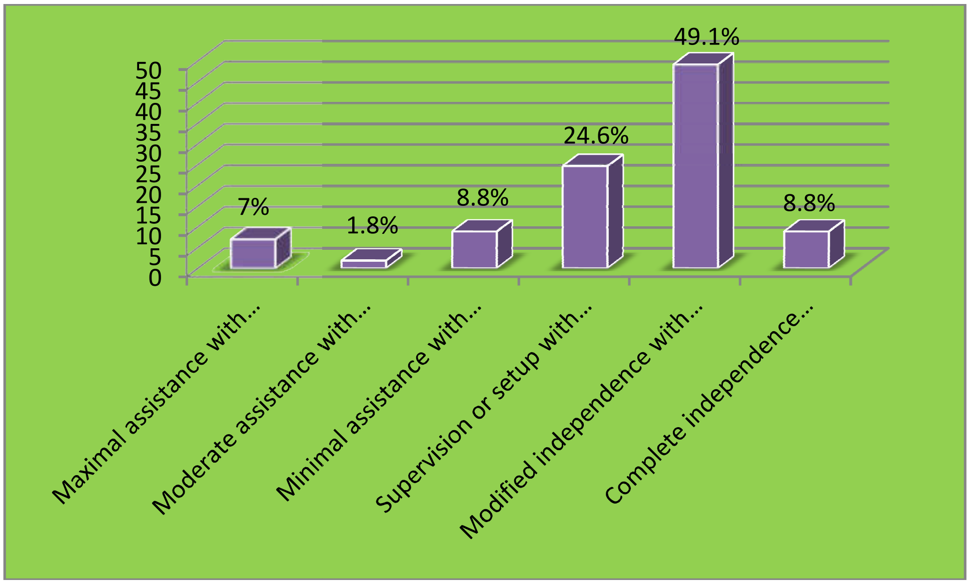


Figure 11: Distribution of the respondent according to patients independence in comprehension.

Among the 57 participants; approximately 7.0% need maximal assistance with helper for comprehension, approximately 1.8% need moderate assistance with helper, approximately 8.8% need minimal assistance with helper, approximately 24.6% need supervision or setup with helper, approximately 49.1% need modified independence with no helper and approximately 8.8% have complete independence with no helper.

Table 16: Distribution of the respondent according to patients independence in expression (N = 57)

Expression	n	Percentage
Total assistance with helper	2	3.5
Maximal assistance with helper	1	1.8
Moderate assistance with helper	3	5.3
Minimal assistance with helper	2	3.5
Supervision or setup with helper	8	14.0
Modified independence with no helper	32	56.1
Complete independence with no helper	9	15.8
Total	57	100.0

Among the 57 participants; approximately 3.5% need total assistance with helper for expression, approximately 1.8% maximal assistance with helper, approximately 5.3% need moderate assistance with helper, approximately 3.5% need minimal assistance with helper, approximately 14.0% need supervision or setup with helper, approximately 56.1% need modified independence with no helper and approximately 15.8% have complete independence with no helper.

Table 17: Distribution of the respondent according to patients independence in social interaction (N = 57)

Social interaction	n	Percentage
Total assistance with helper	1	1.8
Maximal assistance with helper	3	5.3
Minimal assistance with helper	4	7.0
Supervision or setup with helper	12	21.1
Modified independence with no helper	29	50.9
Complete independence with no helper	8	14.0
Total	57	100.0

Among the 57 participants; approximately 1.8% need total assistance with helper for social interaction, approximately 5.3% maximal assistance with helper, approximately 7.0% need minimal assistance with helper, approximately 21.1% need supervision or setup with helper, approximately 50.9% need modified independence with no helper and approximately 14.0% have complete independence with no helper.

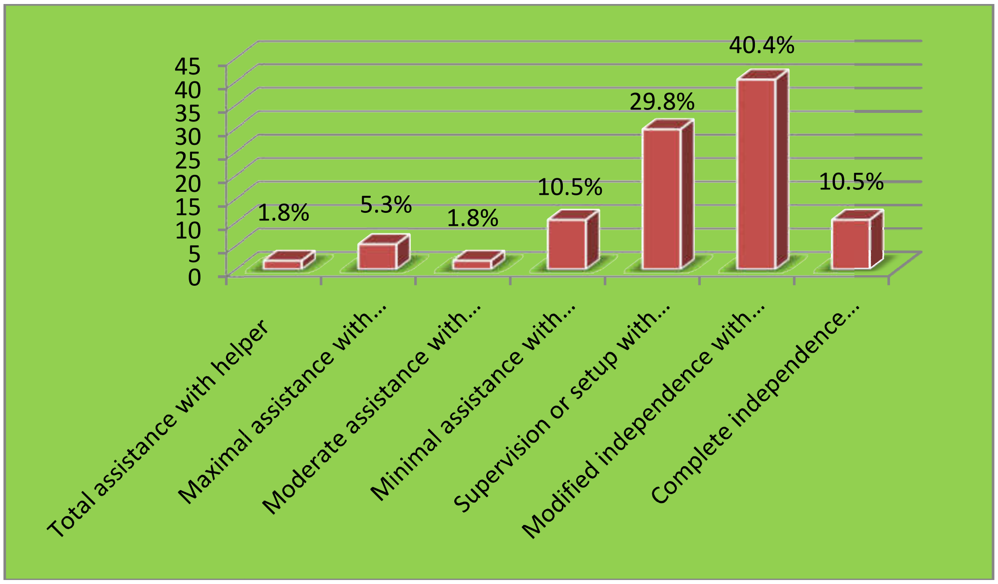


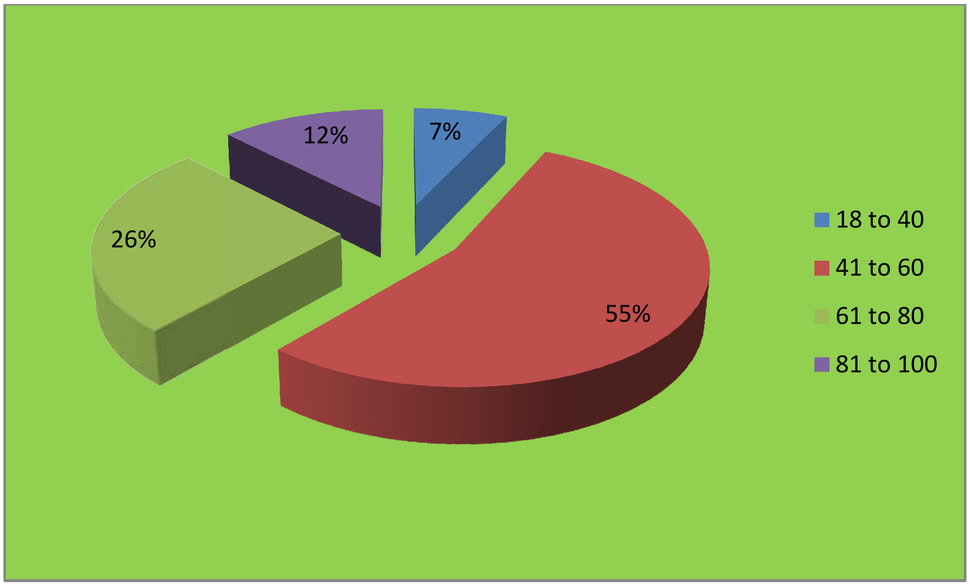
Figure 12: Distribution of the respondent according to patients independence in problem solving.

Among the 57 participants; approximately 1.8% need total assistance with helper for problem solving, approximately 5.3% maximal assistance with helper, approximately 1.8% need moderate assistance with helper, approximately 10.5% need minimal assistance with helper, approximately 29.8% need supervision or setup with helper, approximately 40.4% need modified independence with no helper and approximately 10.5% have complete independence with no helper.

Table 18: Distribution of the respondent according to patients independence in memory (N = 57).

Memory	n	Percentage
Total assistance with helper	1	1.8
Moderate assistance with helper	1	1.8
Minimal assistance with helper	2	3.5
Supervision or setup with assistance	3	3.5
Modified independence with no helper	16	28.1
Complete independence with no helper	34	59.6
Total	57	100.0

Among the 57 participants; approximately 1.8% need total assistance with helper in memory, approximately 1.8% need moderate assistance with helper, approximately 3.5% need minimal assistance with helper, approximately 3.5% need supervision or setup with assistance, approximately 28.1% need modified independence with no helper and approximately 59.6% have complete independence with no helper.



.

Figure 13: Distribution of the respondent according to their total score in FIM scale.

Among the 57 participants the highest percentage of FIM scale was of 41 to 60 and the percentage was 54.4%. After that 61 to 80 was 26.3%, 81 to 100 was 12.3% and 18 to 40 was 7.0%

Table 19: Distribution of the respondent according to how often have the respondent been upset because of something that happened unexpectedly in the last month (N = 57)

Upset	n	Percentage
Never	5	8.8
Almost never	13	22.8
Sometimes	32	56.1
Fairly often	4	7.0
Very often	3	5.3
Total	57	100.0

Among the 57 participants; approximately 8.8% respondent never been upset because of something that happened unexpectedly in the last month, approximately 22.8% almost never; approximately 56.1% sometimes, approximately 7.0% fairly often, approximately 5.3% very often.

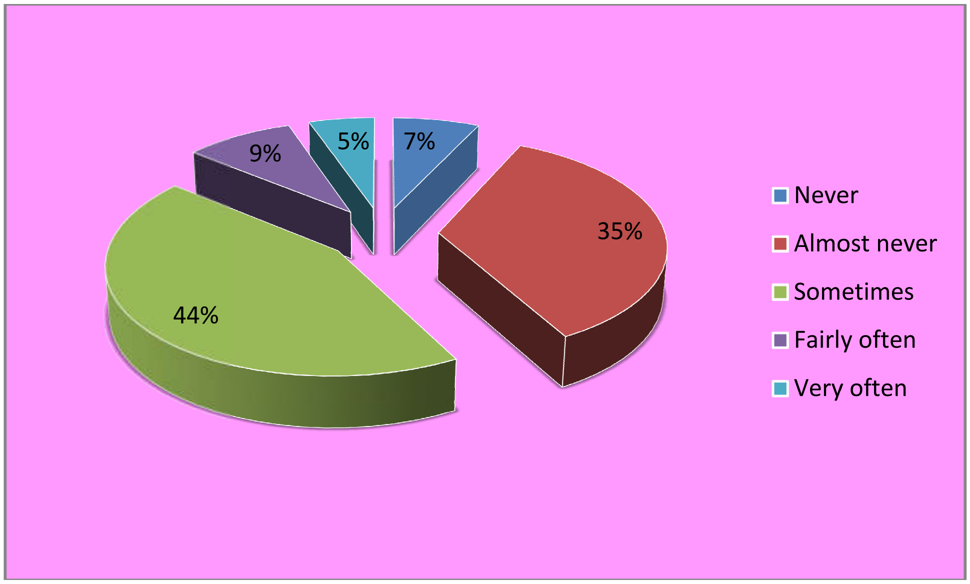


Figure 14: Distribution of the respondent according to how often have the respondent felt he was unable to control the important thing in his life in the last month.

Among the 57 participants; approximately 7.0% respondent never felt he was unable to control the important thing in his life in the last month, approximately 35.1% almost never; approximately 43.9% sometimes, approximately 8.8% fairly often, approximately 5.3% very often.

Table 20: Distribution of the respondent according to how often have the respondent felt nervous and stressed in the last month (N = 57).

Felt nervous and stressed	n	Percentage
Never	6	10.5
Almost never	19	33.3
Sometimes	22	38.6
Fairly often	7	12.3
Very often	3	5.3
Total	57	100.0

Among the 57 participants; approximately 10.5% respondent never felt nervous and stressed in the last month, approximately 33.3% almost never; approximately 38.6% sometimes, approximately 12.3% fairly often, approximately 5.3% very often.

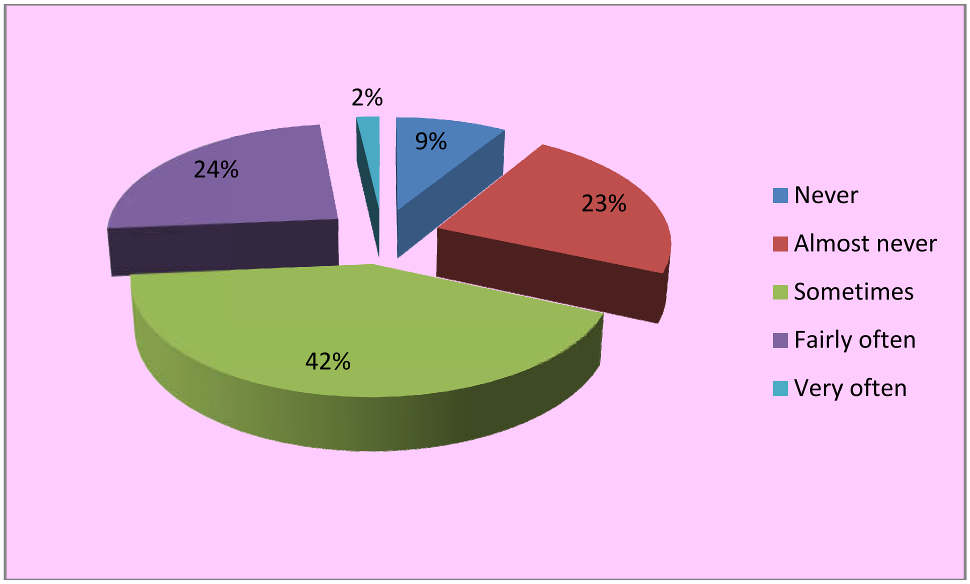


Figure 15: Distribution of the respondent according to how often has he felt that confident about his ability to handle his personal problems.

Among the 57 participants; approximately 8.8% respondent never felt that confident about his ability to handle his personal problems in the last month, approximately 22.8% almost never; approximately 42.1% sometimes, approximately 24.6% fairly often, approximately 1.8% very often.

Table 21: Distribution of the respondent according to how often has he felt that things were going his way (N = 57)

Things were going his way	**n**	**Percentage**
Never	5	8.8
Almost never	19	33.3
Sometimes	19	33.3
Fairly often	14	24.6
Total	57	100.0

Among the 57 participants; approximately 8.8% respondent never felt that how often has he felt that things were going his way in the last month, approximately 33.3% almost never; approximately 33.3% sometimes and approximately 24.6% fairly often.

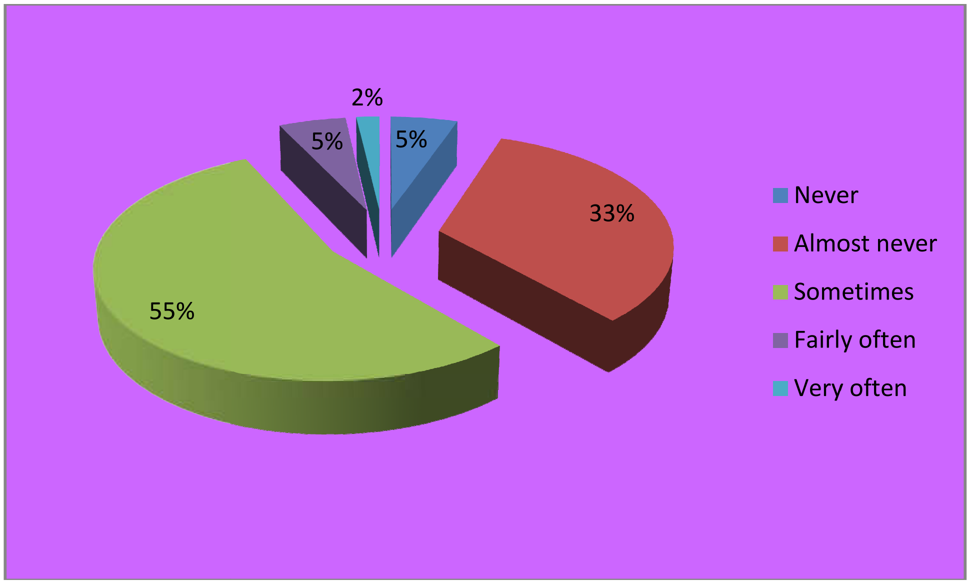


Figure 15: Distribution of the respondent according to how often has he found not that he could not cope with all the things that he had to do.

Among the 57 participants; approximately 5.3% respondent never has found not that he could not cope with all the things that he had to do in the last month, approximately 33.3% almost never; approximately 54.4% sometimes, approximately 5.3% fairly often and approximately 1.8% very often.

Table 22: Distribution of the respondent according to how often have he felt been able to control irritations in his life (N = 57)

he felt been able to control irritations in his life	n	Percentage
Never	1	1.8
Almost never	16	28.1
Sometimes	21	36.8
Fairly often	17	29.8
Very often	2	3.5
Total	57	100.0

Among the 57 participants; approximately 1.8% respondent never has felt been able to control irritations in his life in the last month, approximately 28.1% almost never; approximately 36.8% sometimes, approximately 29.8% fairly often and approximately 3.5% very often.

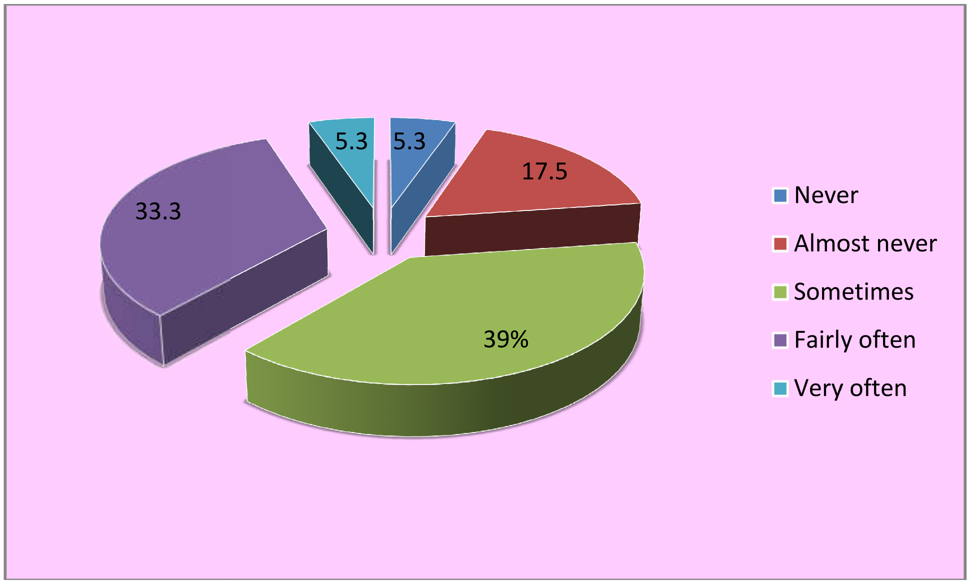


Figure 17: Distribution of the respondent according to how often he felt that he was on top of things.

Among the 57 participants; approximately 5.3% respondent never has felt that he was on top of things in the last month, approximately 17.5% almost never; approximately 38.6% sometimes, approximately 33.3% fairly often and approximately 5.3% very often.

Table 23: Distribution of the respondent according to how often he been angered because of things that were outside of his control (N = 57).

Angered because of things that were outside of his control	**n**	**Percentage (%)**
Never	5	8.8
Almost never	19	33.3
Sometimes	23	40.4
Fairly often	8	14.0
Very often	2	3.5
Total	57	100.0

Among the 57 participants; approximately 8.8% respondent never been angered because of things that were outside of his control in the last month, approximately 33.3% almost never; approximately 40.4% sometimes, approximately 14.0% fairly often and approximately 3.5% very often.

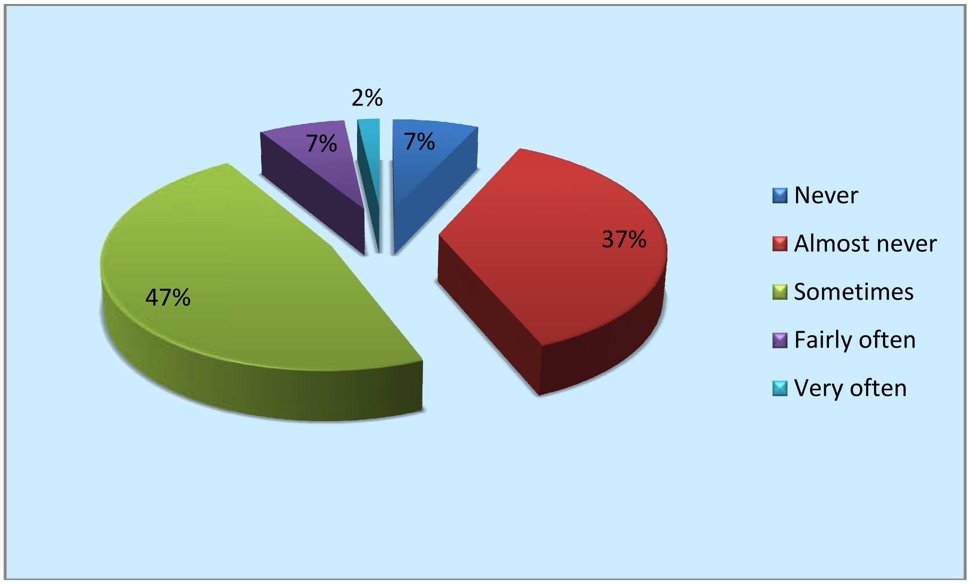


Figure 18: Distribution of the respondent according to felt difficulties were pilling up so high that he could not overcome them.

Among the 57 participants; approximately 7.0% respondent never felt difficulties were pilling up so high that he could not overcome them in the last month, approximately 36.8% almost never; approximately 47.4% sometimes, approximately 7.0% fairly often and approximately 1.8% very often.

Table 24: Distribution of the respondent according to their stress level (PSS). (N = 57)

Score	n	Percentage
Low stress (0 to 13)	7	12.3
Moderate stress (14 to 26)	50	87.7
Total	57	100.0

Among the 57 participants; most of the percentage of stress level was moderate (14 to 26) and the percentage is 87.7, rest are of low stress and the percentage is 12.3%.

Table 25: Association between PSS and socio-demography of the respondent.

Socio-demographic factors	**P – value**
Age	0.155
Sex	0.187
Educational background	0.552
Occupation	0.195
Family members	0.281
Monthly income	0.321
Relation to care recipient	0.169
Presence of sub caregiver	0.278
Care giving duration	0.406
Care giving time in a day	0.625

Socio-demographic factors shows non significant association with PSS.

Table 26: Association between FIM scale and PSS

Variables	Total score of PSS		P value	df	Chi-square
	Low stress (0 to 13)	Moderate stress (14 to 26)			
Total score of FIM scale			0.029	3	9.051
18 to 40	1 (14.3%)	3 (6.0%)			
41 to 60	1 (14.3%)	30 (60.0%)			
61 to 80	2 (28.6%)	13 (26.0%)			
81 to 100	3 (42.9%)	4 (8.0%)			
Total	7 (100.0%)	50 (100.0%)			

Here P value = 0.029 < 0.05, so it shows significant association.

Table 27: Association between PSS and motor FIM scale

Variables	Total score of PSS		P value	df	Chi-square
	Low stress (0 to 13)	Moderate stress (14 to 26)			
Total score of motor FIM scale			0.042	2	6.351
13 to 33	2 (28.6%)	34 (68.0%)			
34 to 53	2 (28.6%)	11 (22.0%)			
54 to 73	3 (42.9%)	13 (26.0%)			
Total	7 (100)	50 (100.0%)			

Here P value = 0.042 < 0.05, so it shows significant association.

Table 28: Association between PSS and cognition FIM

Variables	Total score of PSS		P value	df	Chi-square
	Low stress (0 to 13)	Moderate stress (14 to 26)			
Total score of cognition FIM scale			0.034	5	12.083
5 to 10	0 (0.0%)	1 (2.0%)			
11 to 15	0 (0.0%)	1 (2.0%)			
16 to 20	1 (14.3%)	0 (0.0%)			
21 to 25	0 (0.0%)	8 (16.0%)			
26 to 30	6 (85.7%)	25 (50%)			
31 to 35	0 (0.0%)	15 (30.0%)			
Total	7 (100.0%)	50 (100.0%)			

Here P value = 0.034 < 0.05, so it shows significant association.

LIMITATION

Performance bias: Performance Bias from respondents' side may have been introduced during data collection as respondents were aware of what is to be asked to them. They may have sub consciously changed their choice to make themselves in better view and opinions of researcher. Key informant may have wished to keep quiet about actual status about the hospital. They may have altered their views and opinions regarding rehabilitation during interviews.

Small sample size: Although 57 samples were taken, still the results cannot be generalized to the whole population of Bangladesh because of small sample size. Due to time constraint and unavailability of stroke patients in CRP outdoor researcher has been taken small sample size which was very low comparison to stroke prevalence rate in Bangladesh.

Lack of prior research with similar type: Lots of research focuses on challenges during total phase. Very few studies focus on level of stress in PSS among the caregiver.

CHAPTER V: DISCUSSION

This study should advance the understanding of level of stress among the persons who are caring stroke patients. In a study found that most of the stroke survivors stay at home and take domiciliary care, which in reality is a burden on CGs. Stroke, may also compromise cognition, mood, functional abilities and quality-of-life of the survivor. It also results in caregiver burden and economic stress at individual, familial and national levels (Sujata & Kumar, 2013). In this study it shows the stress level among the caregivers of the patients who are admitted in CRP, Savar, Dhaka.

Another study found that Factors associated with caregiver burden that can lead to caregiver stress include the relationship quality between caregiver and patient, the patient's cognitive ability, behavioral and psychological symptoms displayed by the patient, caregiver gender, and adverse life events (Campbell et al., 2008). In this study, it shows 35.1% caregiver was male and 64.9% was female, 12.3% caregiver was in low stress level and 87.7% was in moderate stress level. Among the moderate stress level 68.0% respondent was female and in low stress level 57.1% was male.

A study about Assessment of stress among caregivers of the stroke survivors, they found that more than half of the caregivers (61%) were not literate (Rajan et al., 2017). In my study it shows maximum (29.8%) caregivers were under SSC and among the participants in moderate stress level 30.0% was under SSC and 30% was SSC completed. In low stress level 42.9% was HSC completed. The study also shows that the caregivers predominantly belonged to poor socio-economic status. (Rajan et al., 2017) and this study shows 36.8% participants have family income in the range of 21000 to 30000 taka and also shows that in the moderate stress level 40.0% participants was on that range of family income, in low stress level 42.9% respondent have their family income in range of 11000 to 20000 taka.

Another study suggests that the perceived stress of stroke survivors is related to functional independence and depressive symptoms. In a longitudinal study conducted in Texas on the perceived stress of 159 stroke survivors, it was noticed that the survivors with lower functional independence had higher stress level (Ostwald et al., 2008). In this study 54.4% patients functional independence level was 41 to 60 and 87.7% participants are in moderate stress level according to PSS. In moderate stress level 60.0% patients functional independence level was 41 to 60. The p value of association between FIM and PSS is 0.029.

In this study, the finding is- association between PSS and Motor FIM, PSS and cognition FIM also shows significance ($p = 0.042$ and 0.034 respectively). Among the respondents who are in moderate stress level 88.0% caregivers are taking care for more than 17 hours in a day. 66.0% were taking care for less than 6 months. In moderate stress level 82.0% respondents have no sub caregiver.

Recommendation

Further research is need for future research based on a large sample to examine outcomes that are associated with specific factors. It is also recommended that further study need to conduct to see the association and correlation between different variables in relation to community integration. Some variables like understanding between patient and caregiver, family acceptance of patient, earning member of the patients family should include in further research. It is also recommended to conduct study in both urban and rural communities.

Conclusion

The aim of the study was to find out the stress level among the caregivers of stroke patients who are admitted at CRP, Savar. A structured questionnaire was used to collect data on: the caregiver's demography; how long he is caring the patient, presence of sub caregiver, independence level of the patient and PSS. A cross-sectional study design using a qualitative research method was selected for the study. The study sample includes 57 participants who are taking care of stroke patients, taking treatment at CRP. 35.1% caregiver was male and 64.9% was female, 12.3% caregiver was in low stress level and 87.7% was in moderate stress level. Among the moderate stress level 68.0% respondent was female and in low stress level 57.1% was male. Maximum (29.8%) caregivers were under SSC and among the participants in moderate stress level 30.0% was under SSC and 30% was SSC completed. In low stress level 42.9% was HSC completed. 36.8% participants have family income in the range of 21000 to 30000 taka and in the moderate stress level 40.0% participants was on that range of family income, in low stress level 42.9% respondent have their family income in range of 11000 to 20000 taka. 54.4% patients functional independence level was 41 to 60 and 87.7% participants are in moderate stress level according to PSS. In moderate stress level 60.0% patients functional independence level was 41 to 60. The p value of association between FIM and PSS is 0.029. Association between PSS and Motor FIM, PSS and cognition FIM also shows significance (p = 0.042 and 0.034 respectively). Among the respondents who are in moderate stress level 88.0% caregivers are taking care for more than 17 hours in a day. 66.0% were taking care for less than 6 months. In moderate stress level 82.0%

respondents have no sub caregiver. On finding association between PSS and FIM scale was significant. Association between PSS and other factors was not significant.

CHAPTER VI: REFERENCES

Ahmed, H. (2009): Problems and needs of family caregivers, dealing with demented persons in Dakahlia and Cairo governorates Master Thesis in Nursing Science, Ain Shams University, Egypt, p 43

Ain, Q.U., Dar, N.Z., Ahmad, A., Munzar, S. and Yousafzai, A.W., 2014. Caregiver stress in stroke survivor: data from a tertiary care hospital-a cross sectional survey. *BMC psychology*, *2*(1), p.49.

Allender, J.A & Spradley, B.W. (2002): Readings in community health nursing. (5th ed)., Philadelphia, New York; Lippincott Raven p 474.

Archbold PG, Stewart BJ, Greenlick MR, Harvath T., 1990. Mutuality and preparedness as predictors of caregiver role strain. Res Nurs Health;13(6):375–384.

Bhattacharjee M, Vairale J, Gawali K, Dalal PM., 2012. Factors affecting burden on caregivers of stroke survivors: Population Based study in Mumbai (India). Ann Indian Acad Neurol.;15:113-9.

Brodaty H, Donkin M. Family caregivers of people with dementia. Dialogues in Clinical Neuroscience. 2009;11(2):217-28.

Bugge, C., Alexander, H. & Hagen, S. (2000): Stroke patient's informal caregivers. Patient, caregiver and service factor that affect caregiver. Strain; 30(8):15-23.

Campbell, P, Wright, J, Oyebode, J, Job, D, Crome, P, Bentham, P, Jones, L, & Lendon, C., 2008. Determinants of burden in those who care for someone with dementia. International Journal of Geriatric Psychiatry, 23, 1078–1085.

Cohen, S. and Wills, T.A., 1985. Stress, social support, and the buffering hypothesis. *Psychological bulletin*, *98*(2), p.310.

Cohen S, Kamarck T, Mermelstein R., 1983. A global measure of perceived stress. J Health Soc Behav;24(4):385–396.

Clay, OJ, Grant, JS, Wadley, VG, Perkins, MM, Haley, WE, & Roth, DL. (2013). Correlates of health-related quality of life in African American and Caucasian stroke caregivers. Rehabilitation Psychology, 58(1), 28–35.

Das, S., Hazra, A., Ray, B.K., Ghosal, M., Banerjee, T.K., Roy, T., Chaudhuri, A., Raut, D.K. and Das, S.K., 2010. Burden among stroke caregivers: results of a community-based study from Kolkata, India. *Stroke*, *41*(12), pp.2965-2968.

Das, S. and Das, S.K., 2013. Knowledge, attitude and practice of stroke in India versus other developed and developing countries. *Annals of Indian Academy of Neurology*, *16*(4), p.488

Dewey, H., Thrift A., Mihalopoulos, C., Carter R., Macdoell, A., Mcneil J., & Donnan G., 2002. Informal care for stroke survivors: Results from the North East Melbourne Stroke Incidence Study (NEMSIS). Ann Readapt Med Phys; 45(3):10513.

Duncan PW, Wallace D, Lai SM, Johnson D, Embretson S, Laster LJ., 1999. The stroke impact scale version 2.0. Evaluation of reliability, validity, and sensitivity to change. Stroke ;30(10):2131–2140.

.

Eldred, C., Sykes, C., 2008. Psychosocial interventions for carer of survivors of stroke: A systematic review of interventions based on psychological principles and theoretical frameworks. Br J Health Psychol; 13:563-581.

Idler, E.L. and Benyamini, Y., 1997. Self-rated health and mortality: a review of twenty-seven community studies. *Journal of health and social behavior*, pp.21-37.

International Journal of Stroke · September 2012 DOI: 10.1111/j.1747-4949.2012.00885.x · Source: PubMed

Kaufer, D.L., Cumming, J.L., & Ketchel, P.,2000. Validation of the VPI-Q, a brief clinical form of the neuropsychatric inventory. J Neuropsychiatry Clin Neuro Sci; 12:233-9.

Kitze, K., Von Cramon, D.Y & Wilz, G.,2002. The emotional burden in caregiving relatives of stroke patients. Stroke; 33(8):605.

Lehman, C.A. & Poindexter, A.,2006. The aging population. In K.L., Maul (Ed), Gerontological nursing: competencies for care. Sudbury, MA: Jones and Bartlett.

Mant, J., Winner, S., Rocke, J. & Wade, D.T.,2005. Family support for stroke: One year follow-up of a randomized controlled trial. J. Neurol. Neurosurg. Psychiatry; 76(7): 1006-1008.

McCubbin, H.I., Thompson, A.I. and McCubbin, M.A., 1996. *Family assessment: Resiliency, coping and adaptation: Inventories for research and practice*. University of Wisconsin-Madison, Center for Excellence in Family Studies.

Ostwald, S.K., Swank, P.R. and Khan, M.M., 2008. Predictors of functional independence and stress level of stroke survivors at discharge from inpatient rehabilitation. *Journal of cardiovascular nursing*, *23*(4), pp.371-377.

Pryor, J., 2008. A nursing perspective on the relationship between nursing and allied health in inpatient rehabilitation. *Disability and rehabilitation*, *30*(4), pp.314-322.

Pierce, L.L., Steiner, V., Govoni, A.L. and Hicks, B., 2004. Caregivers dealing with stroke pull together and feel connected. *Journal of Neuroscience Nursing*, *36*(1), p.32.

Rajan, B., Suman, G., Pruthvish, S. and Radhika, K., 2016. Assessment of stress among caregivers of the stroke survivors: community based study. *International Journal Of Community Medicine And Public Health*, *4*(1), pp.211-215.

Santos, E.B.D., Rodrigues, R.A.P., Marques, S. and Pontes-Neto, O.M., 2015. Perceived stress in elderly stroke survivors after hospital discharge to home. *Revista da Escola de Enfermagem da USP*, *49*(5), pp.797-803.

Secrest, J., 2000. Transformation of the relationship: The experience of primary support persons of stroke survivors. *Rehabilitation Nursing*, *25*(3), pp.93-99.

Stroke, W.H.O., 2013. Cerebrovascular accident 2013. *Disponible en: doi: http://www. who. int/topics/cerebrovascular_accident/en/index. html*.

Thornton, M, & Travis, SS.,2003. Analysis of the reliability of the modified caregiver strain index. The Journals of Gerontology. Series B, Psychological Sciences and Social Sciences, 58(2), S127–S132.

Visser-Meily, A., Post, M., Gorter, J. W., Berlekom, S. B., Van Den Bos, T., & Lindeman, E., 2006. Rehabilitation of stroke patients needs a family-centred approach. Disability and Rehabilitation, 28, 1557-1561.

WHO Countries Database. Bangladesh: urban health profile. Available at http://www.who.or.jp/uhcprofiles/Bangladesh.pdf (accessed 3February 2014).

World Health Rankings. Available at http://www.Worldlifeexpectancy.Com/bangladesh-stroke(accessed,3February2014)

ANNEXURE

ANNEXURE-A
Informed Consent From

RESEARCH TITLE:

“Stress among the Stroke Caregivers at the Centre for the Rehabilitation of the Paralyzed (CRP), Bangladesh”

ID/SI.NO……

Date………../………../…………

Assalamualaikum, I am Mr./Mrs./Miss…………………………………..Have been informed about the questionnaire of the project title,“**Stress among the stroke caregivers at the centre for the rehabilitation of the paralyzed (CRP), Bangladesh.”** Conducted by **Raju Ahmed** Student of MSc in Rehabilitation Science. I do hereby agree voluntarily to participate as a subject in this study.
I understand that it is a research including its purpose, duration and procedure to be followed. Whatever information I provide will be kept strictly confidential and will not be shown to others. My name will not be published in the study report and will not get any financial benefit for attending this study. I have been given opportunity to ask the interviewer further questions for which I may contact research worker.

I understand that I have the right to leave or cancel my consent and withdraw myself from the study at any time for any reason without any penalty. I certify that I have signed this informed consent formed willingly to participate in the said research project.

…………………….. .. ………………………

Respondent Signature Interviewer’s Signature

সম্মতিপত্র

সনাক্তকরণনং-............................

তারিখ: ..../.........../...........

আসসালামুআলাইকুম/নমস্কার

আমি রাজু আহমেদ, ঢাকা বিশ্ববিদ্যালয়ের চিকিৎসা অনুষদের অধীনে বাংলাদেশ হেলথ্ প্রফেশনাল ইনস্টিটিউট (বিএইচপিআই) এ এম এস সি ইন রিহ্যাবিলিটেশন সাইন্স (এমআরএস) প্রোগ্রামের এক জন নিয়মিত ছাত্র। মাষ্টার'স প্রোগ্রামের অংশ হিসাবে আমার একটি গবেষণা করা প্রয়োজন। আমার গবেষণার বিষয়: **"Stress among the Stroke Caregivers at the Centre for the Rehabilitation of the Paralyzed (CRP), Bangladesh".**

আমার গবেষনা কর্মেও তত্ত্বাবধায়ক ডাঃ কামাল আহম্মেদ সহযোগী অধ্যাপক আই এইচ টি মহাখালী ঢাকা। গবেষণা সম্পৃক্ত তথ্য পেতে সাক্ষাতে আপনার কাছ থেকে কিছু তথ্য জানা প্রয়োজন, যদি আপনি সম্মতি প্রদান করেন। আপনার সরবরাহ কৃত যাবতীয় তথ্য গোপন রাখা হবে। এই গবেষণায় আপনার অংশগ্রহণ স্বেচ্ছাকৃত। সাক্ষাতকার নিতে ১০-১৫ মিনিট সময় প্রয়োজন। সাক্ষাতকারের যে কোন পর্যায়ে আপনি যদি মনে করেন গবেষণা থেকে নিজেকে প্রত্যাহার করে নিবেন তবে তা আপনার পছন্দ মত প্রত্যাহার করতে পারবেন এবং প্রশ্নের উত্তর দেওয়া থেকে নিজেকে বিরত রাখতে পারবেন।

অংশগ্রহণকারীর স্বাক্ষর ....

উপাত্তগ্রহণকারী/গবেষকের স্বাক্ষর........................

Annexure-B

Respondent ID:………
(সনাক্তকরণনং)

Questionnaire

Title: “Stress among the Stroke Caregivers at the Centre for the Rehabilitation of the Paralyzed (CRP), Bangladesh”

Name of the Interviewer: (সাক্ষাতকারীর নাম)	
Date of Interview: (সাক্ষাৎতকারের তারিখ)	Time of Interview: (সাক্ষাৎকারের সময়)

Respondent’s Identification (উত্তরদাতার সনাক্তকরন)

Name of respondent: (উত্তরদাতার নাম)
Address (ঠিকানা)
Mobile No (if possible): (যোগাযোগ নং)
E-Mail (if possible): (ই-মেইল ঠিকানা)

Part A: Socio-Demographic Information’s
সামাজিক জনসংখ্যাগত তথ্য

SL NO	Question(প্রশ্ন)	Code
1.	Age of the respondent আপনার বয়স কত ?	☐
2.	Sex of the respondent উত্তরদাতার লিঙ্গ	1=Male (পুরুষ) 2=Female (মহিলা)

3.	Educational Background of the respondent শিক্ষাগত যোগ্যতার তথ্য	1=Illiterate (নিরক্ষর) 2 = Primary (0-5) (প্রাথমিক) 3=Under SSC(6-10)এসএসসির কম 4=SSC (এসএসসি) 5=HSC (এইচএসসি) 6=Graduate (স্নাতক) 7 = Post graduate and above (স্নাতকোত্তর)
4.	Occupation of the respondent আপনার পেশাকি ?	1= Service holder (চাকুরী) 2 = Business (ব্যবসা) 3 = Housewife (গৃহিনী) 4=Day laborer (শ্রমিক) 5= Student (ছাত্র) 6= Others (অন্যান্য)
5.	Marital status বৈবাহিক অবস্থা	1=Married (বিবাহিত) 2=Unmarried (অবিবাহিত) 3=Divorced 4=Widowed
6.	Religious belief of the respondent আপনার ধর্মীয় বিশ্বাস কি ?	1 = Muslim (মুসলমান) 2=Hindu (হিন্দু) 3=Christian (খ্রিষ্টান) 4=Buddhist (বৌদ্ধ) 5= Others (অন্যান্য)
7.	Family members of the respondent আপনার পরিবারের সদস্য সংখ্যা কত ?	Members
8.	Total monthly family income (BDT) of the respondent আপনার পরিবারের মাসিক আয় কত ?	BDT

Care giving related factors (যত্নপ্রদান সংক্রান্ত)

9.	Relation to care recipient যত্ন গ্রহনকারীর সাথে সম্পর্ক	1 = Wife (স্ত্রী) 2 = Husband (স্বামী) 3 = Daughter (মেয়ে) 4 = Daughter in law (পুত্রবধু) 5 = Son (পুত্র) 6 = Sibling (সহোদর) 7 = Others (অন্যান্য)
10	Availability of sub caregiver উপতত্না বধানকারীর উপস্থিতি	1 = Yes (হ্যা) 2 = No (না)
11	Care giving duration যত্ন প্রদানের সময়কাল	☐ Months (বছর)
12	Care giving time যত্নপ্রদানের সময়	☐ Hour/ day (ঘন্টা/দিন)

Functional independence related factors of the patients on care giver (সযত্নকারীর সাথে রোগীর কর্মক্ষমতা সম্পর্কিত)

13	Eating (আহার)	1 = Total assistance with helper (সাহায্যকারীর সম্পূর্ন সহায়তা) 2 = Maximal assistance with helper(সাহায্যকারীর সর্বাধিক সহায়তা) 3 = Moderate assistance with helper(সাহায্যকারীর মধ্যম সহায়তা) 4 = Minimal assistance with helper(সাহায্যকারীর সল্প সহায়তা) 5 = Supervision or setup with helper(সাহায্যকারীর তত্নাবধানে) 6 = Modified independence with no helper (সাহায্যকারী ছাড়া পরিবর্তিত সাবলম্বন) 7 = Complete independence with no helper (সাহায্যকারী ছাড়া সম্পূর্ন সাবলম্বন)
14.	Grooming (পরিচর্যা)	1 = Total assistance with helper (সাহায্যকারীরসম্পূর্ন সহায়তা) 2 = Maximal assistance with helper(সাহায্যকারীরসর্বাধিকসহায়তা) 3 = Moderate assistance with helper(সাহায্যকারীরমধ্যমসহায়তা) 4 = Minimal assistance with helper(সাহায্যকারীরসল্পসহায়তা) 5 = Supervision or setup with helper(সাহায্যকারীরতত্নাবধানে) 6 = Modified independence with no helper (সাহায্যকারীছাড়াপরিবর্তিতসাবলম্বন) 7 = Complete independence with no helper

		(সাহায্যকারীছাড়াসম্পূর্ন সাবলম্বন)
15	Bathing (স্নান)	1 = Total assistance with helper (সাহায্যকারীরসম্পূর্ন সহায়তা) 2 = Maximal assistance with helper(সাহায্যকারীরসর্বাধিকসহায়তা) 3 = Moderate assistance with helper(সাহায্যকারীরমধ্যমসহায়তা) 4 = Minimal assistance with helper(সাহায্যকারীরসল্পসহায়তা) 5 = Supervision or setup with helper(সাহায্যকারীরতত্ত্বাবধানে) 6 = Modified independence with no helper (সাহায্যকারীছাড়াপরিবর্তিতসাবলম্বন) 7 = Complete independence with no helper (সাহায্যকারীছাড়াসম্পূর্ন সাবলম্বন)
16	Dressing, Upper body (পরিধান- উর্ধ্বশরীর)	1 = Total assistance with helper (সাহায্যকারীরসম্পূর্ন সহায়তা) 2 = Maximal assistance with helper(সাহায্যকারীরসর্বাধিকসহায়তা) 3 = Moderate assistance with helper(সাহায্যকারীরমধ্যমসহায়তা) 4 = Minimal assistance with helper(সাহায্যকারীরসল্পসহায়তা) 5 = Supervision or setup with helper(সাহায্যকারীরতত্ত্বাবধানে) 6 = Modified independence with no helper (সাহায্যকারীছাড়াপরিবর্তিতসাবলম্বন) 7 = Complete independence with no helper (সাহায্যকারীছাড়াসম্পূর্ন সাবলম্বন)
17	Dressing, Lower body (পরিধান- নিম্নশরীর)	1 = Total assistance with helper (সাহায্যকারীরসম্পূর্ন সহায়তা) 2 = Maximal assistance with helper(সাহায্যকারীরসর্বাধিকসহায়তা) 3 = Moderate assistance with helper(সাহায্যকারীরমধ্যমসহায়তা) 4 = Minimal assistance with helper(সাহায্যকারীরসল্পসহায়তা) 5 = Supervision or setup with helper(সাহায্যকারীরতত্ত্বাবধানে) 6 = Modified independence with no helper (সাহায্যকারীছাড়াপরিবর্তিতসাবলম্বন) 7 = Complete independence with no helper (সাহায্যকারীছাড়াসম্পূর্ন সাবলম্বন)
18	Toileting (মলত্যাগ)	1 = Total assistance with helper (সাহায্যকারীরসম্পূর্ন সহায়তা) 2 = Maximal assistance with helper(সাহায্যকারীরসর্বাধিকসহায়তা) 3 = Moderate assistance with helper(সাহায্যকারীরমধ্যমসহায়তা) 4 = Minimal assistance with helper(সাহায্যকারীরসল্পসহায়তা) 5 = Supervision or setup with helper(সাহায্যকারীরতত্ত্বাবধানে) 6 = Modified independence with no helper (সাহায্যকারীছাড়াপরিবর্তিতসাবলম্বন) 7 = Complete independence with no helper

		(সাহায্যকারীছাড়াসম্পূর্ন সাবলম্বন)
19	Bladder management (মুত্রস্থলীব্যবস্থাপন)	1 = Total assistance with helper (সাহায্যকারীরসম্পূর্ন সহায়তা) 2 = Maximal assistance with helper(সাহায্যকারীরসর্বাধিকসহায়তা) 3 = Moderate assistance with helper(সাহায্যকারীরমধ্যমসহায়তা) 4 = Minimal assistance with helper(সাহায্যকারীরসল্পসহায়তা) 5 = Supervision or setup with helper(সাহায্যকারীরতত্ত্বাবধানে) 6 = Modified independence with no helper (সাহায্যকারীছাড়াপরিবর্তিতসাবলম্বন) 7 = Complete independence with no helper (সাহায্যকারীছাড়াসম্পূর্ন সাবলম্বন)
20	Bowel management (অন্ত্র ব্যবস্থাপন)	1 = Total assistance with helper (সাহায্যকারীরসম্পূর্ন সহায়তা) 2 = Maximal assistance with helper(সাহায্যকারীরসর্বাধিকসহায়তা) 3 = Moderate assistance with helper(সাহায্যকারীরমধ্যমসহায়তা) 4 = Minimal assistance with helper(সাহায্যকারীরসল্পসহায়তা) 5 = Supervision or setup with helper(সাহায্যকারীরতত্ত্বাবধানে) 6 = Modified independence with no helper (সাহায্যকারীছাড়াপরিবর্তিতসাবলম্বন) 7 = Complete independence with no helper (সাহায্যকারীছাড়াসম্পূর্ন সাবলম্বন)
21	Transfer- bed/chair/wheelchair (স্থানান্তর- বিছানা / চেয়ার / হুইল চেয়ার)	1 = Total assistance with helper (সাহায্যকারীরসম্পূর্ন সহায়তা) 2 = Maximal assistance with helper(সাহায্যকারীরসর্বাধিকসহায়তা) 3 = Moderate assistance with helper(সাহায্যকারীরমধ্যমসহায়তা) 4 = Minimal assistance with helper(সাহায্যকারীরসল্পসহায়তা) 5 = Supervision or setup with helper(সাহায্যকারীরতত্ত্বাবধানে) 6 = Modified independence with no helper (সাহায্যকারীছাড়াপরিবর্তিতসাবলম্বন) 7 = Complete independence with no helper (সাহায্যকারীছাড়াসম্পূর্ন সাবলম্বন)
22	Transfer- toilet (স্থানান্তর- স্নানকক্ষ)	1 = Total assistance with helper (সাহায্যকারীরসম্পূর্ন সহায়তা) 2 = Maximal assistance with helper(সাহায্যকারীরসর্বাধিকসহায়তা) 3 = Moderate assistance with helper(সাহায্যকারীরমধ্যমসহায়তা) 4 = Minimal assistance with helper(সাহায্যকারীরসল্পসহায়তা) 5 = Supervision or setup with helper(সাহায্যকারীরতত্ত্বাবধানে) 6 = Modified independence with no helper (সাহায্যকারীছাড়াপরিবর্তিতসাবলম্বন) 7 = Complete independence with no helper

		(সাহায্যকারীছাড়াসম্পূর্ন সাবলম্বন)
23	Transfer-bath/shower (স্থানান্তর-স্নান / ঝরনা)	1 = Total assistance with helper (সাহায্যকারীরসম্পূর্ন সহায়তা) 2 = Maximal assistance with helper(সাহায্যকারীরসর্বাধিকসহায়তা) 3 = Moderate assistance with helper(সাহায্যকারীরমধ্যমসহায়তা) 4 = Minimal assistance with helper(সাহায্যকারীরসল্পসহায়তা) 5 = Supervision or setup with helper(সাহায্যকারীরতত্ত্বাবধানে) 6 = Modified independence with no helper (সাহায্যকারীছাড়াপরিবর্তিতসাবলম্বন) 7 = Complete independence with no helper (সাহায্যকারীছাড়াসম্পূর্ন সাবলম্বন)
24	Walk/wheelchair (হাটা / হুইল চেয়ার)	1 = Total assistance with helper (সাহায্যকারীরসম্পূর্ন সহায়তা) 2 = Maximal assistance with helper(সাহায্যকারীরসর্বাধিকসহায়তা) 3 = Moderate assistance with helper(সাহায্যকারীরমধ্যমসহায়তা) 4 = Minimal assistance with helper(সাহায্যকারীরসল্পসহায়তা) 5 = Supervision or setup with helper(সাহায্যকারীরতত্ত্বাবধানে) 6 = Modified independence with no helper (সাহায্যকারীছাড়াপরিবর্তিতসাবলম্বন) 7 = Complete independence with no helper (সাহায্যকারীছাড়াসম্পূর্ন সাবলম্বন)
25	Stair (সিড়ি)	1 = Total assistance with helper (সাহায্যকারীরসম্পূর্ন সহায়তা) 2 = Maximal assistance with helper(সাহায্যকারীরসর্বাধিকসহায়তা) 3 = Moderate assistance with helper(সাহায্যকারীরমধ্যমসহায়তা) 4 = Minimal assistance with helper(সাহায্যকারীরসল্পসহায়তা) 5 = Supervision or setup with helper(সাহায্যকারীরতত্ত্বাবধানে) 6 = Modified independence with no helper (সাহায্যকারীছাড়াপরিবর্তিতসাবলম্বন) 7 = Complete independence with no helper (সাহায্যকারীছাড়াসম্পূর্ন সাবলম্বন)
26	Comprehension (বোধশক্তি)	1 = Total assistance with helper (সাহায্যকারীরসম্পূর্ন সহায়তা) 2 = Maximal assistance with helper(সাহায্যকারীরসর্বাধিকসহায়তা) 3 = Moderate assistance with helper(সাহায্যকারীরমধ্যমসহায়তা) 4 = Minimal assistance with helper(সাহায্যকারীরসল্পসহায়তা) 5 = Supervision or setup with helper(সাহায্যকারীরতত্ত্বাবধানে) 6 = Modified independence with no helper (সাহায্যকারীছাড়াপরিবর্তিতসাবলম্বন) 7 = Complete independence with no helper

		(সাহায্যকারীছাড়াসম্পূর্ন সাবলম্বন)
27	Expression (অভিব্যক্তি)	1 = Total assistance with helper (সাহায্যকারীরসম্পূর্ন সহায়তা) 2 = Maximal assistance with helper(সাহায্যকারীরসর্বাধিকসহায়তা) 3 = Moderate assistance with helper(সাহায্যকারীরমধ্যমসহায়তা) 4 = Minimal assistance with helper(সাহায্যকারীরসল্পসহায়তা) 5 = Supervision or setup with helper(সাহায্যকারীরতত্ত্বাবধানে) 6 = Modified independence with no helper (সাহায্যকারীছাড়াপরিবর্তিতসাবলম্বন) 7 = Complete independence with no helper (সাহায্যকারীছাড়াসম্পূর্ন সাবলম্বন)
28	Social interaction (সামাজিক যোগাযোগ)	1 = Total assistance with helper (সাহায্যকারীরসম্পূর্ন সহায়তা) 2 = Maximal assistance with helper(সাহায্যকারীরসর্বাধিকসহায়তা) 3 = Moderate assistance with helper(সাহায্যকারীরমধ্যমসহায়তা) 4 = Minimal assistance with helper(সাহায্যকারীরসল্পসহায়তা) 5 = Supervision or setup with helper(সাহায্যকারীরতত্ত্বাবধানে) 6 = Modified independence with no helper (সাহায্যকারীছাড়াপরিবর্তিতসাবলম্বন) 7 = Complete independence with no helper (সাহায্যকারীছাড়াসম্পূর্ন সাবলম্বন)
29	Problem solving (সমস্যাসমাধান)	1 = Total assistance with helper (সাহায্যকারীরসম্পূর্ন সহায়তা) 2 = Maximal assistance with helper(সাহায্যকারীরসর্বাধিকসহায়তা) 3 = Moderate assistance with helper(সাহায্যকারীরমধ্যমসহায়তা) 4 = Minimal assistance with helper(সাহায্যকারীরসল্পসহায়তা) 5 = Supervision or setup with helper(সাহায্যকারীরতত্ত্বাবধানে) 6 = Modified independence with no helper (সাহায্যকারীছাড়াপরিবর্তিতসাবলম্বন) 7 = Complete independence with no helper (সাহায্যকারীছাড়াসম্পূর্ন সাবলম্বন)
30	Memory (স্মৃতিশক্তি)	1 = Total assistance with helper (সাহায্যকারীরসম্পূর্ন সহায়তা) 2 = Maximal assistance with helper(সাহায্যকারীরসর্বাধিকসহায়তা) 3 = Moderate assistance with helper(সাহায্যকারীরমধ্যমসহায়তা) 4 = Minimal assistance with helper(সাহায্যকারীরসল্পসহায়তা) 5 = Supervision or setup with helper(সাহায্যকারীরতত্ত্বাবধানে) 6 = Modified independence with no helper (সাহায্যকারীছাড়াপরিবর্তিতসাবলম্বন) 7 = Complete independence with no helper

		(সাহায্যকারীছাড়াসম্পূর্ন সাবলম্বন)

Care givers stress related questions (PSS)(যত্নকারীরচাপসম্পর্কিতপ্রশ্ন)

31	In the last month, how often have you been upset because of something that happened unexpectedly? (গত মাসেঅপ্রত্যাশিতভাবে ঘটেছে এমনকিছুকারনেআপনি কত বার বিরক্ত হয়েছেন ?)	0 = Never (কখনোইনা) 1 = Almost never (প্রায়কখনোইনা) 2 = Sometimes (কখনোকখনো) 3 = Fairly often (প্রায়ই) 4 = very often (প্রায়প্রায়ই)
32	In the last month, how often have you felt that you were unable to control the important things in your life? (গত মাসেআপনিকতটাসময়অনুভবকরেছিলেন যে আপরিআপনারজীবনে গুরুত্বপূর্ন জিনিসগুলিনিয়ন্ত্রনকরতেপারছেননা ?)	0 = Never (কখনোইনা) 1 = Almost never (প্রায়কখনোইনা) 2 = Sometimes (কখনোকখনো) 3 = Fairly often (প্রায়ই) 4 = very often (প্রায়প্রায়ই)
33	In the last month, how often have you felt nervous and “stressed”? (গত মাসেআপনিকতটাসময়বিচলিতএবংচাপঅনুভবকরেছেন ?)	0 = Never (কখনোইনা) 1 = Almost never (প্রায়কখনোইনা) 2 = Sometimes (কখনোকখনো) 3 = Fairly often (প্রায়ই) 4 = very often (প্রায়প্রায়ই)
34	In the last month, how often have you felt confident about your ability to handle your personal problems (গত মাসেআপনার ব্যক্তিগত সমস্যাগুলিপরিচালনাকরারজন্য আপনারক্ষমতাসম্পর্কে আপনিকতটা আস্থাবোধকরেছিলেন ?)	0 = Never (কখনোইনা) 1 = Almost never (প্রায়কখনোইনা) 2 = Sometimes (কখনোকখনো) 3 = Fairly often (প্রায়ই) 4 = very often (প্রায়প্রায়ই)
35	In the last month, how often have you felt that things were going your way (গত মাসেআপনিকতটাসময়অনুভবকরেছিলেন যে আপনার পথগুলোচলছে ?)	0 = Never (কখনোইনা) 1 = Almost never (প্রায়কখনোইনা) 2 = Sometimes (কখনোকখনো) 3 = Fairly often (প্রায়ই) 4 = very often (প্রায়প্রায়ই)
36	In the last month, how often have you found that you could not cope with all the things that you had to do? (গত মাসেআপনি কত ঘনঘন দেখেছেন যে আপনিযাকরতেচাচ্ছেনতারসবইকরতেপারছেননা ?)	0 = Never (কখনোইনা) 1 = Almost never (প্রায়কখনোইনা) 2 = Sometimes (কখনোকখনো) 3 = Fairly often (প্রায়ই) 4 = very often (প্রায়প্রায়ই)
37	In the last month, how often have you been able to control irritations in your life? (গত মাসেআপনি কত সময়আপনারজীবনে উদ্বেগ	0 = Never (কখনোইনা) 1 = Almost never (প্রায়কখনোইনা) 2 = Sometimes (কখনোকখনো) 3 = Fairly often (প্রায়ই)

	নিয়ন্ত্রনকরতে পেরেছেন ?)	4 = very often (প্রায়প্রায়ই)
38	In the last month, how often have you felt that you were on top of things? (গত মাসেআপনি কত সময়আনুভবকরেছেন যে আপনিসবই পেরেছেন ?)	0 = Never (কখনোইনা) 1 = Almost never (প্রায়কখনোইনা) 2 = Sometimes (কখনোকখনো) 3 = Fairly often (প্রায়ই) 4 = very often (প্রায়প্রায়ই)
39	In the last month, how often have you been angered because of things that were outside of your control? (গত মাসেআপনি কত সময় বিরক্ত হয়েছেনকারনসমস্যাগুলোআপনারনিয়ন্ত্রনের বাইরেছিল ?)	0 = Never (কখনোইনা) 1 = Almost never (প্রায়কখনোইনা) 2 = Sometimes (কখনোকখনো) 3 = Fairly often (প্রায়ই) 4 = very often (প্রায়প্রায়ই)
40	In the last month, how often have you felt difficulties were piling up so high that you could not overcome them? (গত মাসেআপনি কত সময়আনুভবকরেছেন যে সমস্যাগুলো এত বেশিআপনিতাঅতিক্রমকরতেপারবেননান ?)	0 = Never (কখনোইনা) 1 = Almost never (প্রায়কখনোইনা) 2 = Sometimes (কখনোকখনো) 3 = Fairly often (প্রায়ই) 4 = very often (প্রায়প্রায়ই)

BANGLADESH HEALTH PROFESSIONS INSTITUTE

বাংলাদেশ হেল্‌থ প্রফেশন্স ইনস্টিটিউট (বিএইচপিআই)

Bangladesh Health Professions Institute (BHPI)

(The Academic Institute of CRP)

Ref. CRP-BHPI/IRB/03/18/202

Date: 24/03/2018

To
Raju Ahmed
M.Sc in Rehabilitation Science
Session: 2016-2017, Student ID: 181160061
BHPI, CRP, Savar, Dhaka-1343, Bangladesh

Subject: Approval of thesis proposal "Stress among the stroke caregivers at the centre for the rehabilitation of the paralyzed (CRP), Bangladesh" by ethics committee.

Dear Raju Ahmed,

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

Sr. No.	**Name of the Documents**
1	Dissertation Proposal
2	Bengali version of the Questionnaire
3	Information sheet & consent form.

Since the study involves exploring stress among the stroke caregivers at the centre for the rehabilitation of the paralyzed (CRP), Savar, Dhaka through a questionnaire that takes 25 to 30 minutes and have no likelihood of any harm to the participants, the members of the ethics committee have approved the study to be conducted in the presented form at the meeting held at 9:00 AM on May 06, 2017 at BHPI.

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,

Millat Hossain

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

সিআরপি-চাপাইন, সাভার, ঢাকা-১৩৪৩, বাংলাদেশ, ফোন ঃ ৭৭৪৫৪৬৪-৫, ৭৭৪১৪০৪ ফ্যাক্স ঃ ৭৭৪৫০৬৯

CRP-Chapain, Savar, Dhaka-1343, Tel : 7745464-5, 7741404, Fax : 7745069, E-mail : contact@crp-bangladesh.org, www.crp-bangladesh.org

Date: 03.04.2018

To
The Head of Physiotherapy Department,
CRP, Chapain, Savar, Dhaka- 1343

Subject: Application for permission of data collection for master's thesis

Dear Sir,

With due respect, I would like to draw your kind attention that I am a student of Masters in Rehabilitation Science program at Bangladesh Health Professions Institute(BHPI)- an academic institute of Centre of Rehabilitation Science(CRP) under Faculty of Medicine of University of Dhaka(DU). This is 2 years full time course under the project of "Regional Inter-professional Master's program in Rehabilitation Science" funded by SAARC Development Fund (SDF). I have to conduct a thesis entitled, **"Stress among the stroke caregivers at the centre for the rehabilitation of the paralyzed (CRP)"** honourable supervisor, Dr. Kamal Ahmed, Associate Professor, Institute of Health Technology, Mohakhali. The purpose of the study is to evaluate the stress level of the stroke caregivers. The questionnaire will be used for data collection and related information will be collected from patients file and it will take about 10 to 15 min and the study have no likelihood of any harm to the participant. Data collector will receive informed consents from all participants. Any data collected will be kept confidential. Ethical approval is received from the Institutional Review Board of Bangladesh Health Professions Institute (BHPI).

Therefore I look forward to having your permission for starting data collection at musculoskeletal unit of Physiotherapy department. I also assure you that I will maintain all the requirements for study.

Sincerely Yours,

Raju Ahmed
Part-II, M.Sc. in Rehabilitation Science (MRS)
Session: 2016-2017, Student ID 181160061
BHPI, CRP-Savar, Dhaka-1343, Bangladesh

Ahmed
(Dr. Kamal Ahmed)

Approved

04.04.2018

Mohammad Anwar Hossain
Associate Professor & Head
Physiotherapy Dept., CRP
CRP-Chapain, Savar, Dhaka-1343

BANGLADESH HEALTH PROFESSIONS INSTITUTE

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

Ref. *Date:* 24/03/2018

CRP-BHPI/MRS/03/18/0108

To Whom It May Concern

This is to certify that Raju Ahmed, a student of M.Sc. in Rehabilitation science at Bangladesh Health Professions Institute (BHPI) under the faculty of Medicine of the University of Dhaka (DU). He has to conduct a thesis entitled, "**Stress among the stroke caregivers at the centre for the rehabilitation of the paralyzed (CRP)**, Savar, Bangladesh" under thesis supervisor, Dr. Kamal Ahmed, Associate Professor, Institute of Health Technology, Dhaka. The purpose of the study is to evaluate the stress level among the stroke caregivers. Questionnaire will be used to collect related information from the participants which will take about 20 to 30 minutes and the study have no likelihood of any harm to the participant. Data collector will receive informed consents from all participants. Any data collected will be kept confidential. The research proposal has been approved by Institutional Review Board (IRB) of this institute. To accomplish research objectives, He will need to collect data from stroke rehabilitation unite at CRP.

I, therefore, request you to provide her necessary support from the physiotherapy department. I wish her every success in order to accomplish her research.

Best regards.

Millathossain

Muhammad Millat Hossain
Assistant Professor & Course Coordinator
Dept. of Rehabilitation Science
BHPI, CRP, Savar, Dhaka-1343, Bangladesh

সিআরপি-চাপাইন, সাভার, ঢাকা-১৩৪৩, বাংলাদেশ, ফোন ঃ ৭৭৪৫৪৬৪-৫, ৭৭৪১৪০৪ ফ্যাক্স ঃ ৭৭৪৫০৬৯
CRP-Chapain, Savar, Dhaka-1343, Tel : 7745464-5, 7741404, Fax : 7745069, E-mail : contact@crp-bangladesh.org, www.crp-bangladesh.org