

**“IDENTIFY THE LEVEL OF WHEELCHIR SKILL
CAPACITY CONFIDENCE AND PERFORMANCE AMONG
THE OCCUPATIONAL THERAPY STUDENTS OF
BANGLADESH HEALTH PROFESSIONS INSTITUTE.”**



By

Quazi Samiur Rashid

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**Bachelor of Science in Occupational Therapy
Bangladesh Health Professions Institute (BHPI)
Faculty of Medicine,
University of Dhaka**

Study completed by:

Quazi Samiur Rashid

4th year, B.Sc. in Occupational Therapy Department of Occupational
Therapy BHPI, CRP, Savar, Dhaka-1343.

Study Supervisor's name and signature:

Nayan Kumer Chanda

Lecturer

Department of Occupational Therapy
BHPI, CRP, Savar, Dhaka

Head of department's name and signature:

SK Moniruzzaman

Associate Professor

Head of the department

Department of Occupational Therapy
BHPI, CRP, Savar, Dhaka-1343.

Board of Examiners

Nayan Kumer Chanda

Lecturer

Department of Occupational Therapy

Bangladesh Health Professions Institute

Center for the Rehabilitation of the Paralysed

Savar, Dhaka-1343

Signature

Md. Julker Nayan

Associate Professor

Department of Occupational Therapy

Bangladesh Health Professions Institute

Center for the Rehabilitation of the Paralysed

Savar, Dhaka-1343

Signature

Sumon Kanti Chowdhury

Senior Research Investigator

ICDDR,B

Mohakhai, Dhaka-1212

Signature

SK Moniruzzaman

Associate Professor & Head of the department

Department of Occupational Therapy

Bangladesh Health Professions Institute

Center for the Rehabilitation of the Paralysed

Savar, Dhaka-1343

Signature

Statement of Authorship

Except where reference is made in the text of the thesis, this thesis contains materials published elsewhere or extracted in whole or in part from a thesis presented by me for any other degree or diploma or seminar.

No other person's work has been used without due acknowledgement in the main text of the thesis.

This thesis has not been submitted for the award of any other degree or in any other tertiary institution.

The ethical issues of the study have been strictly considered and protected. In case of dissemination the findings of this project for future publication, research supervisor will be highly concerned and it will be duly acknowledged as undergraduate thesis.

Signature: _____

Date: _____

Quazi Samiur Rashid

4th year, B.Sc. in Occupational Therapy
Bangladesh Health Professions Institute (BHPI)
Center for the Rehabilitation of the Paralyzed (CRP)

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Dedication

Dedicated to my honorable and beloved parents, my respected all
teachers of Bangladesh Health Professions Institute.

Abstract

Wheelchair is an important part of people with disability and mobility difficulties. Most of person with disability depend on wheelchair for mobility and participate in society and daily living activities. Occupational therapist has a significant role along with other professionals in wheelchair skills training program. So, the appropriate knowledge of wheelchair skills capacity, confidence and performance is requiring to the occupational therapy students from their study period to support the patients and train the wheelchair users the professional need proper wheelchair skills for better performance in mobility and daily living activities.

The objectives are to find out the level of wheelchair skills capacity, confidence, and performance of the Occupational Therapy student of Bangladesh Health Professions Institute, to determine the wheelchair skills capacity, confidence, performance and to find the association between socio-demographic factor and wheelchair skills capacity, confidence, performance, to determine the correlation between wheelchair skills capacity among the wheelchair skills confidence and performance.

The descriptive cross-sectional study was carried out in Bangladesh Health Professions Institute using WST-Q version 5.0, 70 occupational therapy students were selected purposively. Non-parametric test was used to determine the correlation among wheelchair skills capacity, confidence, performance and association between the demographic factors.

Among the 70 participants, the total WST-Q capacity, confidence and performance of the occupational therapy students was good. The participants were 70% female and 30% of male. The mean age of the students is 21. The median values for WST-Q

capacity, WST-Q confidence, and WST-Q performance were 49.03%, 44.57% and 38.63%. The investigator also find out the total WST-Q capacity scores significantly correlated with total WST-Q confidence scores ($r=.96$; $P<.00$), total WST-Q capacity scores significantly correlated with the total WST-Q performance scores ($r=.91$; $P<.00$) and WST-Q confidence scores significantly correlated with the total WST-Q performance scores ($r=.94$; $P<.00$)

There are some difficulties for the students to perform some advance wheelchair skills that would help them to train the patient more confidently and accurately. More intensive wheelchair skills training and practicing may improve the wheelchair skills capacity, confidence and performance that will enhance the ability in future professional sector for better support to the patients.

Key word: Manual Wheelchair, Capacity, Performance, Confidence, Occupational Therapy Students.

TABLE OF CONTENTS	
Points	Page
Statement of Authorship	4
Acknowledgement	5
Dedication	6
Abstract	7-8
Table of Contents	9
List of Table and Figure	10
List of Appendix	11
List of Abbreviations	12
CHAPTER II: INTRODUCTION	
1.1 Introduction	13-16
1.2 Justification of the study	16-17
1.3 Research Question	18
1.4 Study aim and Specific objectives	18
1.5 Operational Definition	19-20
CHAPTER II: LITERATURE REVIEW	21-27
CHAPTER III: METHODOLOGY	
3.1 Conceptual framework	28
3.2 Study design	29
3.3 Study Population	29
3.4 Study setting	29
3.5 Study period	29
3.6 Sample size	30
3.7 Inclusion and exclusion criteria	30
3.8 Sampling techniques	31
3.9 Data collection tools/materials	31-32
3.10 Data collection methods	33
3.11 Data management and analysis	34
3.12 Quality control & quality assurance	35
3.13 Ethical consideration	35-36
CHAPTER IV: RESULTS	37-47
CHAPTER V: DISCUSSION & CONCLUSION	
5.1 Discussion	48-50
5.2 Limitation	50
5.3 Conclusion	51
5.4 Recommendation	51-52
REFERENCES	53-57
Appendix	58-80

List of Table and Figure	
Table and Figure No.	Page
Figure-1: Model of level of wheelchair skills capacity, confidence, performance and association between the socio-demographic factors	28
Figure 2: Age range of student participants	37
Figure 3: Sex distribution of the participants	38
Figure 4: Educational Status	39
Figure 5: Weight and Height of the participants	40
Figure 6: Correlation between total WST-Q capacity and confidence	45
Figure 7: Correlation between total WST-Q capacity and Performance	46
Figure 8: Correlation between total WST-Q Confidence and Performance	47
Table-1: Total percentage scores for WST-Q Capacity, WST-Q Confidence, and WST-Q performance	41
Table 2: Level of wheelchair skills capacity, confidence and performance	42
Table 3: Association among sex and wheelchair skills capacity, confidence and performance	43
Table 4: Association between educational level and wheelchair skills	43
Table 5: Association between weight and wheelchair skills capacity, confidence and performance	44
Table 6: Association between height and wheelchair skills capacity, confidence and performance	44

List of Appendix	
Appendix No	Page
Appendix –A: Approval letter from IRB	58
Appendix –B: Author permission letter for WST-Q version 5.0	59
Appendix –C: Information Sheet and Consent Form (English)	60-66
Appendix –D: Information Sheet and Consent Form (Bangla)	67-71
Appendix - E: Wheelchair Skills Test Questionnaire (English)	72-75
Appendix - F: Wheelchair Skills Test Questionnaire (Bangla)	76-80

List of Abbreviations

BHPI: Bangladesh Health Professions Institute

CRP: Centre for the Rehabilitation of the Paralysed.

IBR: Institutional Review Board

OT: Occupational Therapy

SPSS: The Statistical Package for Social Science

WST-Q: Wheelchair Skills Test- Questionnaire

WHO: World Health Organization

WST: Wheelchair Skills Test

WSTP: Wheelchair skills Training Program

Chapter 1: Introduction

Introduction

The achievement of independent mobility is vital in the rehabilitation of physically disabled individuals. When ambulation is impaired, a wheelchair provides a relatively fast and effective means of mobility for people with lower limb disabilities. A hand-rim wheelchair can provide the necessary access to social, vocational and recreational activities that are conditional to a productive and rewarding life (Kilkens et. al, 2005). Wheelchair mobility is important for a large number of people. About 10% of the global population have disabilities. Studies indicate that, of these, some 10% require wheelchair. The World Health Organization (WHO) estimates that there are 70 million people in the worldwide required wheelchair mobility (WHO, 2008). The majority of people with a spinal cord injury (approximately 80%) are dependent on a wheelchair for their mobility for the rest of their lives.

Occupational and physical therapists are frequently responsible for the assessment and prescription of wheelchairs for individuals with a mobility limitation. The wheelchair prescription process is complex and clients are best served when clinicians provide a comprehensive and thorough intervention (Mortenson,2008).Students are one of the key members for any profession. As well as other profession, Occupational therapy students also play an important role, as like a nation student are the backbone of the profession (Akter, 2012). It is very important to make a complete student through their capacity, confidence and performance or practice, in-depth knowledge and skills to develop this new profession.

It is necessary to build up their capacity and performance from the beginning of their study period. Wheelchair skills education and practice of Occupational Therapy student will gain in-depth knowledge about wheelchair skills (Coolen, 2004). By this study if there is any lacking's of their knowledge about wheelchair skill it can be find out. Also, can make a new course curriculum to teach wheelchair skill if needed according to the findings. It will help to become skillful to the students. (Kirby, 2004)

Wheelchairs may enhance the mobility of people with lower and upper limb impairments and allow them to engage in major life activities by increasing independence, providing more choice in activities and improving satisfaction with participation in many activities (Morhan, 2015). To participate independently, people who use manual wheelchairs for mobility must possess a variety of skills . The ability to propel their wheelchairs over even surfaces brings the freedom to move about within a wheelchair-accessible environment (Öztürk, & Ucsular 2011). Independent mobility within a greater variety of environments requires obstacle negotiation skills. These skills can make the difference between dependence and independence in daily life. For reducing caregiver burden and to reduce the likelihood of placement in a long-term care facility wheelchairs skills mobility and participation is important to improve for the user and the wheelchair skills are trained by the health professionals especially occupational therapist, therefor wheelchair skills capacity and performance are most important for the Occupational Therapy students while they are in the learning stage. (Kirby, 2016)

This study will help to become confident and enrich students' knowledge and they will be able to teach wheelchair skills confidently and appropriately to the patients (Kirby et al, 2004). Occupational Therapist is a new profession is

Bangladesh. It is very much important to introduce and develop Occupational therapy profession. Student is the key and focus person and had a important role to develop the profession (Akter, 2012).

Occupational and physical therapists are frequently responsible for the assessment and prescription of wheelchairs for individuals with a mobility limitation. The wheelchair prescription process is complex and clients are best served when clinicians provide a comprehensive and thorough intervention. A critical component in this process is the provision of comprehensive training in how to optimally operate the wheelchair, as advocated by the World Health Organization (Frost, 2016).

Wheelchair skills training can lead to improvements in wheelchair skills during initial rehabilitation (Best, 2005). Rehabilitation program is one of primary goals for people with spinal cord injury and others disability that requires mobility aid and wheelchair is among the most important of rehabilitation interventions (Rushton, 2010).

For appropriate training of the rehabilitation personnel responsible for prescribing, adjusting, and training wheelchair users is an important consideration (Sarsak, 2018). However, a review of the literature suggests that the current wheelchair related training of clinicians may be suboptimal. In addition to the potential safety consequences for wheelchair users who have received inadequate training, clinicians with insufficient training or experience may prevent wheelchair users under their care from attempting advanced skills (e.g. using wheelies to negotiate obstacles) that could well be within their capabilities, addressed by World Health Organization.

Manual wheelchairs may enhance the mobility of people with lower and upper limb impairments and allow them to engage in major life activities by increasing independence, providing more choice in activities and improving satisfaction with participation in many activities (Morgan, 2015). To participate independently, people who use manual wheelchairs for mobility must possess a variety of skills. The ability to propel their wheelchairs over even surfaces brings the freedom to move about within a wheelchair-accessible environment (Manual Wheelchairs-World Health Organization). Independent mobility within a greater variety of environments requires obstacle negotiation skills. These skills can make the difference between dependence and independence in daily life (Kilkens, et al. 2002). After all the wheelchair skills capacity, performance and confidence are important for the student, because they will provide wheelchair skill training to the patient in the future.

Justification

The Wheelchair is the most commonly used mobility device for people with physical disability in Bangladesh. Wheelchairs are used to enhance function, to improve independence, and to enable a person to successfully live at home and in the community. Some person with disability needs long term rehabilitation by using wheelchair and some even for lifetime. In Bangladesh, Occupational Therapy is a new and very challenging health care profession. Bangladesh Health Professions Institute in Centre for the Rehabilitation of the Paralyzed (CRP) is the only place where the Occupational Therapy is only studied, after completing 4 year academic studies and 1 year of internship they became a professional Occupational Therapist. The Occupational Therapist work in holistic approach with the patient. By this Occupational Therapy patients are rehabilitated by a holistic

approach. Proper wheelchair skills training, education and participation in the community are very important part of the rehabilitation program. Occupational Therapy professionals run the wheelchair skills training program with the spinal cord injury patients. On the other hand, Occupational Therapist practice and educate the patients on wheelchair skills training in treatment session.

From the Bangladesh perspective, there have no studies about level of wheelchair skills capacity, confidence and performance among the students of Occupational Therapy so, we would like to find out this statistic of the students wheelchair skill and how much competent they are.

For train the wheelchair user patients an Occupational Therapist need to know how to improve basic skills and also advance wheelchair skills and this knowledge and skills need to learned from the learning period. According to the academic course curriculum the 1st year B. Sc Occupational Therapy have wheelchair skill class in their curriculum, but other year has no academic schedule for training and improving wheelchair skills. This knowledge will help to raise awareness among the professionals about the wheelchair skills training to provide highest level of skills training to the patient.

It will be the first research with Occupational Therapy students to identify the depth skills and performance of wheelchair. This study will be helpful for the professions and professionals of Occupational Therapy and other professionals by knowing the level of wheelchair skills of the students and association of their demographic factors. Providing effective rehabilitation programs will also strengthen the Occupational Therapy profession.

Research Questions:

What is the level of wheelchair skills capacity, confidence, performance of Occupational therapy Students in Bangladesh Health Professions Institute?

Aim:

To identify the level of wheelchair skills capacity, confidence and performance of manual wheelchair of Occupational Therapy students in Bangladesh Health Professions Institute.

Objectives

- To find out the level of wheelchair skills capacity of occupational therapy students.
- To find out the level of wheelchair skills performance of occupational therapy students.
- To determine the level of confidence of occupational therapy students.
- To find out the association between socio-demographic factors and wheelchair skills capacity, confidence and performance.
- To determine correlation between wheelchair skills capacity, confidence and performance.

Operational Definition:

Occupational Therapy:

Occupational therapy is a client-centered health profession concerned with promoting health and well-being through occupation. The primary goal of occupational therapy is to enable people to participate in the activities of everyday life. Occupational therapists achieve this outcome by working with people and communities to enhance their ability to engage in the occupations they want to, need to, or are expected to do, or by modifying the occupation or the environment to better support their occupational engagement.

Wheelchair:

Wheelchair is a mobility device with a seating support system for a person with impaired mobility, intended to provide mobility in a seated position as its primary function.

Wheelchair is one of the most commonly used assistive devices for improving the personal mobility who is unable to walk as a result of illness, injury, or disability.

Wheelchair is a device providing wheeled mobility and seating support for a person with difficulty in walking or moving around.

Manual Wheelchair:

Manual wheelchair refers to which is propulsion by the manually and propelled by the user. People with SCI who have good upper body function they will be easily to move one place to another place by using the manual wheelchair.

Capacity:

Capacity has been defined as what can be achieved in a standardized environment.

Actual or potential ability to perform, yield, or withstand.

Performance:

Performance refers to what people actually do in a life situation. Performance is more relevant to functional rehabilitation and successful community reintegration.

Confidence

Confidence is defined as the belief in one's current ability to perform each item safely and independently. Or Confidence can be described as a belief in one's self and one's ability to succeed.

Chapter 2: Literature review

Wheelchair

The wheelchair is one of the most commonly used assistive device for enhancing personal mobility, which is a precondition for enjoying human rights and living in dignity. Wheelchair assist people with disabilities to become productive member of their community. About 10% of the global population have disabilities. Studies indicate that, of these, some 10% require wheelchair. The World Health Organization (WHO) estimates that there are 70 million people in the worldwide required wheelchair mobility (WHO, 2008), and half of those people requiring wheelchair did not have one. There are indicators that only a minority of those in need of wheelchair have access to them, and of these very few have access to an appropriate wheelchair (WHO, 2010).

The wheelchair has played an important role to a person with disability who has mobility limitation. Providing appropriate wheelchairs not only enhances mobility but begins a process of opening up a world of education, work and social life. In addition to providing mobility, an appropriate wheelchair benefits the physical health and quality of life of the users by helping in reducing common problems such as pressure sores, progression of deformities and improve respiration and digestion (Concept Note, WHO, 2008). There are various types of wheelchair such as manual wheelchair, power wheelchair and scooter. Manual wheelchair is based on two type of purpose one is pushed by someone and another is self-propulsion by the rider.

Wheelchair in Rehabilitation

Wheelchairs are among the most important of rehabilitation interventions. Wheelchairs improve mobility and participation, reduce caregiver burden and reduce the likelihood of placement in a long-term-care facility. However, there are a number of problems associated with their use. These problems include poor fit, frequent need for repairs, the role that wheelchairs may play in overuse injuries and acute injuries that can occur during use. One way to enhance the benefits and minimize the problems of wheelchair use is better wheelchair provision (Fung, K.H. et al. 2017).

Neurological impairment and long-term disability in person with disability result in inadequate social participation and community mobility. So, the people with disability need mobility device or assistive technology mobility device for achieve the optimum level of social participation. The assistive technology mobility device is such as a wheelchair (Tsai I, Graves D, Lai C, 2014).

The rehabilitation professionals are responsible for prescribe and provide training of wheelchair user (Rushton, PW, 2016). According to World Report on Disability, many countries have an unequal geographic distribution of rehabilitation professionals (WHO, 2011). There is lack of rehabilitation professionals around the world for wheelchair training and for wheelchair service provision. To accommodate for lack of rehabilitations professionals in less-resource settings, the WHO has suggested using existing personnel to deliver wheelchair service, including the community health worker, physical therapist, occupational therapist, nurses, orthotists and prosthetists (WHO, 2011).

People with SCI who have injury level are C6 or below the C6 and others physical disability can propel the manual wheelchair for their mobility. Manual wheelchair helps the social participation, productivity and leisure activities of the person with disability.

Situation in Bangladesh

Bangladesh is a developing country and most of the people are poor. Most of the people with disability in Bangladesh use the manual wheelchair. Because of a large amount of disable people in Bangladesh live rural area and manual wheelchair is less expensive than power wheelchair. On the other hand, manual wheelchair user can simply make the transfer from the wheelchair to the automobile seat and the wheelchair can be folded and placed in the trunk or back seat. So, the disable people in Bangladesh use the manual wheelchair.

CRP is one of the biggest rehabilitation center for person with disability (spinal cord injury, stroke, cerebral palsy etc.) patient in Bangladesh. CRP provides evidence based holistic health care to the disable persons by the interdisciplinary team (Annual report, 2015-2016).

Occupational Therapy Education in Wheelchair

University professional programmes in occupational therapy, physical therapy and others rehabilitation programme are governed by organizations at various level. Occupational Therapy programme in Canadian universities are approved at an international level by the World Federation of Occupational Therapist (2016). There are need to navigate organization's at various levels when the developing curricula is similar across occupational therapy and other rehabilitation professions and scope of practice the regarding professions role in wheelchair training and service delivery process. One of the challenges with respect to curriculum development is the scope of

theses professions, where wheelchair related content and many areas that need to include within the university programs. Even within the Occupational Therapy alone, the inclusion of wheelchair content in curricula is mandated in some come countries (e.g. the United States), but not in others. (Fung, K.H et al, 2017)

Wheelchair skill and training

Occupational and physical therapists are responsible for the purpose patient's independence in mobility limitation they assess and prescribed wheelchairs for individuals. The wheelchair prescription process is complex and clients are best served when clinicians provide a comprehensive and thorough intervention (Mortenson & Miller, 2008). A critical component in this process is the provision of comprehensive training in how to optimally operate the wheelchair, as advocated by the World Health Organization (WHO, 2008).

Occupational therapists and physiotherapists were provided the wheelchair skills training. Wheelchair skills training duration is 20-30 minutes in every day. One week the training was provided by the Occupational therapists and week training was provided by the physiotherapist. In CRP, wheelchair skills training program follow to the world health organization (WHO) basic manual wheelchair skills training guidelines (information collected from Occupational therapy inpatient unit).

The basic manual wheelchair skills training guidelines are-

Pushing:

- Pushing correctly means less effort.
- Push from 10 o'clock to 2 o'clock position.
- Use a long smooth action to push.

Turning:

- Hold one push rim towards the front and the other towards the back.
- Pull the forward hand backwards and push the backward hand forwards at the same time.

Ups Slopes:

- Lean forward – this helps stop the wheelchair tipping.
- When practicing, have an assistant stand behind for safety.
- To stop or rest – park the wheelchair sideways

Down slopes:

- Lean backwards.
- Let the push rim slide slowly through the hands.
- Experienced wheelchair users who are able to do a “wheelie” (i.e. balance the wheelchair on the rear wheels only) may roll down a slope on their back wheels. This is very efficient.

Ups Steps with Assistance:

- Go up backwards.
- Tilt wheelchair on to the back wheels, positioned against the first step.
- Assistant pulls backwards and upwards – rolling the wheelchair up.
- Wheelchair user can assist by pulling the push rims backwards.
- A second assistant can assist by holding on to the wheelchair frame from the front (not footrests).

Down steps with Assistance:

- Go down forwards.
- Tilt the wheelchair on to the back wheels.

- Assistant lets the back wheels slowly roll down one step at a time.
- Wheelchair user can assist by controlling the wheelchair with the push rims.
- A second assistant can help by steadying the wheelchair from the front, holding on to the wheelchair frame (not footrests).

Partial Wheelie:

- Being able to do a partial wheelie is very useful for a wheelchair user.
- The wheelchair user can lift the front wheels to clear small kerbs, stones and bumps.
- Roll the wheelchair backwards until hands are at 10 o'clock, then push forwards quickly.
- The castor wheels should come up.
- With practice, it is possible to lift the castor wheels at the right time to clear small obstacles.
- Always make sure there is a person standing behind the wheelchair user when he/she begin to practice this skill.

The wheelchair skills training program (WSTP) represents the wheelchairs skills program developer's attempts to incorporate on the motor skills learning with the specific skills performance (Kirby RL et al, 2016) . Wheelchair skills training program was improved the manual wheelchairs user's performance and safety and the wheelchair skills capacity. Wheelchair skills capacity enhanced the mobility of the wheelchair dependent people. (Kilkens O, et al, 2005)

Confidence refers to one's belief in his or her wheelchair skill capabilities. Confidence plays an important role in determining whether to perform a behavior, the degree of effort to invest, and the length of time one will persist in a given activity. On the other hand, low confidence with wheelchair user might lead to self-imposed restriction.

Confidence has been identified as an important construct to consider in the areas of wheelchair skills training and wheelchair provision. Confidence has also identified the gap between the wheelchair skills capacity and actual performance of wheelchair skills. (Rushton. P.W., 2013)

Wheelchair skills performance is seen an important aspect for independent mobility and daily functioning. Wheelchair skills performance was influenced by the physical capacity during the rehabilitation program. A study reported that manual wheelchair skills performance improved by the wheelchair skills training (Rushton P.W., 2018).

R. Lee Kirby et. Al. conduct a randomized trail control study with the 48 second year occupational therapy student and 42 fourth year occupational therapy student. One group are participated in the wheelchair skills training program and other group was not and making a comparison between both the result was Students in the second-year control group increased their mean percentage WST scores by 9.7% (P_.015), whereas those in the WSTP group increased by 25.0% (P_.001). The WSTP group improved to a greater extent (P_.005). The mean WST 2 and 3 scores did not differ significantly (P_.29). The mean WST score of the fourth-year control group was significantly lower than the WST 2 score of the second-year WSTP group (P_.0001) but not the second-year control group (P_.58).

Rushton was reported on the manual wheelchair skills confidence among the 83 community-dwelling at British. Researcher found that the median wheelchair skills confidence was 84.6 % (71.3%–92.0%). Male wheelchair user's median wheelchair skills confidence was 85.6% (75.9%–91.3%) and female was 80.7% (56.3%–93.2%). The tetraplegia median wheelchair skills confidence was 86.5% (74.9%–91.5%) and paraplegia was 87.2% (75.7%–94.8%). Researchers also found that statistically significant difference was not found between the sexes (p = 0.140).

Chapter 3: Methodology

3.1: Conceptual framework

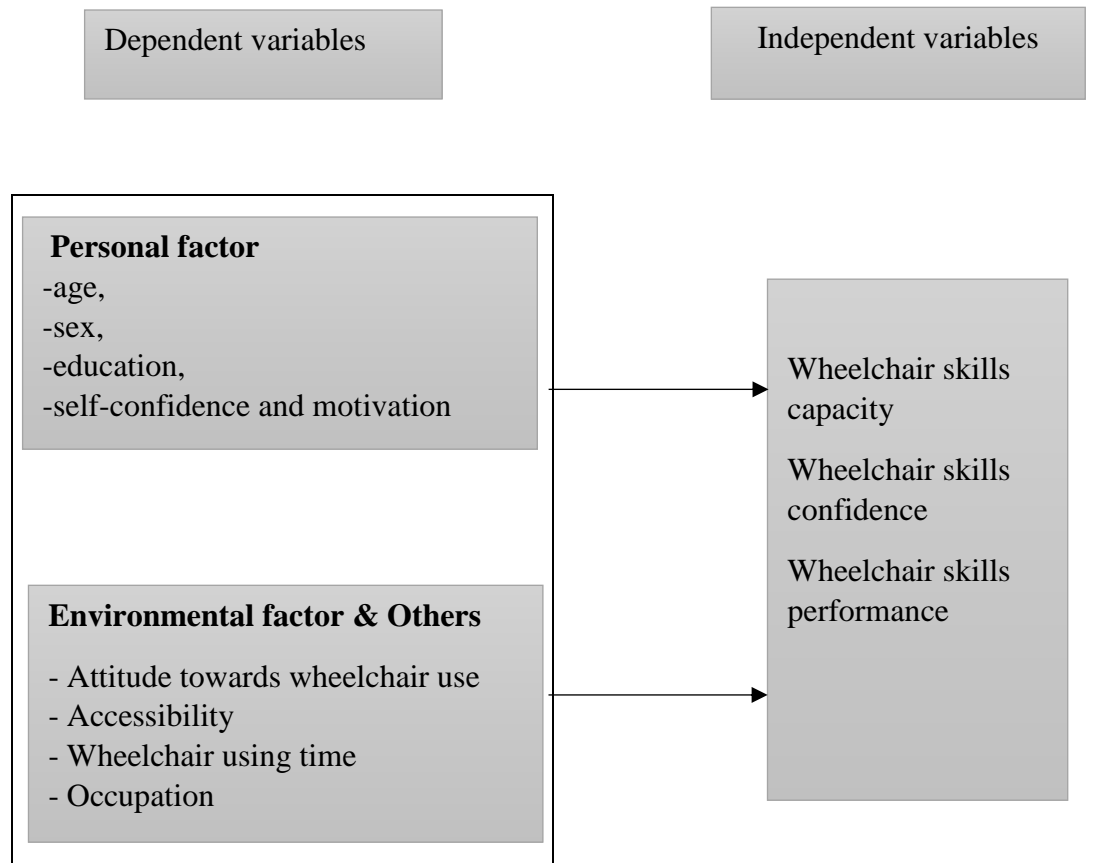


Figure-1: Model of level of wheelchair skills capacity, confidence, performance and association between the socio-demographic factors.

3.2: Study design

In this study the investigator used non-experimental cross-sectional survey of the quantitative research design. The investigator used this method to fulfill the aim and objective of the study. The cross-sectional study is the best suited method for presenting a situation over a short period of time. Using the study design, the investigator will collect information about the wheelchair skills and practice from the Occupational Therapy student of Bangladesh Health Professions Institute 2nd year to 4th year. The investigator had chosen this design as a means of using large number of participation and then collect data accurately.

Cross sectional survey is a research technique which involved collecting data from a large number of people in a time. Cross sectional studies are generally quick, easy, and cheap and often based on a questionnaire survey (Sedgwick P, 2014). Cross sectional study is useful for recognizing the association between the variable of the questionnaire. (Mann, 2003). For that reason, the study had been done in this design.

3.3: Study Population

2nd year to 4th year Occupational Therapy Students of Bangladesh Health Professions Institute.

3.4: Study setting

The researcher will collect data from Bangladesh Health Professions Institute.

3.5: Study period

The study was conducted from August 2018 - April 2019

3.6: Sample selection procedure

$$\begin{aligned} N &= \frac{z^2 \cdot p \cdot q}{d^2} \\ &= \frac{z^2 \times p (1-p)}{d^2} \\ &= \frac{(1.96)^2 \times 0.5 \times 0.5}{(0.05 \times 0.05)^2} \\ &= 384 \end{aligned}$$

Here,

n = sample size

z = the standard normal deviated usually set at 1.96 which correspondent to 95%

p = As there was no published research the level of wheelchair skills capacity, confidence and performance of OT student in BHPI, so the investigator uses $P = 50\% = 0.5$

q = (1-p) = 0.5

d = 0.05 degree of accuracy required

However, data will be collected from the occupational therapy student in BHPI and there were not many students in this subject as the sample size result and it is quite difficult as a student to collect data within the short period of time from this huge sample. That's why investigator selected 70 participants.

3.7: Inclusion and Exclusion criteria

Inclusion criteria:

Participants included matched the following criteria-

- Both male and female were included.
- Data were collected from the students who reads in occupational therapy

Exclusion criteria:

- First year Occupational Therapy students.
- Students who are not read in occupational therapy.

3.8: Sampling Technique

Sampling is a process or procedure that helps an investigator to select a population for his/her research (Barreiro PL & Albandoz JP, 2001). There are three types of sampling techniques such as convenience, purposive/purposeful and volunteer (Oeschler J., 2012). In this study, researchers use purposive sampling techniques. By purposive sampling, the sample knows about the purpose of the study and provides information about the question. Purposive sampling is mostly cost-effective and time-effective and very informative (Etikan I, Musa SA, 2016). That's why researchers use this sampling technique.

3.9 Data collection tool/ materials

Following instruments were used during the data collection period for the purpose of accumulating data from the participants and fulfilling the aim and objectives of the study.

- Consent form and Information sheet
- Self-developed Demographic questionnaires
- WST-Q version 5.0
- Paper
- Pen

3.9.1 Information sheet & Consent form

Information sheet and consent form is an important part of any study, because it's a formal statement or agreement of participation which was taken from the participants before talking the interview. (Appendix-C: English and Appendix-D: Bangla).

The Information sheet including the overall and details information on institute affiliation, identity of investigator, study aim and objectives, participant's confidentiality, participant's rights, benefit and further information related to study. A

written consent form was also prepared for the participants to verify the level of understanding of the information sheet. Before starting the interview, signatures were obtained from each participant on a consent form.

In the study the investigator explained the investigator identity, study title, institute affiliation, participant's confidentiality and their potential benefits in information sheet and participants were given their written agreement, when they were interested to participate in the study.

3.9.2 Wheelchair Skills Test Questionnaire version 5.0 (WST-Q version 5.0)

The WST-Q aim is for manual and powered wheelchair users or caregivers. The WST-Q to be represent the range of skills that wheelchair users and/or caregivers may need to regularly perform. WST-Q version 5.0 have 33 individual skills and the initial question is about capacity (Can you do it?) and the capacity scoring options are “pass very well” (score of 3), “pass” (score of 2), and “pass with difficulty” (score of 1), and “No” (score of 0). Then ask the participants about confidence (How confidence you are?) and the confidence scoring option,, “very confident” (score of 3), “Confident” (score of 2), “Somewhat confident” (score of 1), and “not confident at all” (score of 0). Investigator asked the participants who had the capacity to accomplish a skill about performance (How often do you do it?). The answer options are “Always” (score of 3), “usually” (score of 2), “occasionally” (score of 1), or “never” (score of 0). Then total WST-Q percentage scores calculate. Capacity, Confidence and Performance scores can be calculated as follows:

Total Capacity Score = sum of individual skill scores/ ([number of possible skills – number of NP scores – number of TE scores] x 3) X 100%

Total Confidence Score = sum of individual skill scores/ ([number of possible skills – number of NP scores – number of TE scores] x 3) X 100%

Total Performance Score = sum of individual skill scores/ ([number of possible skills – number of NP scores – number of TE scores] x 3) X 100%

(Kirby, et, al., 2018)

3.10 Data Collection Methods

Investigator took ethical permission from Institutional Review Board (IRB). At first investigator select the occupational therapy students from BHPI in year wise. Then contacted with each class representors from 2nd, 3rd and 4th year and fixed time with each class according their available time. Formally the investigator briefly explained about information sheet and consent form with study aim and objectives were mentioned to all the participants for making a clear view about the study and how they assist the investigator. Data collected by face to face interview using structured questionnaires.

Firstly, data related to personal and general information was collected. Secondly, standard Wheelchair Skills Test-Questionnaire (WST-Q) version 5.0 was used for collecting data. During data collection the investigator was neutral and ignore personal biasness. The investigator had to describe any question in Bengali specifically while participants had any doubt. Data was collected during the free and easily available time, for the participants and not impact to the participant's productivity. To collect data from each participant was taken approximately 20 minutes.

3.11 Data management and analysis

The total WST-Q percentage scores for capacity, confidence and performance were calculated according to the standard WST-Q version 5.0 formulates. The data analysis was performed in the SPSS (Statistical Package of Social Science) version 25 was used to compute descriptive statistics for find out the total percentage of the wheelchair skills capacity, confidence and performance. Investigator used the Spearman ρ test for find out the correlation between total wheelchair skills capacity and the wheelchair skills confidence, performance and Chi-square test was performed to show the association between the socio-demographic factors and wheelchair skills. Graph, pie chart etc. technique was used to analyzing data, calculated as percentages and presented this using bar and pie charts by SPSS software version 25. Statistical Package of Social Science is a flexible statistical analysis and data administration solution. Each study subordinate was given code number and each question was count as a variable. Wheelchair skills capacity responses in the scales was no, partially, yes, very well and NP= not possible with this wheelchair category, these were coded 0, 1, 2, 3 responses. Confidence response was Very well, Moderately, Partly, not at all and these were coded 3, 2, 1, 0. Wheelchair performance responses was Always, Usually, Occasionally, Never, these were coded 3, 2, 1, and 0. Finally, the data was analysis by different tests. Then find out the level and percentage of Wheelchair Skills Test-Questionnaire Capacity, confidence and Performance.

3.12 Quality control & quality assurance

The data was collected from the participants using “English version” (of the Wheelchair Skills Test Questionnaire and for explaining the questions using the “Bangla version” where the participants face difficulty to understand {Appendix-E (English) and Appendix-F (Bangla)}). For translating WST-Q into Bengali, in the first step, two translators were selected for translation. Both translators converted the original WST-Q in Bengali independently and focus to familiar & easily understandable language. After finalizing the Bangla version of WST-Q, the investigator sent the questionnaire to expert who do not have the original English version of the questionnaire to translate in English. After that comparison with the Bangla Version to find out meaning or any inconsistencies, errors. As the participants are the students of occupational therapy, they can easily understand the English version of the questionnaire. If the participants face problem or difficulties to understand the question then use the Bangla version for better understanding.

3.13 Ethical considerations

- The investigator submitted a research proposal to the Institutional Review Board (IRB) for taking approval to do the study.
- Investigator took permission from the author of the scales that was used in the research.
- Ethical consideration has ensured by means of an informed consent letter from BHPI and IRB.
- Every personal data (e.g. name, address) has recorded and it must be confidential.
- All sources have cited and acknowledged appropriately.

- All participants were informed about the aim of the study.
- The researcher has ensured that all participants were informed about their rights and reserves and about the aim and objectives of the study.
- All kinds of confidentiality would be highly maintained. The researcher would have to ensure not to leak out any type of confidentialities.

Possible constrain

- The climate may not suitable
- The researcher may sick.
- Participant may not response.
- Participant may drop out from the study

Chapter 4: Result

In this study cross sectional study design all the data was analyzed by SPSS 25 software. These results were based on different types of variables such as socio-demographic variables, education related variables and wheelchair related variables. The data were collected and presented in different types of charts.

4.1: Age Group

The study was conducted with 70 participants. Most of the participants 37% (n=26) were 22 years. Others participants 24% (n=17) were 21 years, 19% (n=13) were 23 years, 17% (n=12) were 20 years, 2% (n=1) were 24 years and the rest 1% (n=1) were 25 years. The mean age of the participants was 21 and standard deviation 1.1, minimum age 20 years and the maximum age 25 years. (Figure-2)

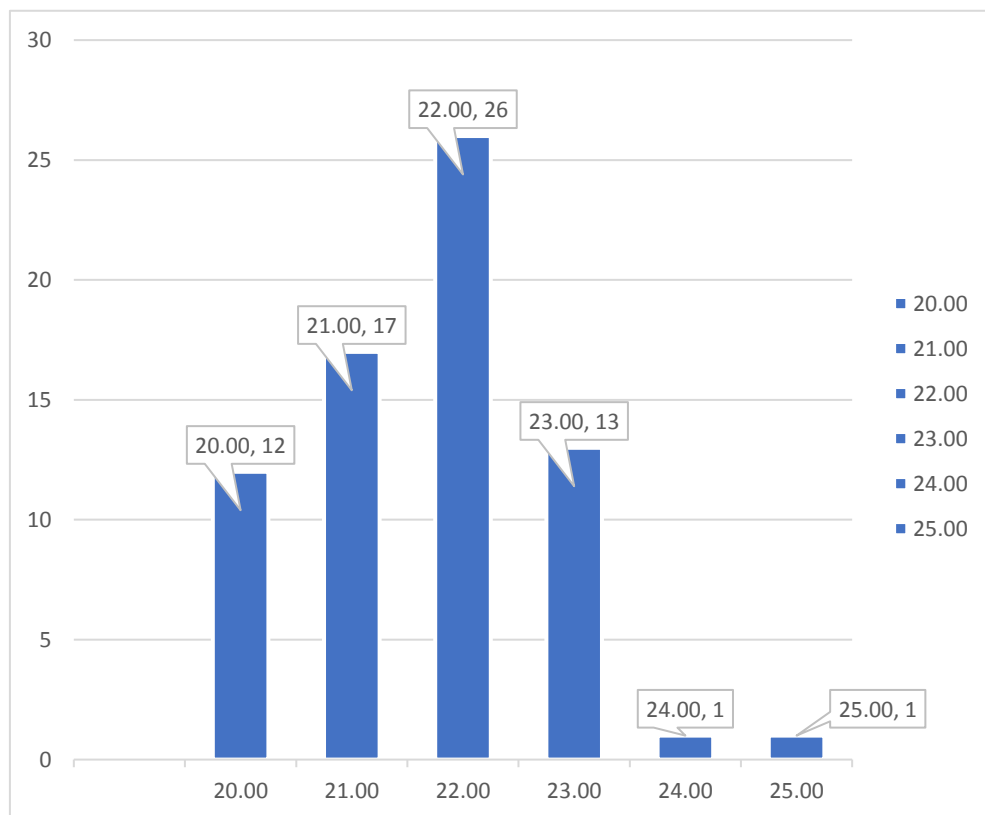


Figure 2: Age range of student participants

4.2 Sex

Among all the participants Female are 70% (n=49) and Male are 30% (n=21). (Figure-3)

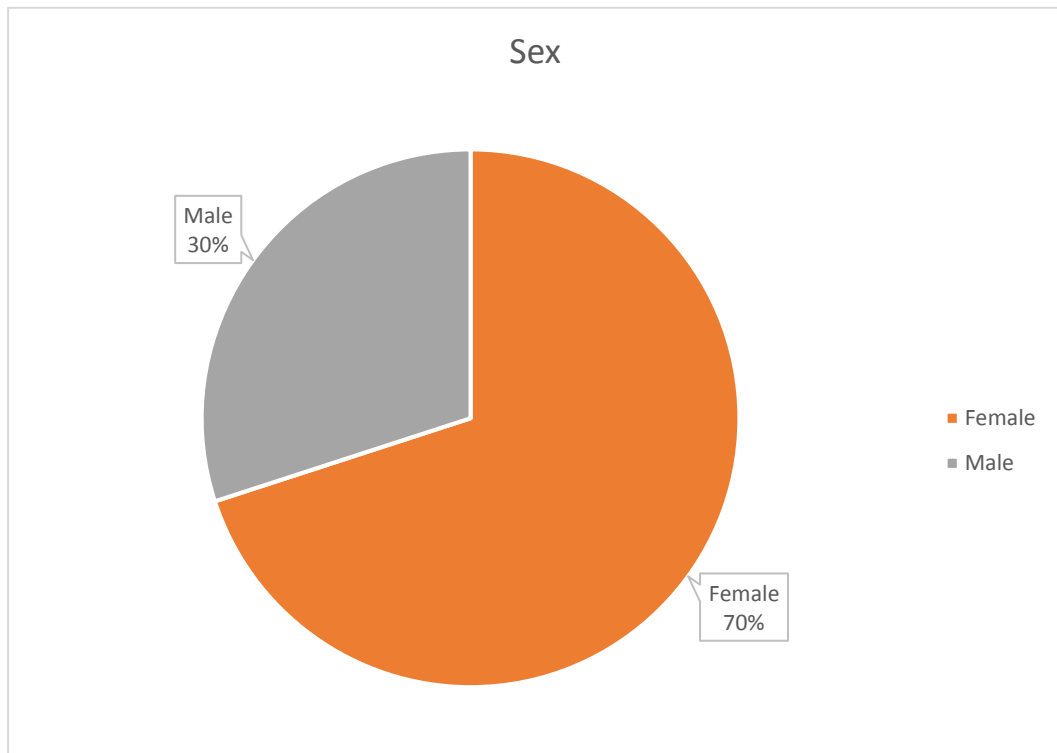


Figure 3: Sex distribution of the participants

4.3 Educational status

Among all the 70 participants there are 36% (n=25) were 3rd year student of academic session 2015-16, 34% (n=24) were 2nd year student is 2016-17 session and at last 30% (n=21) were the 4th year student in session of 2014-15.

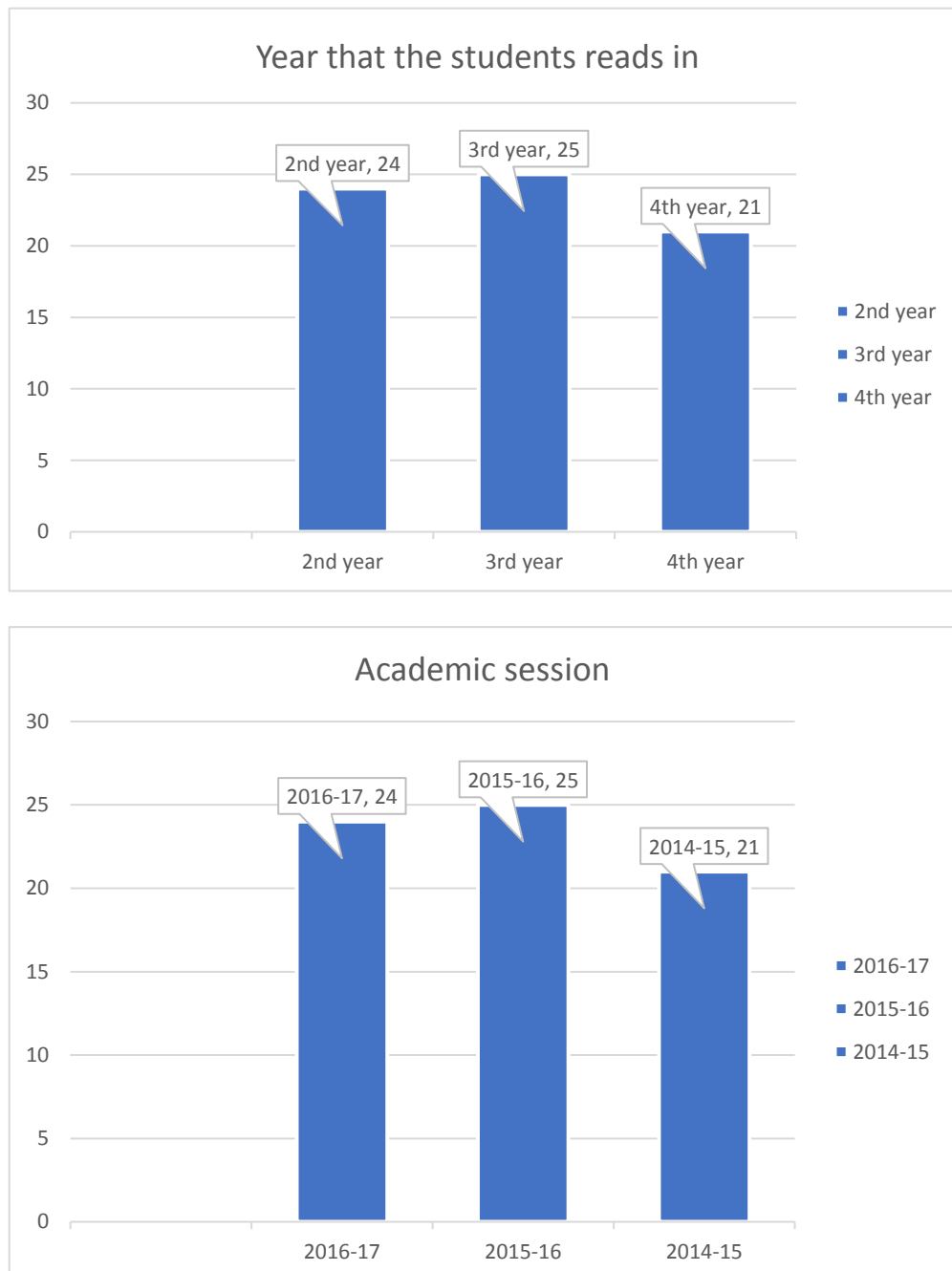


Figure 4: Educational Status

4.4: Weight & Height

Weight among the all participants there are 66% (n=46) weight between 33-61 kg and another 34% (n=24) weight between 62-86 kg.

Height among the all participants 61% (n=43) student were height between 145-160 cm and rest of the 39% (n=27) height were 161-175 cm.

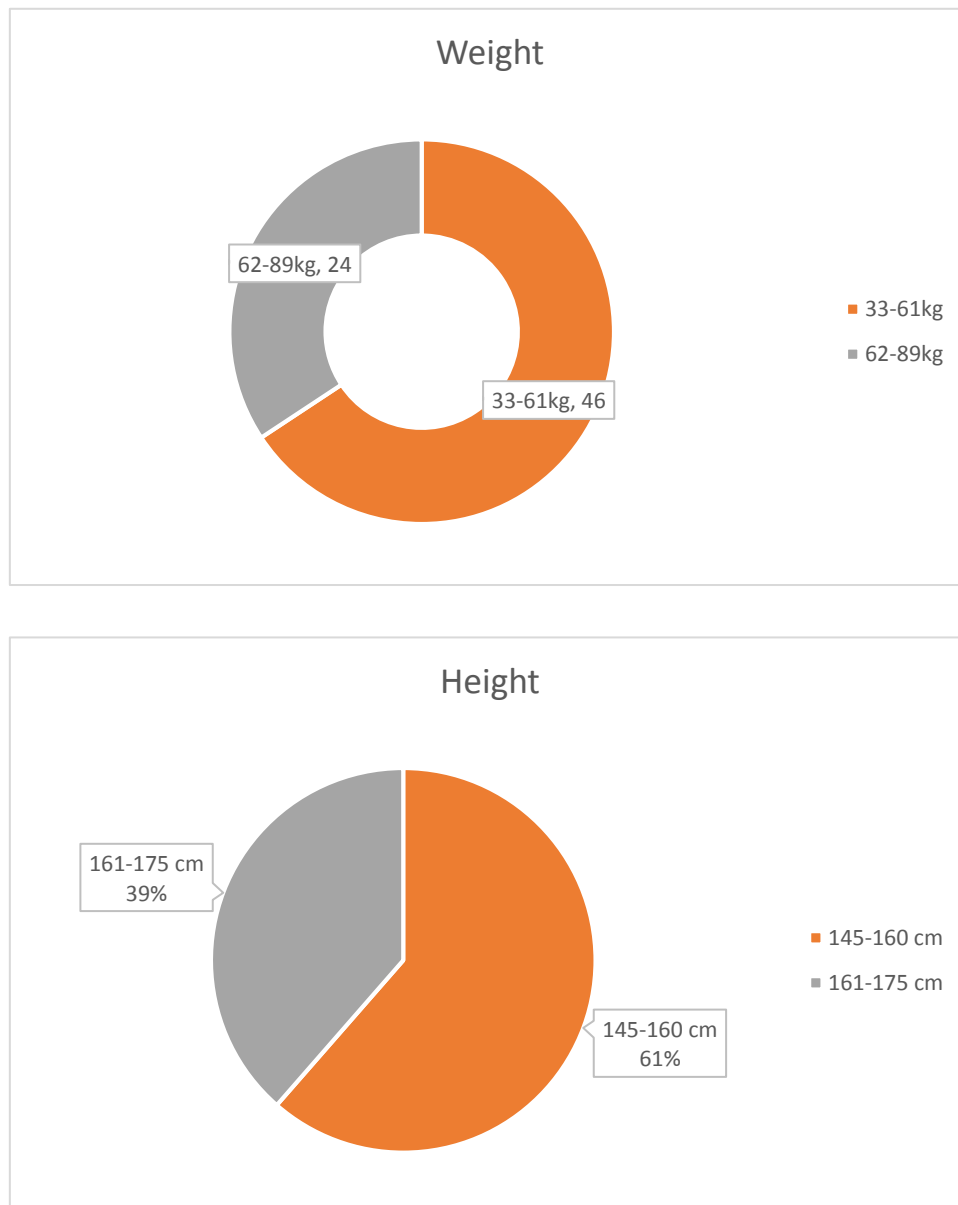


Figure 5: Weight and Height of the participants

4.5: Total WST-Q Capacity, Confidence and Performance

The investigator conducted the study with 70 participants. Among all the participants the mean value of the WST-Q capacity 49.03%, WST-Q confidence 44.57% and WST-Q performance 38.63%. The median values of WST-Q Capacity, WST-Q Confidence and WST-Q Performance were 48.50%, 43.00% and 37.50%. The minimum value of WST-Q capacity, confidence and performance were 31%, 23% and 17%. On the other hand, the maximum value of WST-Q capacity, confidence and performance were 89%, 80% and 68%. The standard deviation (SD) of WST-Q Capacity, WST-Q Confidence and WST-Q Performance were 12.58%, 12.42%, and 11.80%. (Table-1)

Measure	WST-Q Capacity	WST-Q Confidence	WST-Q Performance
Possible range	0%-100%	0%-100%	0%-100%
N	70	70	70
Mean	49.03%	44.57%	38.63%
Median	48.50%	43.00%	37.50%
Std. Deviation	12.58%	12.42%	11.80%
Minimum	31%	23%	17%
Maximum	89%	80%	68%

Table-1: Total percentage scores for WST-Q Capacity, WST-Q Confidence, and WST-Q performance

4.6 Level of wheelchair skills capacity, confidence and performance among the BHPI Occupational Therapy students

According to Wheelchair Skills Test-Questionnaires version 5.0, here wheelchair skills capacity level at the range of (0) no, (0-2310) poor/partially, (2310-4620) good, and (4620-6930) very good. Wheelchair skills confidence score is (0) no confident, (0-2310) partly confident, (2310-4620) moderately confident and (4620-6930) very confident. Wheelchair skills performance level was Never (0), poor (0-2310), good/ usually (2310-4620), very good/ always (4620-6930) for 70 students of BHPI. After calculating the total score of capacity, confidence and performance in SPSS 25 software the investigator found that the total capacity score 3432 it means the 70 participants capacity is good (can do it). The total confidence score is 3120 means that the participants are moderately confident at the range of (2310-4620). At last the performance score is 2704, according to the range of (2310-4620) is good and usually perform.

Score	Wheelchair skills capacity level
0-2310	Poor/partially
2310-4620	Good
4620-6930	Very good
Score	Wheelchair skills confidence level
0-2310	Partly confidence
2310-4620	Moderately confident
4620-6930	Very confident
Score	Wheelchair skills Performance level
0-2310	Poor
2310-4620	Good/ Usually
4620-6930	Very good/ Always

Table 2: Level of wheelchair skills capacity, confidence and performance

4.7 Association among socio-demographic factor (sex, educational level, height and weight) and wheelchair skills capacity, confidence, performance.

In this investigation shows the association between demographic factor (sex, educational level, height and weight) and wheelchair skills capacity, confidence, performance. Chi-square test was performed to show the association between these variables.

The test result of sex and wheelchair skills capacity was (n=70, $\chi^2 = 51.74$, $P < .034$), confidence was (n=70, $\chi^2 = 55.31$, $P < .034$) and performance was (n=70, $\chi^2 = 57.30$, $P < .004$).

Component	Sex		χ^2 value	p-value
	Female	Male		
Wheelchair skills capacity	70% (n=49)	30% (n=21)	51.74	.034
Wheelchair skills confidence	70% (n=49)	30% (n=21)	55.31	.034
Wheelchair skills performance	70% (n=49)	30% (n=21)	57.30	.004

Table 3: Association among sex and wheelchair skills capacity, confidence and performance

The association result of the educational level and wheelchair skills capacity was (n=70, $\chi^2 = 59.46$, $P < .811$), confidence was (n=70, $\chi^2 = 78.73$, $P < .393$) and performance was (n=70, $\chi^2 = 61.07$, $P < .581$).

Component	Educational Level			χ^2 value	p-value
	2 nd Year	3 rd Year	4 th Year		
Wheelchair skills capacity	34% (n=24)	36% (n=25)	30% (n=21)	59.46	.811
Wheelchair skills confidence	34% (n=24)	36% (n=25)	30% (n=21)	78.73	.393
Wheelchair skills performance	34% (n=24)	36% (n=25)	30% (n=21)	61.07	.581

Table 4: Association between educational level and wheelchair skills.

The association among the weight and the wheelchair skills capacity was ($n=70$, $\chi^2=40.41$, $P<.244$), confidence was ($n=70$, $\chi^2=40.93$, $P<.343$) and performance was ($n=70$, $\chi^2=33.17$, $P<.410$).

Component	Weight		χ^2 value	<i>p</i> -value
	33-61 kg	62-89 kg		
Wheelchair skills Capacity	66%($n=46$)	34%($n=24$)	40.41	.244
Wheelchair skills confidence	66%($n=46$)	34%($n=24$)	40.93	.343
Wheelchair skills Performance	66%($n=46$)	34%($n=24$)	33.17	.410

Table 5: Association between weight and wheelchair skills capacity, confidence and performance

The association among between the height and wheelchair skills capacity was ($n=70$, $\chi^2=42.91$, $P<.168$), confidence was ($n=70$, $\chi^2=40.80$, $P<.348$) and performance was ($n=70$, $\chi^2=36.88$, $P<.253$).

Component	Height		χ^2 value	<i>p</i> -value
	145-160 cm	161-175 cm		
Wheelchair skills Capacity	61%($n=43$)	39%($n=27$)	42.91	.168
Wheelchair skills confidence	61%($n=43$)	39%($n=27$)	40.80	.348
Wheelchair skills Performance	61%($n=43$)	39%($n=27$)	36.88	.253

Table 6: Association between height and wheelchair skills capacity, confidence and performance.

4.8 Correlation between the total WST-Q Capacity and WST-Q Confidence

The total WST-Q capacity scores correlated significantly with the total WST-Q confidence scores ($r=.96$; $P<.00$).

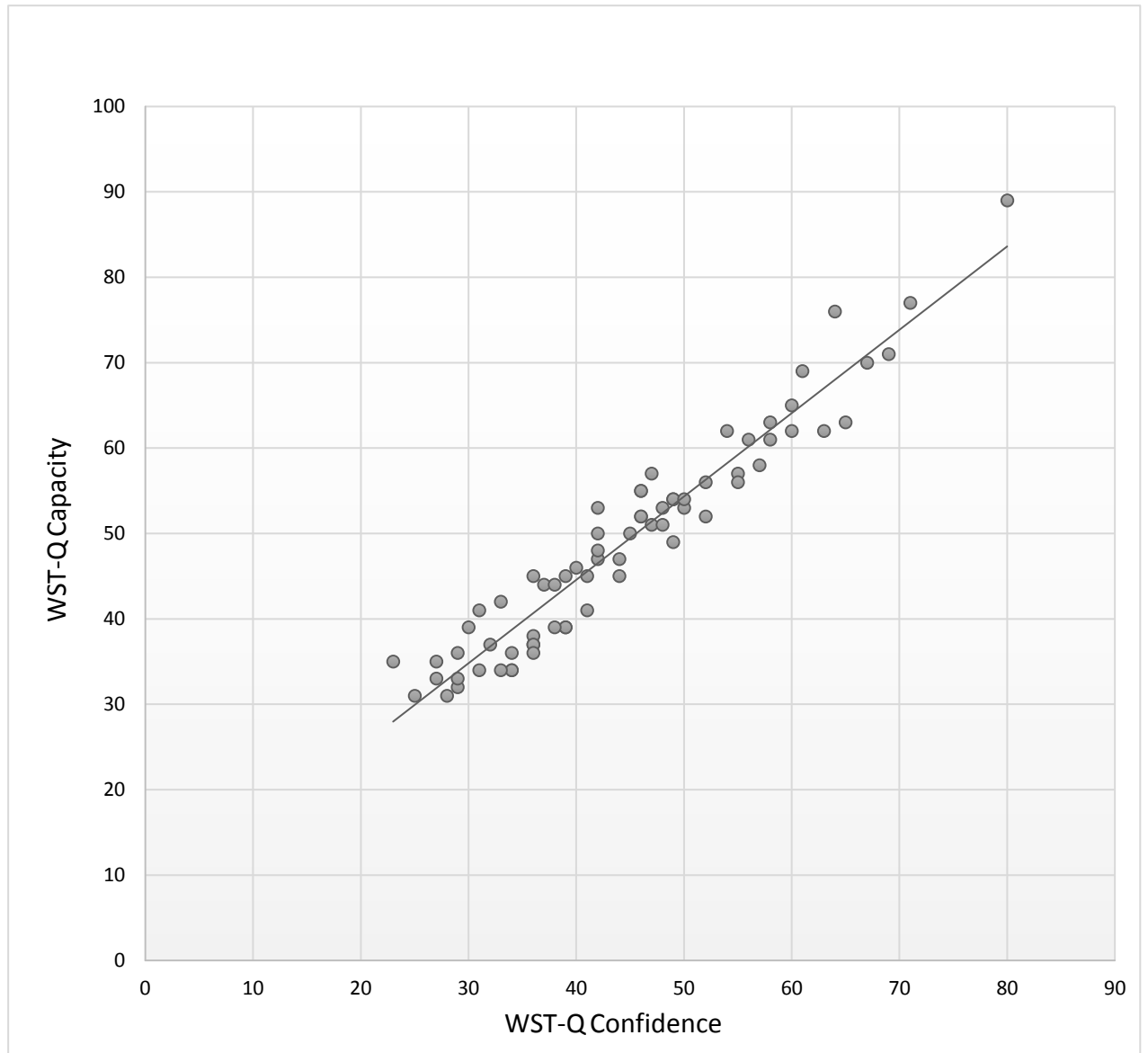


Figure 6: Correlation between total WST-Q capacity and confidence

4.9 Correlation between the total WST-Q Capacity and WST-Q Performance

The total WST-Q capacity scores correlated significantly with the total WST-Q performance scores ($r=.91$; $P<.00$).

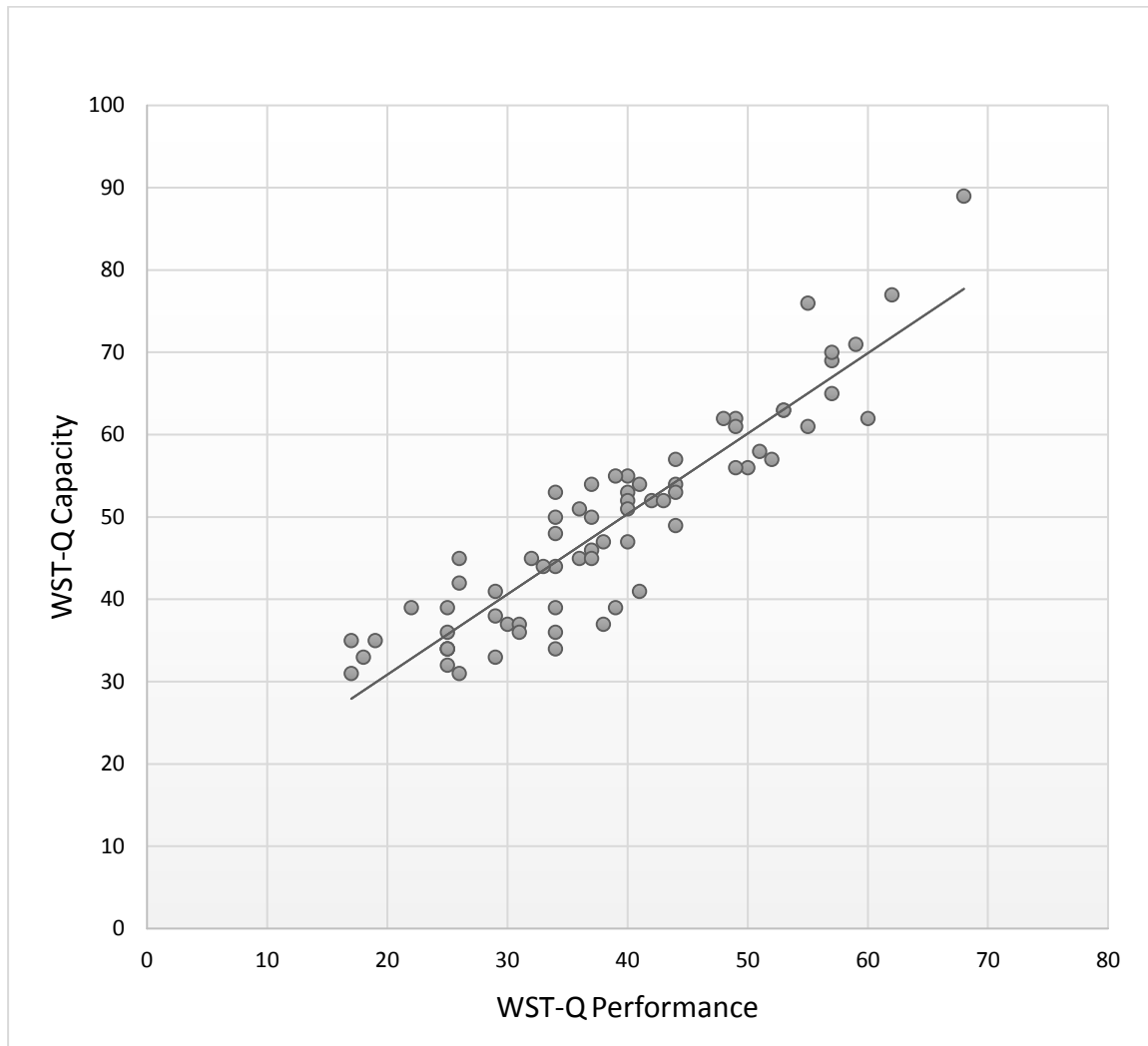


Figure 7: Correlation between total WST-Q capacity and Performance

4.10 Correlation between the total WST-Q Confidence and WST-Q Performance

The total WST-Q capacity scores correlated significantly with the total WST-Q performance scores ($r=.94$; $P<.00$).

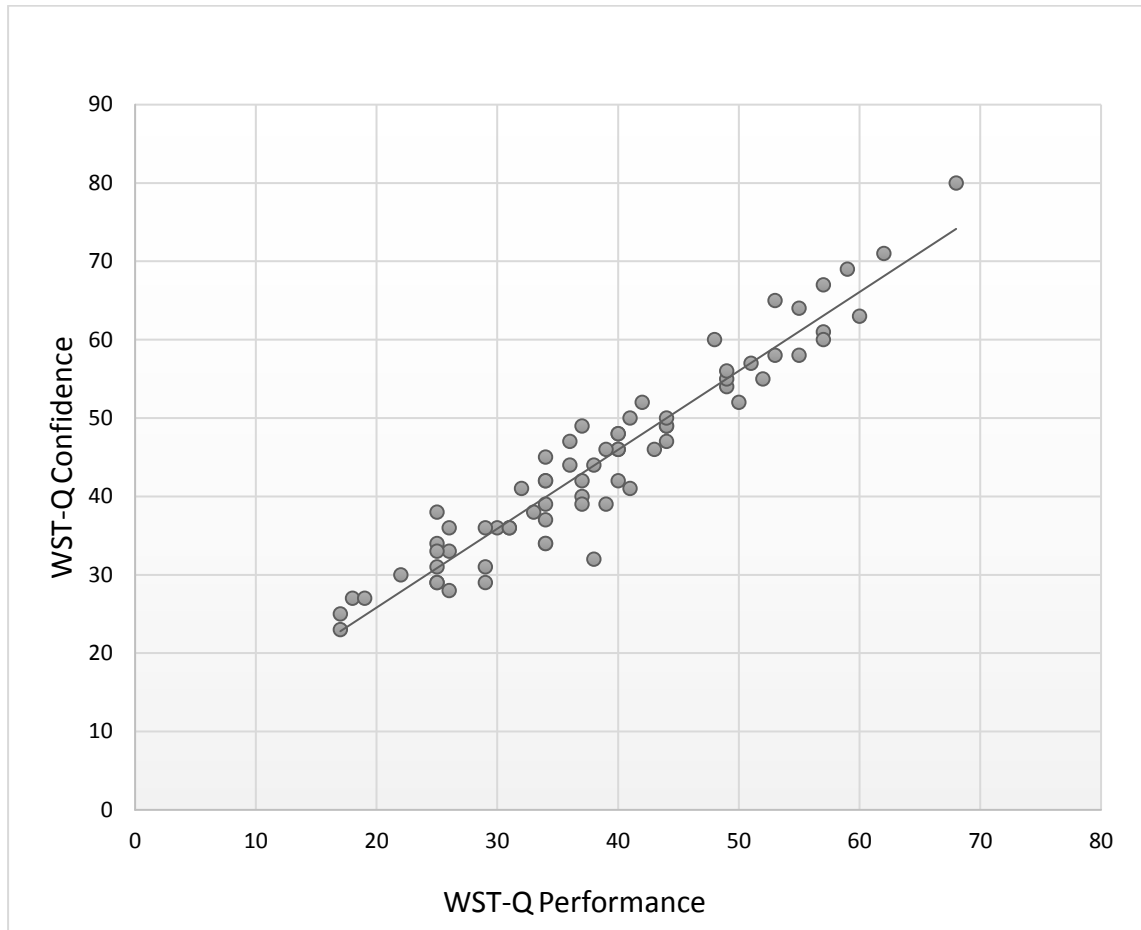


Figure 8: Correlation between total WST-Q Confidence and Performance

Chapter 5: Discussion & Conclusion

5.1 Discussion

The aim of this study was to determine the wheelchair skills capacity, confidence and performance of wheelchair with the Occupational therapy students who are reads in BHPI. Total 70 students were taken for this study. The study participants consisted of 49 (70%) females and 21 (30%) males. Here show that most of the participants were females. Their age ranged from 20 to 25 years with a mean age of the patients was 22 years. The minimum and maximum ages among the participants were 20 years and 25 years. The majority of the patients were aged between 22 years. Although it was realized that the sample size was small; this study provides information about wheelchair skills capacity, confidence, and performance of occupational therapy students of BHPI.

Achieved objectives of the wheelchair skills capacity, confidence and performance of occupational therapy students. This shows that the mean value for WST-Q capacity 49.03%, WST-Q confidence 44.57%% and WST-Q performance 38.63%. There have some different finding of mean total value for WST-Q capacity, confidence and performance were 81.0%, 68% and 25% increased of the second year student after giving wheelchair skill training found by the Kirby et al in 2004 by randomize control trail with occupational therapy.

After study in professional career occupational therapist train the patient the wheelchair skills and most/ almost all are the spinal cord injury patient, they need wheelchair training in rehabilitation phases. In a study (Kirby et al. 2016) found that most of the

wheelchair users with Spinal Cord Injury patients were men (86%) and paraplegia (76%).

In this investigation the investigator found that the Wheelchair Skill Test-Questionnaires Capacity, Confidence, Performance level was overall good among the occupational therapy student in Bangladesh Health Professions Institute. But the performance level of the of the students were low level (2704) of the good scoring (2310-4620) compare to the capacity and confident. The investigator didn't find any literature or research to support this finding. Kirby et al, said that wheelchair skills training program in an effective way to improve the wheelchair skills performance of occupational therapy student.

Also, the investigator found out the association among the socio-demographic factors and wheelchair skills. The result was there is strong association between sex and wheelchair skills capacity ($\chi^2 = 51.74, P < .034$), confidence ($\chi^2 = 55.31, P < .034$) and performance ($\chi^2 = 57.30, P < .004$). In an study Hosseini et al, 2012, found that sex was associated with the total WST-Q capacity, and WST-Q performance scores ($P < .001$, and $P < .001$), and the other demographic factors (educational level, weight, height) there is no association with the wheelchair skills capacity, confidence and performance. Hossain, et al. 2017, in his study found that there is no association of the demographic factors with wheelchair skills.

Hossain, SM, et al. 2017. Found there is significant correlation between the total scores WST-Q capacity and WST-Q confidence ($r = .95; P < .000$) and the total scores WST-Q capacity and WST-Q performance ($r = .88; P < .00$). Investigator found in this investigation significantly correlation between the total scores WST-Q capacity and WST-Q confidence ($r = .96; P < .00$). Investigator also found markedly correlation

between the total scores WST-Q Confidence and WST-Q Performance ($r=.94$; $P<.00$) and the total WST-Q Capacity and WST-Q Performance significantly correlate with each other's ($r=.91$; $P<.00$). Kirby et al. (2016) reported that total WST-Q capacity scores correlated with the total WST-Q performance scores were ($r=.63$; $P<.01$). Kirby et al. also found that total WST-Q capacity scores significantly correlated with the total WST-Q confidence were ($r=.61$; $P<.01$)

5.2 Limitation

There is some limitation which the investigator absolutely taken into account during the time study.

- The major limitation of this study was the sample size that participants in the study. It was taken only 70 samples, because only in BHPI the occupational therapy undergraduate B. Sc. Course is running and the students are limited.
- The time was a factor, because it was limited.
- There was not enough articles and literature about wheelchair skills test of occupational therapy student in the Bangladesh or in this South Asian context.
- The investigator didn't find any literature about the level of capacity, confidence and performance of the OT student, all that found that was the randomize control trail and wheelchair training related study.
- This study is a quantitative study. Investigator selected sample by purposive sampling.
- The study was conducted by small sample size. Small sample size is not representing all the students of occupational therapy. So, the data is not generalized to all occupational therapy students or any professionals.

5.3 Conclusion

The impact of different conditions (SCI, Muscular Dystrophy, Motor Neuron Disease) etc. often leads to impairment in mobility that affect the ability to engage in everyday activities and social participation. The most of the wheelchair users are the SCI people. An occupational therapist is actively involved with the training of the wheelchair users in wheelchair skills training from the initial basic training to the advance skill training. However, the therapist may improve their own skill of wheelchair from the educational level. From this study investigator got so many information about the wheelchair skills capacity, confidence and performance level of the occupational therapy students of BHPI. This study shows that the students who become professional and a trainer for wheelchair skills training, they unable to perform some basic level and most of the advance level of wheelchair skills. So, this study is helpful for the students, teachers to understand the lacking's and improve the skill. More advance level of wheelchair skills training enhances the student's capacity and performance, so they can give an appropriate support to the patient in the professional career in near future. So this study is helpful for the students, teachers and the course coordinator of occupational therapy.

5.4 Recommendation

Recommendations for OT educators and Occupational therapists (OTs) in Bangladesh

Occupational therapists had a broader role and holistic treatment techniques for the wheelchair users. Therapists need to update their knowledge in this area. The department of occupational therapy at BHPI may arrange the wheelchair skills training program to the students and added advance wheelchair training into the curriculum for improving the community and activities participation. OTs need to concentrate more on the wheelchair skills during the wheelchair skills training program.

Recommendations for further research

The investigators recommendation is that occupational therapists and students need to study this topic in depth. This may involve;

Wheelchair skills training program for students, a RCT with occupational therapy students.

Effectiveness and safety of wheelchair skills training for improve the skills.

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Appendix-A

Approval Letter from IRB



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

Ref. CRP-BHPI/IRB/10/18/1237

Date: 17/10/2018

To,
Quazi Samiur Rashid
B.Sc. in Occupational Therapy
Session: 2014-2015, Student ID: 122140169
BHPI, CRP-Savar, Dhaka-1343, Bangladesh

Subject: Approval of thesis proposal "Identify the level of wheelchair skill Knowledge, Attitude and Practice among the Occupational Therapy Students of Bangladesh Health Professions Institute." by ethics committee.

Dear Quazi Samiur Rashid

Congratulations,

The Institutional Review Board (IRB) of BHPI has reviewed and discussed your application to conduct the above mentioned thesis, with yourself, as the Principal Investigator" The Following documents have been reviewed and approved:

S.N.	Name of Documents
1.	Thesis Proposal
2.	Questionnaire (English and / or Bangla version)
3.	Information sheet & consent form.

Since the study involves use of a "Wheelchair Skills Test Questionnaire version- 4.3" and Self developed questionnaire to explore the "Identify the level of wheelchair skill knowledge, attitude and practice among the student of occupational therapy student of Bangladesh Health Professions Institute." that may take 20 to 25 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 10 AM on September 01, 2018 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,

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

Appendix-B

Author permission letter for WST-Q version 5.0



Quazi Samiur Rashid Akash <samiur.ot18.edu@gmail.com>

Requesting for Scale Permission

Kirby, Lee <Lee.Kirby@nshealth.ca>
To: Quazi Samiur <samiur.ot18.edu@gmail.com>

17 October 2018 at 21:49

Quazi,

Thank you for your interest. You are free to use the WST-Q within the Conditions of Use on our website (<https://wheelchairskillsprogram.ca/en/conditions-of-use/>).

However, I suggest that you use the latest version (5.0).

LK

R. Lee Kirby, MD, FRCPC
Division of Physical Medicine and Rehabilitation,
Dalhousie University
c/o Nova Scotia Health Authority, Nova Scotia Rehabilitation Centre Site, Room 206
[1341 Summer Street, Halifax, NS, Canada B3H 4K4](#)

<https://mail.google.com/mail/u/1?ik=f9dda55668&view=pt&search=all&permthid=thread-a%3Ar-2967287727925153414&simpl=msg-a%3Ar-90475001...> 1/2

Appendix-C

Information Sheet and Consent Form (English)

Part I: Information Sheet Introduction

I am Quazi Samiur Rashid, B.Sc. in Occupational Therapy student of Bangladesh Health Professions Institute(BHPI), have to conduct a thesis as a part of this Bachelor course, under thesis supervisor, Nayan Kumer Chanda. You are going to have details information about the study purpose, data collection process, ethical issues.

You do not have to decide today whether or not you will participate in the research. Before you decide, you can talk to anyone you feel comfortable with about the research. If this consent form contains some words that you do not understand, please ask me to stop. I will take time to explain.

Background and Purpose of the study

You are being invited to be a part of this research because wheelchair skills knowledge, attitude and practice among the occupational therapy students are essential and efficient for their better practice in future. Your experience as a health professions student (Occupational Therapist) will be best suited to reveal your understanding, knowledge about wheelchair knowledge and practice through your voluntary participation in this study. The general purpose of the study is to identify the level of knowledge, attitude and practice among the Occupational Therapy Students about Wheelchair skills.

Research related information

The research related information will be discussed with you throughout the information sheet before taking your signature on consent form. After that participants will be asked to complete a self-administrative questionnaire which may need half an hour to fill. In this questionnaire there will be questions on socio-demographic factors (for example: Age, sex, experience). It will also contain some specific questions of wheelchair skills. Particularly, in this research we have selected the Occupational therapy, as they know their specific role and responsibilities for rehabilitation of the patients by developing their knowledge for their future practice. However, we select participants from the current occupational therapy students at Bangladesh Health Professions Institute (BHPI) in Centre for the Rehabilitation of the Paralyzed (CRP).

The data collection period will be one month followed by the date of approval. During that time, the questionnaire will be evaluated by face to face interview. The questionnaire will be asked and collected by Quazi Samiur Rashid. If you do not wish the questions included in the questionnaires, you may skip them and move on to the next question. The information recorded is confidential, your name is not being included on the forms, only a number will identify you, and no one else except Nayan Kumer Chanda, Supervisor of the study will have access to this survey.

Voluntary Participation

The choice that you make will have no effect on your study, job or on any work-related evaluation or reports. You can change your mind at any time of the data collection process even throughout the study period. You have also right to refuse your participation even if you agreed earlier.

Right to Refuse or Withdraw

I will give you an opportunity at the end of the interview to review your remarks, and you can ask to modify or remove portions of those, if you do not agree with my notes or if I did not understand you correctly.

Risks and benefits

We are asking to share some personal and confidential information, and you may feel uncomfortable talking about some of the topics. You do not need to answer any question or take part in the discussion interview/survey if you don't wish to do so, and that is also okay. You do not have to give us any reason for not responding to any question, or for refusing to take part in the interview. On the other hand, you may not have any direct benefit by participating in this research, but your valuable participation is likely to help us find out the Identifying the level of wheelchair skill knowledge and practice among the Occupational Therapy students in this context.

Confidentiality

Information about you will not be shared to anyone outside of the research team. The information that we collect from this research project will be kept private. Any information about you will have a number on it instead of your name. Only the researchers will know what your number is and we will lock that information up with a lock and key. It will not be shared with or given to anyone except Nayan Kumer Chanda, study supervisor.

Sharing the Results

Nothing that you tell us today will be shared with anybody outside the research team, and nothing will be attributed to you by name. The knowledge that we get from this research will be shared with you before it is made widely available to the public. Each participant will receive a summary of the results. There will also be small presentation

and these will be announced. Following the presentations, we will publish the results so that other interested people may learn from the research.

Who to Contact?

If you have any questions, you can ask me now or later. If you wish to ask questions later, you may contact any of the following: Quazi Samiur Rashid, Bachelor science in Occupational Therapy, Department of Occupational Therapy, e-mail: samiur.ot18.edu@gmail.com, Cell phone- 01683550140. This proposal has been reviewed and approved by Institutional Review Board (IRB)(CRP-BHPI/IRB/10/18/1237), Bangladesh Health Professions Institute (BHPI), CRP-Savar, Dhaka-1343, Bangladesh, which is a committee whose task it is to make sure that research participants are protected from harm. If you wish to find about more about the IRB, contact Bangladesh Health Professions Institute (BHPI), CRP-Savar, Dhaka-1343, Bangladesh. You can ask me any more questions about any part of the research study, if you wish to. Do you have any questions?

Can you withdraw from this study:

You can cancel any information collected for this research project at any time. After the cancellation, we expect permission from the information whether it can be used or not.

Withdrawal Form

Participants Name:

ID number:

Reason of Withdraw:

.....

.....

.....

Participants Name:

Participants Signature:

Day/Month/Year:

Part II: Certificate of Consent

Statement by Participants

I have been invited to participate in research titled Identify the level of wheelchair skill knowledge, attitude and practice among the Occupational Therapy students of Bangladesh Health Professions Institute. I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions about it and any questions I have been asked have been answered to my satisfaction. I consent voluntarily to be a participant in this study

Name of Participant _____

Signature of Participant _____

Date:

Statement by the researcher taking consent

I have accurately read out the information sheet to the potential participant, and to the best of my ability made sure that the participant understands that the following will be done:

I confirm that the participant was given an opportunity to ask questions about the study, and all the questions asked by the participant have been answered correctly and to the best of my ability. I confirm that the individual has not been coerced into giving consent, and the consent has been given freely and voluntarily.

A copy of this ICF has been provided to the participant.

Name of Researcher taking the consent _____

Signature of Researcher taking the consent _____

Date _____

Appendix-D

Information Sheet and Consent Form (Bangla)

কোড নং:

অংশগ্রহণকারীদের তথ্য এবং সম্মতিপত্র

গবেষণার বিষয়: বাংলাদেশ হেলথ প্রফেশনাল ইনস্টিটিউটের অকুপেশনাল থেরাপির শিক্ষার্থীদের মধ্যে হুইলচেয়ার দক্ষতা ক্ষমতা, আস্থা এবং কর্মক্ষমতার স্তর নির্ণয় করা।

গবেষক: কাজী সামিউর রশীদ, বি.এস.সি ইন অকুপেশনাল থেরাপি (৪র্থ বর্ষ), সেশন: ২০১৪-২০১৫ ইং, বাংলাদেশ হেলথ প্রফেশনাল ইনস্টিটিউট (বিএইচপিআই), সাভার, ঢাকা- ১৩৪৩

তত্ত্বাবধায়ক: নয়ন কুমার চন্দ, লেকচারার, অকুপেশনাল থেরাপি বিভাগ, বাংলাদেশ হেলথ প্রফেশনাল ইনস্টিটিউট।

গবেষণার স্থান: বাংলাদেশ হেলথ প্রফেশনাল ইনস্টিটিউট, পক্ষাঘাতগ্রস্থদের পূর্নবাসন কেন্দ্র (সিআরপি), সাভার, ঢাকা-১৩৪৩ বাংলাদেশ।

তথ্যপত্র:

ভূমিকা:

আমি কাজী সামিউর রশীদ, ঢাকা বিশ্ববিদ্যালয়ে চিকিৎসা অনুষদের অধীনে বাংলাদেশ হেলথ প্রফেশনাল ইনস্টিটিউটে বি.এস.সি.ইন অকুপেশনাল থেরাপি বিভাগে ৪র্থ বর্ষের ছাত্র হিসেবে স্নাতক শিক্ষাকার্যক্রম (২০১৪-২০১৫ ইং) সেশনে অধ্যয়নরত আছি। বিএইচপিআই থেকে অকুপেশনাল থেরাপি বি.এস.সি শিক্ষাকার্যক্রমটি সম্পন্ন করার জন্য একটি গবেষণা প্রকল্প পরিচালনা করা বাধ্যতামূলক। এই গবেষণা প্রকল্পটি অকুপেশনাল থেরাপি বিভাগের লেকচারার নয়ন কুমার চন্দ এর তত্ত্বাবধায়নে সম্পন্ন করা হবে। এই অংশগ্রহণকারী তথ্যপত্রের মাধ্যমে গবেষণার প্রকল্পটির উদ্দেশ্য, উপাত্ত সংগ্হের প্রণালী ও গবেষণাটির সাথে সংশ্লিষ্ট বিষয় কিভাবে রক্ষিত হবে তা বিস্তারিতভাবে আপনার কাছে উপস্থাপন করা হবে। যদি এই গবেষণায় অংশগ্রহণ করতে আপনি ইচ্ছুক থাকেন,

সেক্ষেত্রে এই গবেষণার সম্পৃক্ত বিষয় সম্পর্কে স্বচ্ছ ধারণা থাকলে সিদ্ধান্ত গ্রহণ সহজতর হবে। অবশ্য এখন আপনার অংশগ্রহণ আমাদের নিশ্চিত করতে হবে না। যে কোন সিদ্ধান্ত গ্রহণের পূর্বে, যদি চান তাহলে আপনার আত্মীয়-স্বজন, বন্ধু অথবা আস্থাজাজন যেকারো সাথে এই ব্যাপারে আলোচনা করে নিতে পারেন। অপরপক্ষে, অংশগ্রহণকারী তথ্যপত্রটি পড়ে, যদি কোন বিষয়বস্তু বুঝতে সমস্যা হয় অথবা যদি কোন কিছু সম্পর্কে আরো বেশি জানার প্রয়োজন হয়, তবে নির্দিষ্ট প্রশ্ন করতে পারেন।

গবেষণার প্রেক্ষাপট ও উদ্দেশ্য:

এই গবেষণাতে পক্ষাঘাতগ্রস্তদের পুনর্বাসন কেন্দ্রে বাংলাদেশ হেল্থ প্রফেশন্স ইনস্টিটিউটে অকুপেশনাল থেরাপীতে অধ্যয়নরত প্রথম বর্ষ থেকে চতুর্থ বর্ষ পর্যন্ত সকল শিক্ষার্থীদের অন্তর্ভুক্ত হবার জন্য আমন্ত্রণ জানানো হবে। এর অংশ হিসাবে, আপনাকেও উক্ত গবেষণা প্রকল্পে অংশগ্রহণের জন্য আমন্ত্রণ জানানো হলো। কারণ, আপনি নিশ্চয় অবগত আছেন যে, হুইলচেয়ার ব্যবহারকারীর হুইলচেয়ার চালানো এবং দক্ষতা বৃদ্ধির ক্ষেত্রে অকুপেশনাল থেরাপিস্টগন কার্যকর ভূমিকা পালন করে। সেজন্য অকুপেশনাল থেরাপিস্টদের হুইলচেয়ারের উপর ক্ষমতা, আস্থা এবং কর্মক্ষমতা থাকা প্রয়োজন, সেটা গড়ে উঠে তার শিক্ষানবিশ কাল থেকেই।

অতএব অকুপেশনাল থেরাপীতে অধ্যয়নরত শিক্ষার্থীদের হুইলচেয়ার এর উপর জ্ঞান, মনোভাব এবং অনুশীলন কতটুকু তা অজানা। গবেষণাটির সাধারণ উদ্দেশ্য হল: অকুপেশনাল থেরাপীতে অধ্যয়নরত শিক্ষার্থীদের হুইলচেয়ারের উপর ক্ষমতা, আস্থা এবং কর্মক্ষমতা স্তর /পরিমাণ নির্ণয় করা। আপনার কার্যকরী অংশগ্রহণ গবেষণার উদ্দেশ্য পূরণে সহায়তা করবে বলে আমরা আশাবাদী।

এই গবেষণা কর্মটিতে অংশগ্রহণের সাথে সম্পৃক্ত বিষয়সমূহ কি সে সম্পর্কে জানা যাক।

আপনার থেকে অনুমতিপত্রে স্বাক্ষর নেবার আগে, এই অংশগ্রহণকারী তথ্যপত্রের মাধ্যমে গবেষণা প্রকল্পটির পরিচালনা করার তথ্যসমূহ বিস্তারিত ভাবে আপনার কাছে উপস্থাপন করা হবে। আপনি যদি

এই গবেষণায় অংশগ্রহন করতে চান, তাহলে সম্মতিপত্রে আপনাকে স্বাক্ষর করতে হবে। আপনি অংশগ্রহন নিশ্চিত করলে, আপনার সংরক্ষনের জন্য সম্মতিপত্রটির একটি অনুলিপি দিয়ে দেয়া হবে। পরবর্তীতে গবেষক কর্তৃক গঠিত তথ্য-উপাত্ত সংগ্রহের একটি দলের প্রতিনিধি আপনার কাছে যাবে। আপনার থেকে চেয়ে নেওয়া যে কোন একটি নির্দিষ্ট সময়ে একটি প্রশ্নপত্রের মাধ্যমে তথ্য সংগ্রহ করা হবে। এই গবেষণার প্রকল্পে আপনার অংশগ্রহণ ঐচ্ছিক। যদি আপনি সম্মতি প্রদান না করেন তবে আপনাকে অংশগ্রহন করতে হবে না। আপনি সম্মতি প্রদান করা স্বত্ত্বেও যে কোন সময় গবেষককে কোন ব্যাখ্যা প্রদান করা ছাড়াই নিজের অংশগ্রহন প্রত্যাহার করতে পারবেন।

অংশগ্রহনের সুবিধা ও ঝুঁকিসমূহ কি ?

গবেষণা প্রকল্পটিতে অংশগ্রহনের জন্য আপনি সরাসরি কোন সুবিধা পাবেন না। তবে আমরা আশাবাদী যে, গবেষণার মাধ্যমে প্রাপ্ত উপাত্ত পরবর্তীতে শিক্ষার্থীদের হুইলচেয়ার দক্ষতার উপর শিক্ষা কার্যক্রমকে আরো গতিশীল করতে সাহায্য করবে। এখানে সংশ্লিষ্ট গবেষণায় অংশগ্রহনে কোন ধরনের বাড়তি ঝুঁকি, বিপত্তি অথবা অস্বস্তি নেই বলে আশা করা যাচ্ছে।

তথ্যের গোপনীয়তা কি নিশ্চিত থাকবে?

এই সম্মতিপত্রে স্বাক্ষর করার মধ্য দিয়ে, আপনি এই গবেষণা প্রকল্পে অধ্যয়নরত গবেষণা কর্মীকে আপনার ব্যক্তিগত তথ্য সংগ্রহ ও ব্যবহার করার অনুমতি দিয়েছেন। এই গবেষণা প্রকল্পের জন্য সংগৃহীত যেকোন তথ্য, যা আপনাকে সনাক্ত করতে পারে তা গোপনীয় থাকবে। আপনার সম্পর্কে সংগৃহীত তথ্যসমূহ সাংকেতিক উপায়ে উল্লেখ থাকবে। শুধুমাত্র এর সাথে সরাসরি সংশ্লিষ্ট গবেষক ও তার তত্ত্বাবধায়ক এই তথ্যসমূহে প্রবেশাধিকার পাবেন। সাংকেতিক উপায়ে চিহ্নিত উপাত্ত সমূহ পরবর্তী উপাত্ত বিশ্লেষণের কাজে ব্যবহৃত হবে। তথ্যপত্রগুলো নিরাপদ স্থানে সংগ্রহ করা হবে। বিএইচপিআই এর অকুপেশনাল থেরাপি বিভাগে ও গবেষকের ব্যক্তিগত ল্যাপটপে উপাত্তসমূহের ইলেকট্রনিক ভার্সন সংগৃহীত থাকবে।

প্রত্যাশা করা হচ্ছে যে, এই গবেষণা প্রকল্পের ফলাফল বিভিন্ন ফোরামে প্রকাশিত এবং উপস্থাপিত হবে। যে কোন ধরনের প্রকাশনা ও উপস্থাপনার ক্ষেত্রে তথ্যসমূহ এমন ভাবে সরবরাহ করা হবে, যেন আপনার সম্মতি ছাড়া আপনাকে কোন ভাবেই সনাক্ত করা না যায়। তথ্য-উপাত্ত প্রাথমিক ভাবে কাগজপত্র সংগ্রহ করা হবে।

গবেষণা সম্পর্কে জানতে কোথায় যোগাযোগ করতে হবে?

গবেষণা প্রকল্পটির বিষয়ে যোগাযোগ করতে চাইলে অথবা গবেষণা প্রকল্পটির সম্পর্কে কোন প্রশ্ন থাকলে, এখন অথবা পরবর্তীতে যে কোন সময়ে তা জিজ্ঞাসা করা যাবে। সেক্ষেত্রে আপনি গবেষকের সাথে উল্লিখিত ০১৬৮৩৫৫০১৪০ (কাজী সামিউর রশীদ) নাম্বারে যোগাযোগ করতে পারেন। এই গবেষণা প্রকল্পটি বাংলাদেশ হেল্থ প্রফেশন্স ইনস্টিটিউট, সাভারের প্রাতিষ্ঠানিক নৈতিকতা পরিষদ থেকে (সিআরপি-বিএইচপিআই/আইআরবি/১০/১৮/১২৩৭) পর্যালোচিত ও অনুমোদিত হয়েছে। এই গবেষণা প্রকল্প পরিচালনা প্রসঙ্গে যেকোন উদ্বিগ্ন অথবা অভিযোগকারী ব্যক্তি প্রাতিষ্ঠানিক নৈতিকতা পরিষদের সাথে এই নাম্বারে (৭৭৪৫৪৬৪-৫) যোগাযোগ করবেন।

গবেষণা থেকে নিজেকে প্রত্যাহার করা যাবে কি?

আপনি সম্মতি প্রদান করা স্বত্বেও যে কোন সময় গবেষককে কোন ব্যাখ্যা প্রদান করা ছাড়াই নিজের অংশগ্রহণ প্রত্যাহার করতে পারবেন। বাতিল করার পর তথ্যসমূহ কি ব্যবহার করা যাবে কি যাবেনা তার অনুমতি অংশগ্রহণকারীর প্রত্যাহারপত্রে (শুধুমাত্র স্বেচ্ছায় প্রত্যাহারকারীর জন্য প্রযোজ্য) উল্লেখ করা থাকবে।

অংশগ্রহণকারীর প্রত্যাহার পত্র

(শুধুমাত্র স্বেচ্ছায় প্রত্যাহারকারীর জন্য প্রযোজ্য)

অংশগ্রহণকারীর নাম:

প্রত্যাহার করার কারণ:

.....
.....
.....
.....
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.....

পূর্ববর্তী তথ্য ব্যবহারের অনুমতি থাকবে কিনা?

হ্যাঁ/না

অংশগ্রহণকারীর নাম:

অংশগ্রহণকারীর স্বাক্ষর:

তারিখ:

Appendix-E

Wheelchair Skills Test Questionnaire (English)

Wheelchair Skills Test Questionnaire (WST-Q) Version 5.0 Form

Manual Wheelchairs

Name of wheelchair user:	_____ _____ _____
Person completing questionnaire (if not user):	
Tester: _____	Date: _____

#	Individual Skill	Capacity (0-3)*	Confidence (0-3)*	Performance (0-3)*	Goal? (Yes/No) *
1	Rolls forward short distance				
2	Rolls backward short distance				
3	Stops on command				
4	Turns in place				
5	Turns while moving forward				
6	Turns while moving backward				
7	Maneuvers sideways				
8	Picks objects from floor				
9	Relieves weight from buttocks				
10	Performs level transfers				
11	Folds and unfolds wheelchair				
12	Gets through hinged door				
13	Rolls longer distance				
14	Ascends slight incline				
15	Descends slight incline				
16	Ascends steep incline				
17	Descends steep incline				
18	Rolls across side-slope				
19	Rolls on soft surface				
20	Gets over obstacle				
21	Gets over gap				
22	Ascends low curb				
23	Descends low curb				

24	Ascends high curb				
25	Descends high curb				
26	Performs wheelchair-ground transfers				
27	Performs stationary wheelie				
28	Turns in place in wheelie position				
29	Rolls forward and backward in wheelie position				
30	Descends high curb in wheelie position				
31	Descends steep incline in wheelie position				
32	Ascends stairs				
33	Descends stairs				
Total scores:**	%	%	%	NA	
Total testing time (minutes): _____ * See scoring criteria on next page. ** See formulae on next page.					

Capacity question: “Can you do it?”		
Answer	Score	What this means
Very well	3	Can do the skill safely and very well.
Yes	2	Can do the skill safely at a basic level.
Partially	1	Can do the skill in part.
No	0	Have never done the skill or could not do it right now.
Not possible with this wheelchair	NP	The wheelchair does not have the parts to allow this skill. (This option is only presented for skills where such a score is a possibility.)
Testing error	TE	When answers have not been recorded (e.g. inadvertently or because the test subject did not understand the question).
Confidence question: “How confident are you?”		
Answer	Score	What this means
Very	3	As of now, I am very confident that I can do this skill safely and consistently.
Moderately	2	As of now, I am moderately confident that I can do this skill safely and consistently.

Partly	1	As of now, I am only partly confident that I can do this skill safely and consistently.
Not at all	0	As of now, I am not at all confident that I can do this skill safely and consistently.
Not possible with this wheelchair	NP	As for capacity.
Testing error	TE	As for capacity.
Performance question: “How often do you do it?”		
Answer	Score	What this means
Always	3	Always when I need or want to do so.
Usually	2	Usually when I need or want to, but sometimes not.
Occasionally	1	Occasionally when I need or want to, but often not.
Never	0	Never or less often than once a year.
Not possible with this wheelchair	NP	As for capacity.
Testing error	TE	As for capacity.
Goal question: “Is this a training goal?”		
Possible Answers	What This Means	
Yes	I am interested in receiving training for this skill.	
No	I am not interested in receiving training for this skill.	

Formulae for calculating WST-Q total percentage scores:

- Total Capacity Score = $\frac{\text{sum of individual skill scores}}{([\text{number of possible skills} - \text{number of NP scores} - \text{number of TE scores}] \times 3)} \times 100\%$
- Total Confidence Score = $\frac{\text{sum of individual skill scores}}{([\text{number of possible skills} - \text{number of NP scores} - \text{number of TE scores}] \times 3)} \times 100\%$
- Total Performance Score = $\frac{\text{sum of individual skill scores}}{([\text{number of possible skills} - \text{number of NP scores} - \text{number of TE scores}] \times 3)} \times 100\%$

Score	Wheelchair skills capacity level
0-2310	Poor/partially
2310-4620	Good
4620-6930	Very good
Score	Wheelchair skills confidence level
0-2310	Partly confidence
2310-4620	Moderately confident
4620-6930	Very confident
Score	Wheelchair skills Performance level
0-2310	Poor
2310-4620	Good/ Usually
4620-6930	Very good/ Always

Appendix-F

Questionnaire (Bangla)

অংশগ্রহনকারী শিক্ষার্থীর তথ্য

১। তথ্য গ্রহণের তারিখঃ

২। অংশগ্রহনকারীর নামঃ

৩। অংশগ্রহনকারীর বয়সঃ

৪। লিঙ্গঃ পুরুষ / নারী ; ধর্মঃ

৫। ওজনঃ ; উচ্চতাঃ

৫। শিক্ষাগত যোগ্যতাঃ সেশনঃ ; বর্ষঃ

৬। ঠিকানাঃ পোঃ ; থানাঃ

জেলাঃ

৭। মোবাইল নম্বরঃ

অংশগ্রহনকারীর স্বাক্ষরঃ

গবেষকের স্বাক্ষরঃ

তাং-

তাং-

Wheelchair Skills Test Questionnaire (Bangla)

হুইল চেয়ার দক্ষতা পরীক্ষার প্রশ্নবলী, ভার্সন ৫.০

ব্যক্তিগত দক্ষতার জন্য বিকল্প স্কেরিং

সামর্থ্য সম্পর্কিত প্রশ্নঃ আপনি কি এই কাজটি করতে পারেন?		
উত্তর	স্কের	যা বুঝায়
খুব ভালো	৩	আমি নিজেই কাজটি নিরাপদে এবং খুব ভালোভাবে করতে পারব।
হ্যাঁ	২	আমি নিজেই কাজটি নিরাপদে কোন রকম কষ্ট ছাড়াই করতে পারব।
হ্যাঁ, কষ্টের সহিত	১	হ্যাঁ, কিন্তু আমি যেভাবে চাই সেভাবে নয়।
না	০	আমি কাজটি কখনো করিনি অথবা আমি মনে করি না যে আমি এখনই কাজটি করতে পারব।
এই হুইল চেয়ার দ্বারা সম্ভব নয়	এন পি	এই দক্ষতাটি করার জন্য আমার হুইল চেয়ারের সেই নির্দিষ্ট অংশটি নেই। (এই বিকল্পটি শুরু সেই দক্ষতার জন্য প্রযোজ্য যেখানে স্কেরের সম্ভাবনা আছে)।
পরীক্ষার ভুল	টি ই	যখন উত্তর সংরক্ষণ করা হয়নি। (উদাহরণ স্বরূপ অসাবধানতাবসত বা কারণবসত পরীক্ষার ব্যক্তি প্রশ্ন বুঝতে পারেনি)।
আত্মবিশ্বাস সম্পর্কিত প্রশ্ন : আপনি কতটা আত্মবিশ্বাসী?		
উত্তর	স্কের	যা বুঝায়
পুরোপুরি আত্মবিশ্বাসী	৩	এখন আমি সম্পূর্ণ আত্মবিশ্বাসী যে আমি কাজটি নিরাপদে এবং ধারাবাহিকভাবে করতে পারব।
আত্মবিশ্বাসী	২	এখন আমি আত্মবিশ্বাসী যে আমি কাজটি নিরাপদে এবং ধারাবাহিকভাবে করতে পারব।
কিছুটা আত্মবিশ্বাসী	১	এখন আমি কিছুটা আত্মবিশ্বাসী যে আমি কাজটি নিরাপদে এবং ধারাবাহিকভাবে করতে পারব।
আত্মবিশ্বাসী নই	০	এখন আমি একটুও আত্মবিশ্বাসী নই আমি কাজটি নিরাপদে এবং ধারাবাহিকভাবে করতে পারব।
এই হুইল চেয়ার দ্বারা সম্ভব নয়	এন পি	এই দক্ষতাটি করার জন্য আমার হুইল চেয়ারের সেই নির্দিষ্ট অংশটি নেই। (এই

		বিকল্পটি শুধু সেই দক্ষতার জন্য প্রযোজ্য যেখানে স্কোরের সম্ভাবনা আছে।
পরীক্ষার ভুল	টি হ	যখন উত্তর সংরক্ষণ করা হয়নি। (উদাহরণ স্বরূপ অসাবধানতাবসত বা কারণবসত পরীক্ষার ব্যক্তি প্রশ্ন বুঝতে পারেনি।)
কর্মদক্ষতা সম্পর্কিত প্রশ্ন : আপনি কতবার এটি করেন?		
উত্তর	স্কোর	যা বুঝায়
সবসময়	৩	সাধারণত দিনে কমপক্ষে একবার
সচরাচর	২	সাধারণত সাপ্তাহে কমপক্ষে একবার
মঝঝমঝে	১	সাধারণত মঝে কমপক্ষে একবার
কখনোই না	০	সাধারণত বৎসরে একবারের কম বা কখনোই না।
এই হুইল চেয়ার দ্বারা সম্ভব নয়	এন পি	এই দক্ষতাটি করার জন্য আমার হুইল চেয়ারের সেই নির্দিষ্ট অংশটি নেই। (এই বিকল্পটি শুধু সেই দক্ষতার জন্য প্রযোজ্য যেখানে স্কোরের সম্ভাবনা আছে)।
পরীক্ষার ভুল	টি হ	যখন উত্তর সংরক্ষণ করা হয়নি। (উদাহরণ স্বরূপ অসাবধানতাবসত বা কারণবসত পরীক্ষার ব্যক্তি প্রশ্ন বুঝতে পারেনি)।
প্রশ্ন : এটি কি একটি প্রশিক্ষণের লক্ষ্য?		
সম্ভাব্য উত্তর	যা বুঝায়	
হ্যাঁ	আমি এই কাজের জন্য প্রশিক্ষণ গ্রহণ করতে অগ্রহী।	
হা	আমি এই কাজের জন্য প্রশিক্ষণ গ্রহণ করতে অগ্রহী নই।	

#	স্বতন্ত্র দক্ষতা	সামর্থ্য (০-৩)	আত্মবিশ্বাস (০-৩)	কর্মদক্ষতা (০-৩)	প্রশিক্ষণ (হ্যাঁ/না)
১	সামনের দিকে অল্প দূরে যেতে				
২	পিছনের দিকে অল্প দূরে যেতে				
৩	নির্দেশনায় থেমে যাওয়া				
৪	নির্দিষ্ট জায়গায় ঘুরানোর ক্ষেত্রে				
৫	সামনের দিকে অগ্রসরের সময় ঘুরানোর ক্ষেত্রে				
৬	পিছনের দিকে আসার সময় ঘুরানোর ক্ষেত্রে				
৭	পার্শ্ব বরাবর পরিচালনার ক্ষেত্রে				
৮	মোবো থেকে বস্তু উত্তোলন করার সময়				
৯	নিতম্বের চাপমুক্ত রাখার ক্ষেত্রে				
১০	সমতলে স্থানান্তর সম্পন্ন করা				
১১	হুইলচেয়ার ভাঁজ করা এবং খোলার ক্ষেত্রে				
১২	কজায়ুক্ত দরজা দিয়ে চলাচলের ক্ষেত্রে				
১৩	দীর্ঘ দূরত্বে যাওয়ার ক্ষেত্রে				
১৪	সামান্য ঢালে উঠার ক্ষেত্রে				
১৫	সামান্য ঢালে নামার ক্ষেত্রে				
১৬	খাঁড়া ঢালে উঠার ক্ষেত্রে				
১৭	খাঁড়া ঢাল নামার ক্ষেত্রে				
১৮	পার্শ্ব ঢাল বরাবর যাওয়ার ক্ষেত্রে				
১৯	নরম জায়গার উপর চলার ক্ষেত্রে				
২০	চৌকাঠ/বাধা পার হওয়ার ক্ষেত্রে				
২১	ফাঁকাস্থান পার হওয়ার ক্ষেত্রে				
২২	অল্প প্রতিবন্ধকতা উঠার করার ক্ষেত্রে				
২৩	অল্প প্রতিবন্ধকতায় নামার ক্ষেত্রে				
২৪	উচ্চ প্রতিবন্ধকতায় উঠার ক্ষেত্রে				
২৫	উচ্চ প্রতিবন্ধকতায় নামার ক্ষেত্রে				

২৬	মেঝে থেকে হুইলচেয়ারে উঠার ক্ষেত্রে				
২৭	হুইলি করে স্থির হয়ে থাকার ক্ষেত্রে				
২৮	হুইলি অবস্থায় ঘুরানোর ক্ষেত্রে				
২৯	হুইলি অবস্থায় সামনে এবং পেছনে যাওয়ার ক্ষেত্রে				
৩০	হুইলি অবস্থায় উচ্চ প্রতিবন্ধকতায় নামার ক্ষেত্রে				
৩১	হুইলি অবস্থায় খাঁড়া ঢাল নামার ক্ষেত্রে				
৩২	সিঁড়ি দিয়ে উঠার ক্ষেত্রে				
৩৩	সিঁড়ি দিয়ে নামার ক্ষেত্রে সম্পূর্ণ				
	সম্পূর্ণ স্কের				