

Experience of Participating in Accessible Garden of Persons with Spinal Cord Injury: A Qualitative Study



By

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Statement of Authorship

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Dedication

This study is wholeheartedly dedicated to my honourable and beloved parents, who are source of my inspiration and strength.

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List of Abbreviations

ADL	Activities of Daily Living
AOTA	American Occupational Therapy Association
CRP	Centre for the Rehabilitation of the Paralysed
OT	Occupational Therapy
PWD	Person with Disability
SCI	Spinal Cord Injury
WHO	World Health Organization

Abstract

Background: Spinal Cord Injury (SCI) patients have suffered from not only physical issues but also, they suffered from mental and psychosocial issues. SCI also affects a person's familial and social life. Occupational Therapist has an important role to engage a person with SCI in productivity and leisure activities as well as improving their psychosocial well-being. Persons with SCI can become independent financially and their disability-related mental stress can be relieved by performing gardening activities.

Aim: This research aimed to explore the experience of participating in accessible gardens of persons with Spinal Cord Injuries in Bangladesh.

Methods: This study was conducted with the phenomenological approach of qualitative research design. Eight persons with SCI participated in this study who were admitted to CRP, Bangladesh, and engaged in CRP's garden activities. Both paraplegic and tetraplegic participants were in this study. A face-to-face semi-structured interview guide was used to collect data from the participants. Data were analysed by thematic analysis following Braun and Clarke's six steps.

Results: Eight main themes have emerged from the data analysis including Understanding about accessible garden, Components of the accessible garden, Motivation about gardening, Preference, Usefulness during rehabilitation, New experience after gardening, Difficulties during gardening, and participant's opinion about garden. Participants found the garden accessible to them which was the precondition to be experienced the garden as beneficial. Gardening as leisure was a common view amongst participants, while income

source was the most important thing for people with SCI. The major finding was that working in this garden was meaningful activity for the participants when they saw that they grew some vegetables with their own hands. The most important opinion of the participants regarding garden is that gardening is an effective leisure activity for people with SCI and that it should be done from ward level and should be done regularly.

Conclusion: The study found that gardening activities are beneficial for physical and mental health, and can be used as an additional setting for training people with SCI. It can support productive work, fulfilment, independence, and meaningful work. Health professionals need to plan an effective gardening program to ensure a better experience.

Keywords: Spinal Cord Injury, Participation, Accessible garden

CHAPTER I: INTRODUCTION

1.1 Background

The devastating neurologic disorder known as Spinal Cord Injury (SCI) has a significant physical, psychosocial, and socioeconomic impact on contemporary society (Canseco et al., 2021). According to World Health Organization (WHO, 2013), between 250000 and 500000 people worldwide suffer from SCI each year. A recent estimation by the National Spinal Cord Injury Statistical Centre is that there are 54 incidences of Spinal Cord Injury per million persons in the United States each year. A total of 17730 new cases are reported (National Spinal Cord Injury Statistical Centre, 2022). In Bangladesh, 1035 people with SCI were observed overall in 2019 (Uddin,2012). There is a lot of data to suggest that traumatic Spinal Cord Injury (SCI) can cause social relationships to break down as well as adverse psychological effects like depression, anxiety, discomfort, and a change in one's sense of well-being (Chun & Lee, 2017). Throughout history, Spinal Cord Injury, whether traumatic or not has been discussed as a sudden, terrible, and crippling neurological disorder. The prevalence of Spinal Cord Injury is rising over time at a rate of 15–40 instances per million people annually, with men being more likely to suffer from these injuries than people of higher socioeconomic status. The condition causes various crippling complications like pressure sores, autonomic dysreflexia, deep vein thrombosis, spasticity, sexual dysfunction, and pneumonia, in addition to various degrees of physical disabilities like paralysis, sensory deficit, dysfunction of the bowel and bladder, and pneumonia (Ning et al., 2012). Additionally, because the condition itself and its consequence increase expenditures, Spinal Cord Injury (SCI) has a considerable negative impact on the economy,

both locally and nationally (Quadir et al., 2017). Persons with Spinal Cord Injury (SCI) are more likely to experience social isolation, feel different from their classmates, perform poorly in school, lose their employment, and engage in fewer physical activities. The psychological impacts of SCI can put a strain on the affected person's family, society, and themselves (Rahman et al., 2017). One of the primary objectives of recovery is the return to employment and leisure activities after SCI. According to Schoenherr et al. (2004), active participation in tasks and responsibilities has a significant positive effect on health and happiness. A high level of social involvement also enhances life quality. Previous research suggests that gardening, which entails caring for a garden, growing plants, and maintaining a lovely environment, has significant benefits for human health (Sogaa et al., 2017). Research suggests that garden therapy should play a key role in a patient's recovery following a Spinal Cord Injury or acquired brain damage (Chapple, 2103). Nowadays, Horticulture Therapy (HT) uses gardening and plant-related activities to improve the physical, cognitive, and psychosocial well-being of individuals (Chamberlain, 2018). Many people with SCI in Bangladesh are unemployed and live in poverty with reduced quality of life and participation (Hossain et al., 2019). Quadir et al. (2017) reported that Bangladesh is a poor but developing country in South Asia that suffers a lot of socio-economic problems arising from SCI and its health-related complications, as evidenced by the yearly rate of admission at a specialised centre like the Centre for the Rehabilitation of the Paralysed (CRP). Employment creation is a major positive factor for the persons living with disabilities at the community garden (Tigere & Moyo, 2022). To help persons with SCI integrate into the community, many local farming and gardening implements are created by Occupational Therapists at CRP with built-in long handles and bent to match

the patients' demands. The participants practice gardening with this unique instrument before being discharged from CRP. Follow-up house visits revealed that several were still actively engaged in farming in their local communities. In their yard, their primary leisure activities include gardening and cultivating vegetables (Habib et al., 2014). A person with a disability might benefit from taking part in horticultural activities or from watching plants and landscapes, but they need specialized adaptations or modifications and an accessible garden for this to happen (Relf, 2016). When planning a garden, it may be necessary to make some adjustments to ensure easy access and accommodate people with a variety of disabilities. For example, raised garden beds can help people with physical limitations and prevent bending and stooping. Wheelchair-accessible tables can also be provided so that people can pot and plant together (Adriana, 2021).

1.2 Justification of the Study

The investigator wants to explore the experience of participating in accessible garden of persons with Spinal Cord Injury. SCI patients have suffered from not only physical issues but also mental and psychosocial issues. SCI also affects a person's familial and social life. An important role of an Occupational Therapist is to encourage productivity and leisure activities in people with SCI while also enhancing their psychosocial well-being. Gardening activities can help people with sci become financially independent and relieve disability-related mental stress by performing gardening activities. When patient becomes dissatisfied with their lives, engaging in new activities like gardening can help them change their perspective and expectations. An Occupational Therapist uses gardening as a treatment medium to improve the physical and mental condition of persons with SCI. SCI patients get the opportunity to work in the garden because the garden is accessible to them.

So, it is important to know their experience working in an accessible garden. This study will be helpful in identifying the challenges and recognising new ideas from participants about the accessible garden. As a result of this study, Occupational Therapists will be able to know how much gardening is valued by SCI patients as a productivity and leisure activity. As there is no study conducted in Bangladesh about the experience of SCI patients working in accessible garden, Occupational Therapy (OT) professionals will be able to enrich their knowledge and resources using this study. This will also help the health professionals plan an effective garden program for persons with SCI through which they can develop their profession in this area.

1.3 Operational Definition

1.3.1 Spinal Cord Injury

Disruption to the spinal cord or the nerves at the cauda equina end of the spinal canal represents a spinal cord injury, which frequently results in permanent changes to strength, sensation, and other bodily functions underneath the site of the lesion. (Myoclinic, 2021)

1.3.2 Participation

According to the WHO (2011) Participation is involvement in life situation. The term "participation" refers to a person's participation in typical social circumstances (Hostettler, 2018). Participation, at its most fundamental, refers to people taking part in decisions that have an impact on their life (Jodie Thorpe and Marina Apgar)

1.3.3 Accessible Garden

Anyone can grow plants, so anyone can garden. All people may construct and enjoy gardens that are beneficial to their well-being with the correct equipment and knowledge. An accessible garden incorporates seven fundamental elements to ensure that consideration

is given to all degrees of mobility and comprehension. Additionally, age, sensory capabilities, and safety considerations are included in this type of garden (JAY, 2021). The ultimate goal of an accessible garden is to provide a space that anyone, regardless of age or physical ability, can use and enjoy. (Accessible Garden Design, 2021)

1.3.4 Horticulture Therapy

Horticulture Therapy has been defined as the use of plants and plant-based activities for human healing and rehabilitation. The roots of Horticulture Therapy were established in the early 19th century by Benjamin Rush (William, S.)

1.4 Study Question

What are the experiences of participating in accessible garden of persons with Spinal Cord Injury?

1.4.1 Aim of the Study

To explore the experience of participating in accessible garden of persons with Spinal Cord Injury.

1.4.2 Specific Objectives

- To identify participants understanding about accessible garden.
- To investigate preferences of gardening as leisure or productivity.
- To investigate participants opportunities and challenges of participate in gardening.
- To know the future plan of participants about gardening after completing rehabilitation.

CHAPTER II : LITERATURE REVIEW

This chapter is an overview of the findings of some related literature that the investigator finds by searching Google Scholar and PubMed. This reviewed chapter discusses the Overview of Accessible Gardens for Persons with Disabilities, the Importance of Accessible Gardens for Persons with Spinal Cord Injury, Gardening as Productivity for Persons with Spinal Cord Injury, Psycho-Social Well-being and Gardening, and key gaps in the evidence.

2.1 Overview of Accessible Gardens for Persons with Disabilities

According to Jay (2021), an accessible garden is one that incorporates seven fundamental elements to ensure that consideration is given to all degrees of mobility and comprehension. Additionally, age, sensory capabilities, and safety considerations are included in this type of garden. People with disabilities include those who have chronic physical, mental, intellectual, or sensory impairments that, when combined with other obstacles, may prevent them from fully and equally participating in society (UNHCR). Jonasson et al. (2007) conducted a study on the experiences of people with neurological impairment engaging in training garden work. Results showed that the activities were perceived as beneficial, productive, voluntary, and complex. The research uses a qualitative technique with a phenomenological perspective. The study included four women and ten men who had been given a diagnosis of multiple sclerosis ($n = 3$), a brain tumour ($n = 1$), or a stroke ($n = 10$). On the basis of an interview guide, open-ended questions addressing the activity, training, its value, and the surroundings were asked throughout the interview. Performance and obtaining benefits depend on the fulfilment of certain requirements. The patient found working outside in the training garden to be useful (Kamioka and Tsutani, 2014). Activities

involving live things in a dynamic setting were interesting and fun. It was enjoyable and cosy because of the fresh air, sunlight, and plants. Working outdoors was a pleasant way to pass the time. Activities in the garden assisted them in their recuperation, both physically and mentally. According to the literature, the findings of this study may be advantageous and may also apply to other patient populations. In order to improve knowledge and experience in dealing with new problems, they advise more studies to be done on training gardens for various patient populations. According to Kamioka and Tsutani K (2014) after participating in a horticulture rehabilitation program, hemiplegic patients' self-esteem scale considerably increased while their functional independence measure improved. With 42 participants, they ran a randomised control trial. The study's goal was to assess how HT activities affected stroke patients' ability to recover from their injuries. They covered a variety of tasks like planting seeds, nurturing plants, and using vegetation. The literature demonstrates that those who engage in gardening activities benefit both physically and mentally.

2.2 Importance of Accessible Garden for Person with Spinal Cord Injury

Tigree and Moyo (2022) carried out a qualitative study with 21 individuals in South Africa who had physical impairments. Due to improper accessibility, participants have challenges when taking part in the gardening activity. This survey discovered that the majority of disabled people use wheelchairs, crutches, and/or special orthopaedic shoes and are either hemiplegic or paraplegic. Therefore, it is necessary to create an environment that is accessible so that people with disabilities can freely conduct themselves at work or in their communities. When they explain that environmental barriers impede people with physical disabilities' access to manufacturing processes and productivity, Moallim (2017) supports

these findings. They suggest doing a handicap audit to guide the design and specifications to increase access to the garden area in order to address the accessibility issue. According to (York & Wiseman, 2012) Gardening is a beneficial occupation, which is established through evidence that the natural environment, use of gardening activities, the social group, opportunities to redefine personal identity and roles through a natural process, and skill development increase well-being. Despite this activity analysis and gardening, and accessibility of the environment, remain a consideration. There is no study have not identified the experience of participating in gardening of persons with Spinal Cord Injury (SCI). Therefore, this finding will be helpful for persons with disabilities to engage in gardening if they implement an accessible garden for these persons and future studies must be focused on identifying the experience of participating in an accessible garden for persons with Spinal Cord Injury (SCI). Farmers with disabilities in rural areas in India faced difficulties in participating in their occupation due to a lack of information on effective worksite accommodation, and a lack of professionals trained on how to help people accommodate their disabilities. So, they need to take appropriate enabling measures to facilitate the farming activities of PWD, which includes providing assistive technology, modifying work sites, and equipment, and providing appropriate, and adequate training (Perumal & Rajaguru, 2016). Researchers discovered that the garden became accessible for the PWD through the use of raised garden beds to assist those with physical limitations and prevent bending and stooping, smooth, non-slip, accessible, and level paths, and the use of containers on wheels that can be moved around easily to accessible positions and to catch the sun. In this research, the researcher does not mention the data collection method properly.

2.3 Gardening as Productivity for Persons with Spinal Cord Injury

A quantitative survey about Person with Disabilities willingness for employment in horticulture sector was conducted among the users of the compensation to employment in Zagreb (Croatia). The convenient sample consisted of 236 respondents. Moric (2017) describes the preferences of persons with disability expressed their positive attitude toward horticulture sector as their potential employment. Majority of the respondents loved (88%) and staying in the nature (93%). Interest of employment in horticulture in relation to the other professions is 38.4% among these persons with disability. The study found that horticulture education and practice have a significant potential to improve the quality of life for people with disabilities in a number of ways, including as a great place to work, lowering the high employment rate for people with disabilities, and as an activity with significant benefits for their personal development, rehabilitation, and increasing the level of their life satisfaction (Morić, 2017). For the people with disabilities working in the community garden, the provision of jobs is a major positive factor

In order to better understand the contribution that community gardens make to the lives of people with disabilities as well as their communities as a whole, a qualitative study was carried out in rural Limpopo province. The evaluation of the social and economic advantages they have given to this population was one of their key goals. Through purposeful sampling, 21 volunteers were found. The number of disabled individuals was 19. Participants had to meet a disability-related inclusion requirement. To gather data that was then thematically analysed, face-to-face data were used. The main finding was that community gardens helped people with impairments be more economically and socially independent. To supplement their social grants, they have provided them with income

assistance. Additionally, they enhanced the standard of living for their families by providing jobs for their members (Tigere & Moyo, 2022). Beyond the previous literature review from 2003, a meta ethnographic technique was employed to collect findings from qualitative literature, interpret them, and synthesize the available data. The goal was to investigate the experience, significance, and implications of gardening as a profession. The study's findings showed that exercise improved physical health and fitness and had favourable effects on mental health (York & Wiseman, 2012).

2.4 Gardening as Leisure for Persons with Spinal Cord Injury

Leisure time is an economic category that has its utility and helps diagnose the processes of development (Bombol, 2008). Leisure time encourages and accompanies the processes of individual and social development as well as economic. Chun and Lee (2010) conducted a study in Canada to know the role of leisure in the experience of posttraumatic growth for People with Spinal Cord Injury. The goal of this study was to investigate how leisure affects posttraumatic growth (PTG) in individuals with spinal cord injury (SCI). To examine the PTG characteristics of 15 participants, including two negative cases, in-depth interviews were used. The results of the thematic analysis showed that leisure influenced at least four aspects of life experience, which were directly related to four emergent themes: (a) providing opportunities to discover one's strengths and abilities; (b) promoting companionship and meaningful relationships; (c) making sense of traumatic experience and finding meaning in daily life; and (d) leading to happy feelings. According to this study, meaningful participation in activities is essential for having PTG.

A quantitative study was conducted to specify the ways of using leisure time in the context of occupational activity by the disabled people who lived in rural areas in Lubelskie Voivodship (Poland). The survey technique was used for the research. 5000 respondents between the ages of 16 and 65 made up the research sample. The selection of research sample for quantitative research was carried out using a randomized selection method. 39,9% of total participants worked in the garden as a way of spending free time on the weekdays. 7,2% perform gardening as the ways of spending leisure time at weekends. 57,1% perform gardening activities as the way of spending leisure time on working days by occupationally active disabled people. 10,0% perform gardening as the way of spending leisure time at weekends and bank holidays by occupationally active disabled people. 26,7% was the way of spending leisure time on working days by disabled unemployed people. Way of spending leisure time on working days by occupationally inactive disabled people who perform garden activities was 42,6%. On weekdays, a popular way of spending free time is gardening(Dąbrowski, 2015). Another cross-sectional quantitative study was conducted in Canada with the purpose to describe the types, intensities, and average duration of leisure time physical activities (LTPAs) performed by people with chronic Spinal Cord Injury (SCI). Participants of the study were 347 persons with SCI both male, and female. They collected data by telephone survey. Participants spent an average of 6.06% of their awake time on LTPA.30% of the persons with SCI performed garden activities as mild or moderate intensities of activity(Kathleen A. Martin Ginis et al., 2010)

2.5 Psycho-Social Wellbeing and Gardening

Soga et al., (2017) provided evidence of the positive effects of gardening for health. The health and social functioning of people can be enhanced by regular gardening. A case study on the impact of a gardening therapy group on wellbeing was undertaken by Joyce & Warren (2016). Semi-structured interviews were used to perform the study. The data were examined using thematic analysis. Six people are involved, including three mentally ill men and three mentally sick women. The influence on wellbeing and the mechanics of wellbeing are the two key themes used to analyse the research outcomes. Promoting coping, encouraging change, and building skills help participants find their wellbeing. Some participants described how their gardening skills improved and this gave them a sense of well-being and confidence to take leadership. As the goal of the study is to create a case study focused only on mental health, other conditions including physical disabilities may be included. Additionally, they advise increasing the participant count and doing the study on different sites for the future research. The favourable effects of private garden access, gardening, and other garden uses on wellbeing and physical activity levels were discovered in a representative sample research of the English population, demonstrating the relationship between gardens and health and wellbeing outcomes(Sian, 2020). The Monitor of Engagement with Natural Environment (MINI) survey, a representative study of the English population (n=7814), provided the secondary data that was used to analyse this data. These findings have significant ramifications for the design and growth of metropolitan areas, and they show that, in addition to publicly accessible green spaces, a private green space may be necessary. They also show that gardens are good for the public's health, which clarifies even more how they might aid people in meeting their physical activity goals and fostering wellbeing. Participants within the studies by Fieldhouse (2003),

Sempik et al (2005b) and Jonasson et al (2007) consisted of people who had experience of living with an illness or disability. Commonalties within this groups had a democratising effect, with individuals feeling equal to one another. Within the harmonizing effect of equality, people related to each other more easily, shared their experiences and generated personal narratives (Fieldhouse 2003, Sempik et al 2005b)

2.6 Accessible Garden and Occupational Therapy

Wagenfeld and Atchison (2014) conducted a study in the US with the goal of examining the impact in order to evaluate the use of gardening as an Occupational Therapy practitioner in diverse practice contexts. The respondent for the study was chosen using a nonprobability convenience sampling technique. They made use of a web portal where users could send an email with a brief summary of the study. The study's participants were encouraged to communicate their participation with another OT they may have known. Ninety-one OTs replied to the online invitation to do the survey at the beginning stage. Following the inclusion and exclusion criteria, 31 participants were excluded. For this study's specific question, 60 respondents were still present. So, the specific question of employing gardening as an OT intervention was reported based on the participation of 60 participants. Two knowledgeable gardeners created 15 open-ended questions. To convey the survey of gardening, open questions were designed. Descriptive statistics were used to analyse the data. According to the findings of this study, gardening was an effective OT intervention. 56 people participated, and the rate was 93.66%. 48 participants, about 60%, found it to be inspiring. Additionally, gardening was enjoyable for 19 participants, about 31%, of the total. Due to the client-centred nature of occupational therapy, the gardening client-centred practice (31.67%, n=19) was the most significant finding. Gardening was

used frequently as a therapeutic intervention, and practitioners were heavily involved in the garden's design. This study questioned a convenience sampling of clients and patients across all practice areas to assess the effectiveness of OT practitioners using gardening as a meaningful and purposeful intervention. This was the study's limitation. They recommend that further study should be to evaluate the effectiveness and efficacy of gardening as a client centred meaningful and purposeful activity for occupational therapy and engagement in the design of the garden. They also recommend that further study is equally important should be phenomenological study because the meaning and value that gardening as a therapeutic intervention offers to the clients with whom Occupational Therapists work will be clarified by phenomenological research projects.

A non-pharmacological intervention that incorporates the multidisciplinary team is leisure gardening (MDT). Gardening was identified by the Occupational Therapist (OT) as an appropriate activity. Occupational Therapists (OT), and Occupational Therapist Assistant (OTA), became involved to organizes garden activities (Spring et al., 2010). The Garden is an occupation-based treatment. Among the benefits of gardening include lower stress on the autonomic nervous system, improved concentration and physical capacity, a stronger sense of self-satisfaction, diminished aggressive behaviour, and pleasant social interaction (Pong, 2018). Creating or supporting possibilities for a vocation that leads to participation in desired life settings is the primary goal of Occupational Therapy (AOTA,2014). These studies showed that there has a role of Occupational Therapy in garden activity but they have not mentioned what type of patients they provided garden therapy and also the garden was accessible for the patients or not.

2.7 Key Gaps in the Literature

- Among the literature reviewed by the investigator, six articles discuss gardening for persons with disabilities. They work with physical disability, not SCI. Two of them mention the type of disability that was stroke and neurological damage. Mental disorders and dementia also discuss in another article. One of them work with SCI patients who are farmers and the researcher want to find out the barriers of the worker to modify their working area, not want to know their experience of working in an accessible garden.
- Four of them were qualitative studies, one was a retrospective and prospective inception cohort study, one of them was survey research, and two were Randomized Control Trial (RCT). However, some of the studies did not mention the methodology of the study properly.
- These studies were conducted in the United States, South Africa, Poland, Croatia, and India. But no study on this topic has not conducted in Bangladesh.
- Most research conducted in a prior decade.

Most of the study focused on the benefit of gardening for persons related to different types of mental health illnesses. A few studies discuss gardening for persons with physical disabilities. Also, didn't explore their feelings and experience about their gardening. No study has been done in Bangladesh on experience participating in accessible garden of persons with spinal cord injury.

CHAPTER III : METHODS

3.1 Study Design

3.1.1 Method

For this study, the investigator selected a qualitative methodology. Qualitative research aims to comprehend concepts, viewpoints, or experiences by gathering and examination of non-numerical data (such as text, video, or audio). It can be used to learn adequate information about a subject or generate new ideas for further research (Vandari, 2020).

3.1.2 Approach

Phenomenological approach was used for this study. It describes the common meaning that an idea or phenomenon has for a number of people based on their particular lived experiences. Physicists concentrate on describing what all participants do. something in common while they go through a phenomenon (for instance, grief is felt by everyone). Phenomenology's main goal is to distil unique encounters with phenomena into a description of their shared essence. In this study, the investigator investigated a phenomenon or event by describing and interpreting participant's experiences. So, this approach helped the researcher to identify participant's experiences about gardening (Fossey et al., 2002).

3.2 Study Setting and Period

The investigator collected data from the halfway hostel of the SCI unit of CRP. To serve the needs of persons with disabilities, the Centre for the Rehabilitation of the Paralysed in Bangladesh started its journey in 1979. CRP has a comprehensive strategy for rehabilitation

and community reintegration, with 306 people receiving services and 215 discharged (Annual report of CRP 2021-22). Occupational therapy improves functional skills and knowledge, and CRP's extended gardening program provides independence and self-assurance for the person with SCI. Two Occupational Therapy volunteers (Fatema Tuj Johra and Karen Healslip) at the Centre for the Rehabilitation of the Paralysed (CRP) have introduced an accessible garden for Spinal Cord Injured (SCI) patients. The garden was established in 1999. In 2014 this garden has become accessible for persons with disability and was redesigned in 2019. It is accessible for the person with Spinal Cord Injury with raised garden bed, wheelchair-accessible road, and modified and adapted garden tools. Occupational Therapists engage the patients in meaningful and purposeful activities so they can perform these activities in their community. The activities of this garden are weeding, pouring water, seeding, taking care of flowers, and growing vegetables. Also, many group activities and garden parties are arranged here to improve the psychosocial well-being of SCI patients. There are four stages. Acute stage, active stage, rehabilitation stage, and community re-integration stage in the SCI unit. Gardening starts when patients are in the active stage. Patients are planned for a minimum of seven to ten sessions of gardening activities for 1 hour. According to the Annual report of CRP (2021-22), 278 gardening sessions were conducted in this garden.

3.2.1 Study Period

The study was conducted from April 2022 to February 2023.

3.2.2 Data collection period

Data was collected from 31st October 2022 to 30th November 2022

3.3 Study Participants

3.3.1 Study Population

The population of the study was the person with Spinal Cord Injury (SCI) in Bangladesh.

3.3.2 Sampling Techniques

In statistical analysis, the sampling method involves selecting a specific number of observations from a larger population (Tuovila,2020). In this research, the investigator used purposive sampling procedure under non-probability sampling to conduct this study. purposive sampling is a non-probability sampling technique When choosing individuals, circumstances, or processes based on theoretical considerations, it seeks to select appropriate information sources to explore meanings and create theory as data analysis proceeds (Fossey et al., 2002). Non-probability sampling is a branch of sample selection that employs non-random methods to choose a group of people to take part in the research. It is described as a sampling technique in which samples are chosen based on the researcher's subjective assessment rather than by random selection (fromplus,2021).

3.3.3 Inclusion Criteria

- People who have participated in gardening for 5-7 days of sessions 1 hour per day.
- Participants who are in rehabilitation phase.

3.3.4 Exclusion Criteria

- SCI patients who are in the acute stage.

3.3.5 Sample Size

Eight participants both male and female were selected for this study who have been receiving treatment from CRP.

3.3.6 Participant's Overview

In this research, five participants were the only earning member of their family. Three had not any family responsibility as they were student. No participant had not any other physical issues like high or low BP or diabetes. Except for one participant, he had high BP. There had total eight participants. Seven of them were male and one was female participants.

Table 3.1

Participants Overview

Pseudo name	Age	Types of injury	Year of injury	Previous occupation
Ithar	41	Paraplegia	2019	Carpenter
Russel	17	Paraplegia	2022	Student (HSC)
Amir	37	Tetraplegia	2022	Farmer
Lisa	22	Paraplegia	2022	Student (Nursing)
Zihan	32	Paraplegia	2022	Day labour
Zoel	40	Paraplegia	2021	Job
Ivan	38	Tetraplegia	2001	Unemployed
Omar	19	Paraplegia	2021	Student (HSC)

3.4 Ethical Consideration

According to Helsinki, (2013)

Informed consent

At first, the investigator seeks permission from the Institutional Ethical Review Board (IERB) through the Department of Occupational Therapy, Bangladesh Health Professions Institute (BHPI). All participants were informed about the aim of the study by proving consent form. The investigator also provides them withdrawal form. Participants were informed about the withdrawal process if they want to withdraw any of their information they had that opportunity.

Unequal relationship

The investigator had not any kind of relationship with the participants. Before data collection researcher does not know the participants.

Power relationship

The investigator had not any power relationship with the participants.

Risk and beneficence

Investigator did not force participants to participate in the study against their interest. Investigator was ensured the participants that they would not be any kind of harm by their participation and they had not any risk in this. Participants also understood that they will not directly be benefited from this research. However, the results from the study will help authorities plan an effective garden for people with SCI.

Confidentiality

Confidentiality was maintained to all of the information received from participants. Only the investigator and supervisor had access to the interviews and this was clearly stated in the information sheet.

3.5 Data Collection Process

3.5.1 Participant Recruitment Process

The investigator went to the SCI unit of CRP to seek permission from the head of the department of SCI unit to conduct the interview. Also, the investigator took permission from the responsible Occupational Therapist of the garden. After getting the permission investigator reached participants who lived in the halfway hostel and selects participants who participated in the garden activities. After taking interviews from eight participants, the same theme came out repeatedly and the investigator stopped collecting data when the data has saturated.

3.5.2 Data Collection Method

Data was collected by the investigator using semi-structured face-to-face interviews. It is a technique for gathering information by directly asking a few questions to the participants. Many qualitative researches involve the collection of data through participant interviews. The most direct and easy way to obtain rich, in-depth information about a particular event is through interviews. The sort of interview that is used to gather data can be customized to the research question, participant characteristics, and the researcher's preferred method. The majority of interviews are conducted face-to-face, while phone interviews are sometimes used to get around geographical restrictions. (Barrett & Twycross, 2018). The

entire interview was conducted in Bengali. The researcher travels Physically to the participant's location to conduct this face-to-face interview. To clearly understand the questions, investigator explains the question in Bengali to the participants. The interview took an average of 15 to 25 minutes. Before starting the interview, investigator informed the participants about the consent form and information sheet. Also, the consent form was signed by them. After that, the investigator collected the demographic information from the participants. When completing the process investigator started asking question according to the interview guide.

3.5.3 Data Collection Instrument

A Self-developed semi-structured interview guide was used in the study for conducting the research. These questions aimed to find out in-depth information from the participants about the experience of participating in accessible gardens of persons with SCI.

3.5.4 Field Test

The investigator has completed one field test before starting the data collection. It was important to find out possible difficulties of the question which might barrier the research question to find out accurate data. It helps the investigator to develop a final question and to collect data from participants easily. It also helps the researcher to clarify the data collection plan. After conducting the field test researcher was find that way how the participants understood the question easily and which patterns of questions give the accurate answer. For this test researcher re-arranged and modified the question as required for the participants.

3.6 Data Management and Analysis

Thematic analysis was chosen by the investigator to analyse the data. A technique for finding, analysing, and reporting patterns (themes) within data is thematic analysis. The data set is richly and thoroughly described while being slightly organized. When attempting to comprehend a group of experiences, thoughts, or behaviours present throughout a data set, thematic analysis is a suitable and effective strategy to employ. In this method, the researcher may use inductive or deductive methods to identify themes (Braun & Clarke, 2012). TA performs the following six steps: familiarize themselves with the data, create initial codes, look for themes, examine themes, define and name the themes, and provide reports (Boyatzis, 2009).

Table 3.2*Overview of data analysis*

Phases	Description of the process
Familiarising yourself with your data	Investigator collected data by herself. Investigator listened to the interviews several times from the phone recorder, then the data was transcribed into Bengali. These data were checked by investigator to make sure that all data were available in the transcript. By repeatedly reading the data, investigator tried to understand the meaning of the patterns of the data.
Generating initial codes	In this stage, investigator generated the initial data and accumulated data relevant to each code.
Searching for themes	In this stage, investigator searched for a theme by collating the data and searched for the sub-theme under the main theme when it was necessary.
Reviewing themes	Investigator has reviewed the themes to check that themes are actually matched with the codes.
Defining and naming themes	In this stage, investigator defined the names of each themes to identify what each theme is about.
Producing the report	At this last stage, investigator produced the report according to the theme.

3.7 Trustworthiness

Trustworthiness was maintained by following methodological rigour and interpretive rigour (Fossey et. al, 2002). The steps are as follows:

A. Methodological rigour

- Qualitative phenomenological study was the perfect fit for designing this research because the study aimed to identify the experience.
- Face-to-face semi-structured interview fit with the method. To gather detailed and rich data regarding a particular phenomenon
- The investigator became familiar with the context through verbal communication with participants.
- Investigator selects eight participants using purposive sampling focusing on participants characteristics associated with research study.
- Data were collected by semi-structured face-to-face interview according to the research question.
- The field test has been completed to assuring the research question and to get accurate data.
- Detailed information was provided at every point of the research method.
- There was no one else did the data collection except the investigator.
- There have not biased data because during the interview researcher always tried to avoid leading the answer.
- Data were analysed by Braun and Clark's six step.

- The transcripts were translated by another three individuals to avoid biases and investigator rechecked the translation with the Bangla transcript to reduce any mistakes.
- Data were transcript into the Bengali language because this is the first language of our country and were translated into English to fulfill the academic requirement.
- Participants data were coded accurately and checked by supervisor to eliminate any possible error.

B. Interpretive rigour

- Participants views and voices were presented by verbatim quotation to ensure the authenticity of the data.
- There was no power relationship between investigator and participants.
- Most of the answer of participants was summarised by investigator to the participants.
- Data was analysed by thematic analysis so there is no possibility to miss any major part of data.
- Data analysis met the objective that had to find out. Also, there are important findings outside of objective.
- The findings of this research fit with the data which the investigator collected from participants.
- Investigator never tried to include her own belief, values, and perception. All of answers from participants were accepted whether they were positive or negative impression.
- All the processes were supervised by an experienced supervisor who provided a multiple view of data.

CHAPTER IV: RESULTS

In this chapter, the result is analysed by theme. Eight broad themes emerged from data analysis, those are: Understanding about accessible garden, Components of accessible garden, Motivation about gardening, Preference, Usefulness during rehabilitation, New experiences after gardening, Difficulties during rehabilitation, and participant's opinion about garden. Every theme has sub-theme except theme one, three and seven. Those are described as below.

Table 4.1*Overview of Result*

Theme	Sub theme
Understanding about accessible garden	
Components of accessible garden	Raised garden bed
	Wheel chair accessible road
	Modified tools and equipment
Motivation about gardening	
Preference	Leisure
	Earning source
	Family need
Usefulness during rehabilitation	Mental wellbeing
	Improvement of body function
	Engagement in meaningful work
New experiences after gardening	Planting in small space
	Planting from wheelchair
Difficulties during gardening	
Participant's opinion about garden	Growing more local vegetable
	Planting scented flower
	Increase participation
	Different method of gardening

4.1 Theme One: Understanding about Accessible Garden

Most of the patients do not understand about the meaning of accessible garden but they have idea about accessible garden that there has some difference between CRP's garden and another garden. Participants with SCI explained the accessible garden in which everyone can enter. They entered the garden and came out from there without any difficulties. From this point of view, they understood the garden is an accessible garden. Some of them understand about accessible garden is special design that is different from others garden. Ivan said-

“Those who are able-bodied, they are free to enter any garden but the people who use wheelchair are unable to enter any garden without special facilities. For the benefit of patients those gardens are made as it can possible to enter the garden with wheelchair but other gardens are not accessible with wheel chair”

4.2 Theme Two: Component of Accessible Garden

All of the participants shared their experience about the components of the garden those components make their participation in garden activity. It is an important aspect for a person with SCI to ensure their better engagement in garden activity. Participants mentioned about raised garden bed, wheelchair accessible road, modified tools and equipment, and about shape of the garden in this study.

4.2.1 Sub-Theme One: Raised Garden Bed

Participants mentioned that the main work of garden in the mud. As this space is raised with brick so they can easily reach the plant without bending. Ithar said -

“There are many advantages in this place like because of the height. I can do the work from sitting in the wheelchair. It is difficult to work in low places but now it is easy to me to work with a wheelchair”

4.2.2 Sub-Theme Two: Wheelchair Accessible Road

Some of the participants found the accessible garden as they can go to every tree with wheelchair without any difficulties. Lisa state-

“There has a separate road for wheelchair person those are made of brick. Then the garden is not too big in size again not too wide in width. Those roads are arranged in such a way that they can work easily. Also, these roads are not too far. Every road is little bit closer so that they can move around with wheelchair”

4.2.3 Sub-Theme Three: Modified Tools and Equipment

Participant reported that they work with that garden tools which they liked and easy for them. Omar said *“it is convenient to work with the accessories of this garden. They are tall enough to accommodate wheelchair”*

4.3 Theme Three: Motivation about Gardening

Most of the participants shared that they are highly motivated to perform garden activities. Participants stated that they did not feel any extra burden or stress during participate in garden activities. They want to go to the garden by themselves also therapists encouraged

them to participate in gardening. Ithar said *“First day I went to the garden with sir and then I liked the activity. I expressed my feelings that I liked it very much. Then I was called to participate in this activity everyday”*. One of the participants states *“I tried to come to this after one or two days even if I cannot every day”*. They also said that most of the activity was chosen by them. In the garden there had many tools, which tool they were capable to use they selected them and worked with.

4.4 Theme Four: Preference

Each participant has different preferences about gardening. In this research participants shared their preferences that how they want to gardening in future. Most of the participant prefer gardening as leisure. Some of them prefers as the way of fulfil family need partially. Many of them like the garden activity as income source along with leisure.

4.4.1 Sub-Theme One: Leisure

A common view amongst participants was that the preference of garden activity as part of recreation. After SCI a person becomes almost bed ridden. They cannot go anywhere for their refreshment. So, the participants enjoyed the garden activity much more as their leisure activity. Five participants among eight reported that they like to garden as they enjoy the garden to see the flower, tree, leaves and these gives them pleasure and joy. Lisa said-

“Gardening is a part of entertainment for me. Because when people go to the garden, the mind becomes better. It means that mind will be good and can be connected with the work again”.

4.4.2 Sub-Theme Two: Earning Source

Income source is a most important thing for person with SCI. As most of them cannot go to their previous occupation so two of the participants shared their preferences the gardening as the way of earning source. They found the garden beneficial as their earning source. Ithar said-

“Gardening will be beneficial as an earning source. It will useful because if I learn this job, then if I go to work in another place with a wheelchair, they will pay for my attendance. With the attendance money, I can buy food and eat with my children”.

4.4.3 Sub-Theme Three: Family Need

Those who have not the enough spaces to gardening as large range they can garden in small range to meet their family needs. Zihan said-

“there is an opportunity to earn some money. For example, if I grow some vegetables in my home I will use these vegetables for my meal. I do not have to buy these vegetables from market. So, I can partially fulfil the need of my family and save the money”.

4.5 Theme five: Usefulness During Rehabilitation

Gardening activities is very important for the persons with SCI in many aspects. Participants find the importance of gardening as improvement of body function, mental wellbeing and engagement in meaningful work. A small number of participants mentioned the usefulness of garden during rehabilitation as implication of learning for future garden activity.

4.5.1 Sub-Theme One: Mental Wellbeing

Gardening is good for mental health. In garden working with other people have reduced the isolation. Participants reported that they can mentally satisfied when they saw the people like them leading a mentally healthy life when they work in the garden. They can share their experiences with others, can share their joy and sorrows also. The environment of garden gives them pleasure and provides chirring. All participant found the benefit of garden as a medium of mental wellbeing except one participant. Participant 6 said that- “I do not think that gardening can provide me mental wellbeing when I became upset or worried about my condition”. Zihan said -

“I feel very good about gardening. For example, if I had slept at home that time, I might have felt upset. Alas! because of accident, I still cannot walk like previous. I cannot play. I am lying down. But when I go to work in the garden then the thoughts, worries, depression do not come to my mind. There were some others in the garden and I worked together with them and I like it”.

4.5.2 Sub-Theme Two: Improvement of Body Function

The majority of the participants stated that the garden activity is beneficial for health in their current situation. As they do not do any work for long period time it is important for their physical movement. Ithar said *“If I do not work my bodies strength starts to decrease, blood circulation starts to stop. And if I work then the blood will circulate properly, muscle strength will be improved”*. Omar said -

“If I want to work in garden, the work will not be done sitting down. If the balance is good, then the work can be done. When I want to do it now, the balance will be improved. Those who have poor strength of hand will be also improved”.

4.5.3 Sub-Theme Three: Engagement in Meaningful Work

Weeding, watering, cultivating is the activity of garden. Participants performs these activities. When there have growing some vegetable or fruits they can take these vegetables and fruit as their meal. At this point of view, they find the gardening is meaningful work. As they do not do anything meaningful for long period of time they found the gardening is a great participation in meaningful work. Zihan state -

“gardening is meaningful to me. Because I planted a tree, even if I cannot eat the fruit, whoever comes in my place can see it or eat it. Like today I brought green chillies from the garden and ate them in lunch. Similarly, if I plant a vegetable that I cannot eat, I feel happy that those who come later can eat it”.

4.6 Theme six: New Experience After Gardening

Gardening experience is common for most of the person but working in an accessible garden was new experience for the person with SCI. In this study participants shared their experiences those they learned from this garden and can be implement after rehabilitation when they return to their home.

4.6.1 Sub-Theme One: Planting in Small Space

All participants reported that they have not enough land to cultivate like CRP's garden. But they inspired to do the garden activity at the place around their house. They learn how to cultivate in a small place using adopted method. Some participant said that they will make their garden in the roof of their house. Joel said -

“I have learned from this garden that the experience of planting tree in containers or plastic bags is not the same as what I planted in my village. Earlier I had large land for cultivating, I was cultivated at those land. It is a big difference if I compare it. This is new experience for me. Now I will plant different types of local vegetables in nearby land of my home by using old buckets or plastic bags. There have also the possibility to grow trees. Thus, I can be able to eat these vegetables”.

4.6.2 Subtheme Two: Planting from Wheelchair

Most of the participants reported that they did not know gardening is possible even becoming a wheelchair person. This is also a new experience for a person with SCI. After participating in CRP's garden, they got the idea. Lisa said -

“gardening is most useful for me because I will return to home after rehabilitation. I do not know earlier of my accident that how to do garden becoming a wheelchair person and how to use the modified garden tools. Now I learn all these activities and will be able do in my home”.

Another participant expressed the same experience about planting form wheelchair. Joel said -

“This is a new experience for me that I work in garden sitting in a wheelchair. Earlier, I used to sit or stand and work in garden. So, I cannot sit here and work like that. I work in a wheelchair. When I will return to my home I need to modify the road for wheelchair accessibility. Then I will able to work in garden with wheelchair. If the soil is tender, it is hard to drive wheelchair”.

4.7 Theme seven: Difficulties During Gardening

Despite so many accessibilities for the person with PWD there have some difficulties for them. However, they did not take account these difficulties as the barrier for them to participate in garden activity. One of the participants said that- “there were no difficulties but it was sunny to work in the garden”. No participant faced difficulties to work in the garden. Only one participant reported that he faced some difficulties doing gardening. Omar said-

“I think the major problem is that if a tree is so far away then the hand cannot reach that place and in that case the trees cannot be serviced. For the other difficulties in the garden their have some sharp accessories. As I am a SCI patient and have some sensory issues so I cannot able to feel the pain if there occur any cut in my body part”.

4.8 Theme eight: Participant's Opinion

After participating in accessible garden, all participants have some recommendation for this garden. They shared their opinion for the betterment of future participant who will work in the garden. They provide advice for planting more seasonal vegetables, planting more scented flower, increase the participation and adopting different and new method of gardening. Only two of the participants had not any recommendation for the CRP's garden.

4.8.1 Sub-Theme One: Growing Local Vegetable

Two participants among eight reported that there are many spaces in the garden in which no tree is planted. If the land covered with seasonal vegetables it would be better for the patients. Ithar said *"Now as winter season is coming, if there are some vegetable like eggplant, ladies-finger, coloured vegetables here these vegetables can be raised and sold or it can be food for patients"*. Zihan said -

"Patient will be benefited if there grow more vegetables and use them as meal for patients. Because there are many vegetables from outside, they can give many harmful fertilizers. Here we can make it ourselves so it will be very useful for us".

4.8.2 Sub-Theme Two: Planting More Scented Flower

SCI patients have sensory issues. One of the participants faced difficulty to get smell because of poor olfactory sense. Also, as the garden is the place of entertainment and the place of natural beauty some of the participants recommended to planting more scented a coloured tree of flower. Ivan said - *"I cannot get much smell of flower in the garden. There should increase planting the scented flower in the garden"*.

4.8.3 Sub-Theme Three: Increase Participation

Gardening is most effective leisure activity for the person with SCI. They need to participate this activity from ward level. Most of the participant said that they would be more benefitted if they get the chance to work in garden earlier they admitted at CRP. Ivan said that “Participation have to increase. Because in the ward often the patients have not in well mind. But if they have engaged in garden activity their mind will be refresh and they will feel better”. Lisa stated -

“I think the garden is useful in every way for the patients. But it would be better to have the garden activity every day. If selects a time schedule in which time every patient will engage in garden activity it would be better. Even if it is not possible to take everyone to the garden regularly, it is better making a group. There are nobody seeing the garden and does not make the mind feel good. Everyone will love it”.

4.8.4 Sub-Theme Four: Different Method of Gardening

One of the participants recommend to planting in water as this is the new and inventory process for Bangladeshi peoples. It saves space and become a new employment for young group of people. Omar said -

“I have seen it online, nowadays different types of flowers even vegetables are growing in water. In the soil require a lot of work, if it can be done in water, everyone can do it. There have not much weeds and yield are good in this way”.

CHAPTER V : DISCUSSION

5.1 Discussion

The study presented here the experience of participating in accessible garden of persons with Spinal Cord Injury (SCI). Eight persons with SCI participated in this study. The study identified eight themes that emerged from the transcript of the participant.

The study showed that most of the participants do not understand about the meaning of accessible garden. A similar result has been published in previous literature conducted in India, farmers with disabilities of rural areas in India faced difficulties participating in their occupation due to a lack of information on effective worksite accommodation, lack of professionals trained on how to help people accommodate their disabilities (Perumal and Rajaguru,2016). This current study found that Participants with SCI explained the accessible garden which everyone can enter. According to Writer (2021), many places contain dangers that can make them unsafe for those with mobility impairments, such as steep slopes, steps, and uneven ground. However, there are many ways to establish a safe environment that is accessible for everyone, regardless of disability, and can work with minor changes in structure and design. Accessible gardens for people with disabilities are created to give people of all ages and abilities access to gardening activities or just to provide a garden experience, enabling full participation in the enjoyable activity of growing plants. (Landscape-Water-Conservation, 2019).

This current study found that there are some components of the accessible garden those components make their participation easy in garden activity. These components are raised garden bed, Wheelchair accessible road, modified tools, and equipment. This is a new

finding as there is no study done on the experience of participating in accessible garden of person with SCI.

This research finds that participants are highly motivated to participate in gardening activities. They voluntarily participated in the garden activities. A similar study has shown that patients' participation of garden was voluntary. Researchers found that if the patients grew too exhausted to do anything or if there was pressure, they were not interested in planting (Jonasson et al., 2007).

In this research, the researcher found that participants prefer the garden activity as leisure because this activity helps them to come out from difficult life situations. Previous research found that the participants like work in garden as leisure because working with plants relaxes them and gives them a sense of satisfaction (Morić, 2017). In this research, the researcher found that the participants prefer the garden activity as one of their earning sources. This result is similar to a study in South Africa. They found that people with disabilities are capable people who can transform their livelihoods both socially and economically if given the necessary support (Tigere & Moyo, 2022).

Participants found the importance of gardening as an improvement of body function, mental well-being, and engagement in meaningful work during their rehabilitation. Several reports have shown that gardening is beneficial for the improvement of body function for PWD. Researcher also found the similar result in this study. Previous research found that the changing environment was enjoyable for both body and mind of the participants. Garden activities helped them in their recovery not only physically but also mentally (Jonasson et al., 2007). Patients with strokes, paralysing injuries, and many similar

diagnoses are being treated in horticultural therapy programs in many locations around the United States (Bales, 1995). Although the psychological benefit of therapeutic horticulture has already been explored, this study is unique in that no study has reported any result on mental health of a person with SCI during participation in gardening. A study in America reveals the results that there is a negative relationship between gardening and depression (Wilson & Christensen, 2012).

In this study, participants reported though they have not enough space for gardening as large range in their community but they will perform this activity which they learn from CRP by implicating their knowledge about how to garden in a small place. participants reported that they have experienced something new which they did not experience earlier before working in this accessible garden. If we see the previous literature, no study has previously been conducted about exploring the experience of persons with Spinal Cord Injury (SCI) working in an accessible garden and what are their new learning from accessible garden. So, this is the new findings regarding this research.

The result of a study conducted in 2022 is the accessibility challenges raised by the participants that present barriers to work in the garden of persons with disabilities. This therefore requires an accessible environment so that persons with disabilities can participate in garden activities without any difficulties (Tigere & Moyo, 2022). Another study shows that persons with disabilities cannot easily move around within their environment because of the inaccessible nature of building roads and transport systems (Abdullahi & Ahmed, 2017). These results are dissimilar with existing research that the participants did not face any accessibility challenge during their garden participation. Most of the participant's difficulties are very minor for them.

This study result showed the participant's opinion to participate the garden activity regularly. This finding is similar to the Gardening that can be offered in the acute phase of injury, when patients cannot use a wheelchair, at a later stage in their treatment journey, patients would go to the garden in their wheelchairs(Chapple, 2103). In addition to this finding another opinion was that the participant's opinion to further development of accessible garden is to adopt new cultivating ways. Hydroponics has become popular among many disabled and elderly gardeners across the world, as well as hobby gardeners who simply find it fascinating to grow plants without soil, or through application of technology (Hydroponics).

The overall findings of this study help us to understand the importance of garden activity for a person with SCI. Participant's opinions about this garden may help the health professionals to decorate the garden in more effective way for the participants. Those difficulties they experienced during participating in garden activities upcoming patients may be benefited from these findings if authority and health professionals take account these. Further research should be done to investigate the environmental barrier of person with SCI to participate in garden activities in their community. Moreover, the rate of SCI participants who participate in garden activities.

CHAPTER VI: CONCLUSION

6.1 Strength and Limitation

6.1.1 Strength

- ✓ Investigator has followed the QOREQ guidelines to conduct this study.
- ✓ This research followed the proper method to achieve the aim and objective.
- ✓ Useful for a large number of populations.

6.1.2 Limitation

Every study has some limitations and some of the limitations are not in the researcher's control. There was some limitation that the researcher considered during the study period.

- ✓ Due to a lack of interviewing skills as a student researcher, there would be any mistakes.

6.2 Practice Implication

Nowadays Occupational Therapists are one of the major parts of Horticulture Therapy providers. Our OT professionals can develop their profession by increasing their knowledge about horticulture therapy. Also, leisure is an important component of Activities of Daily Living (ADLs) in Occupational Therapy. Garden activities should be provided in a more structured way.

6.2.1 Recommendation for Current Practice

- ✓ Participants cannot participate in garden activities regularly because some of them have other individual therapy sessions at that time. So, there should maintain a proper time schedule for gardening.

- ✓ According to CRP's current practice participant's gardening program starts from their active stage but most of the participants get the chance to participate in gardening program at halfway hostel. Current practice should be implicated effectively.

6.2.2 Recommendation for Further Research

- ✓ Further study should be undertaken to investigate the environmental barrier to participating in the garden activity in their community.
- ✓ Further research is recommended to evaluate the effectiveness and efficiency of gardening as a client-centered, meaningful, and purposeful activity for Occupational Therapy and the engagement of Occupational Therapists (OTs) in the design of the garden.

6.3 Conclusion

The study found that the activities in an accessible garden were experienced as beneficial for physical and mental health. Occupational Therapists can be encouraged to use this accessible garden as an additional setting for training persons with SCI. In addition, the results can be useful in clinical work and can be applied to another group of people. The findings indicate that gardening activities are highly meaningful for the person with SCI. Gardening can contribute to engagement in meaningful work, enjoyment, independence, and engagement in productivity. Gardening is an important activity for SCI patients which covers two areas both leisure and productivity. It is useful for their rehabilitation for physical improvement as well as mental well-being. Assisting healthy living is an important aspect of rehabilitation. After experiencing garden activities participants found the importance of gardening and most of them were interested to perform this activity after returning home. Participants learn how to make their garden accessible to them. Gardening activities help the person with SCI to improve their quality of life and to achieve their rehabilitation goal. To ensure a better experience of gardening health professionals need to provide more effort and plan an effective gardening program.

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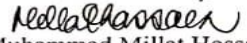
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APPENDICES

Appendix A: Approval Letter and Permission Letter

Approval Letter for Conducting Research

	<p>বাংলাদেশ হেল্থ প্রফেশন্স ইনস্টিটিউট (বিএইচপিআই) Bangladesh Health Professions Institute (BHPI) (The Academic Institute of CRP)</p>								
Ref:	Date:								
CRP/BHPI/IRB/09/22/646	28 th September, 2022								
<p>Taslima Akter 4th Year B.Sc. in Occupational Therapy Session: 2017-2018, Student ID: 122170295 BHPI, CRP, Savar, Dhaka-1343, Bangladesh</p>									
<p>Subject: Approval of the thesis proposal “Experience of participating in accessible garden of person with Spinal Cord Injury” by ethics committee.</p>									
<p>Dear Taslima Akter, Congratulations. The Institutional Review Board (IRB) of BHPI has reviewed and discussed your application to conduct the above-mentioned dissertation, with yourself, as the principal investigator and SK. Moniruzzaman Associate Professor and Head of the Department as thesis supervisor. The Following documents have been reviewed and approved:</p>									
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Sr. No.</th> <th style="text-align: center;">Name of the Documents</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td>Thesis Proposal</td> </tr> <tr> <td style="text-align: center;">2</td> <td>Questionnaire</td> </tr> <tr> <td style="text-align: center;">3</td> <td>Information sheet & consent form.</td> </tr> </tbody> </table>	Sr. No.	Name of the Documents	1	Thesis Proposal	2	Questionnaire	3	Information sheet & consent form.	
Sr. No.	Name of the Documents								
1	Thesis Proposal								
2	Questionnaire								
3	Information sheet & consent form.								
<p>The purpose of the study is to explore the experience of people with Spinal Cord Injury about participation in gardening. The study involves use of a self-developed interview guide that may take 30 to 40 minutes to answer the question for collection of specimens and there is no likelihood of any harm to the participants and benefit 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 8.30 AM on 27th August, 2022. at BHPI (32nd IRB Meeting).</p>									
<p>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.</p>									
<p>Best regards,  Muhammad Millat Hossain Associate Professor, Dept. of Rehabilitation Science Member Secretary, Institutional Review Board (IRB) BHPI, CRP, Savar, Dhaka-1343, Bangladesh</p>									
<p>সিআরপি-চাপাইন, সাভার, ঢাকা-১৩৪৩, বাংলাদেশ। ফোন: +৮৮ ০২ ২২৪৪৪৫৪৬৪-৫, +৮৮ ০২ ২২৪৪৪১৪০৪, মোবাইল: +৮৮ ০১৭৩০ ০৫৯৬৪৭ CRP-Chapain, Savar, Dhaka-1343, Bangladesh. Tel: +88 02 224445464-5, +88 02 22441404, Mobile: +88 01730059647 E-mail : principal-bhpi@crp-bangladesh.org, Web: bhpi.edu.bd</p>									

Permission letter for data collection

Date: 16.10.2022

To

In charge of Spinal Cord Injury Rehabilitation Unit
Centre for the Rehabilitation of the Paralyzed (CRP)
Chapain, Savar, Dhaka-1343

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

Sir,

I beg most respectfully to state that, I am a student of 4th year B. Sc. in Occupational Therapy of Bangladesh Health Professions Institute (BHPI). I have to submit a research project to the University to fulfill the partial requirements of the degree of B.Sc. in Occupational Therapy. My research title is "Experience of participating in accessible garden of persons with Spinal Cord Injury". As it is a qualitative study I have to take interview of person with Spinal Cord Injury. Now I am looking for your kind approval to start my data collection and I would like to assure that anything of my research project will not be harmful for the participant and also for the Spinal Cord Injury unit.

I therefore pray and hope that you would be kind enough to give me the permission to collect data for the research project and will help me to conduct a successful study as a part of my course and oblige thereby.

I remain sir,

Your most obediently

Taslima Akter

Roll: 36, Session: 2017-18

4th year student of B.Sc. in Occupational Therapy

Bangladesh Health Profession Institute (BHPI)

CRP, Chapain, Savar, Dhaka-1343

*Forwarded for your kind consideration
and permission for data collection
to conduct the research.*

Dr. Monir
16/10/2022
Dr. Moniruzzaman
Associate Professor & Head
Dept. of Occupational Therapy
BHPI, CRP, Savar, Dhaka-1343

*Permission for
further action.
S.S.Lu.
02609*

Appendix B: Information Sheet, Consent form and Withdrawal form

Information Sheet (English)

I am Taslima Akter, a fourth-year student at Bangladesh Health Professionals Institute (BHPI) studying B.Sc. in Occupational Therapy. In order to complete the prerequisites for a B.SC. (Hons) in Occupational Therapy, research must be done in the fourth year of study. You're invited to take part in this research. "Experience of Participating in an Accessible Garden for Persons with Spinal Cord Injury" is the title. The study's objective is to determine what people with spinal cord injuries think about taking part in accessible gardens.

Your participation in this study is entirely optional. You have the absolute freedom to refuse to participate in or from the study at any time and without cause.

You will not directly be benefited from your participation. But the result of this study may help to plan an effective garden program for the persons with Spinal Cord Injury.

An interview will be conducted with some questions regarding the study that will be recorded by tape recorder for the study purpose. Confidentiality will be maintained to all recorded data and all details will be only accessible to investigator and the supervisor. Your identity will not be disclosed in any publication without your permission. If you have any questions regarding this study you will ask to me without any hesitation. I will try to answer all question regarding this study.

Taslima Akter

B.Sc. in Occupational Therapy, 4th year

Bangladesh Health Professions Institute

Centre for the Rehabilitation of the Paralysed

Chapain, Savar, Dhaka:1343

Information sheet (Bengali)

তথ্যপত্র

আমি তাছলিমা আক্তার।বাংলাদেশ হেলথ প্রফেশনশ ইন্সটিটিউটে বি.এস.সি ইন অকুপেশনাল থেরাপি বিভাগের চতুর্থ বর্ষের ছাত্রী।বি.এস.সি ইন অকুপেশনাল থেরাপি বিভাগে অধ্যয়নের অংশ হিসাবে চূড়ান্তবর্ষে আবশ্যিকভাবে একটি গবেষণার কর্ম সম্পন্ন করতে হয়।আমি আপনাকে এই গবেষণায় অংশগ্রহণের জন্য আমন্ত্রণ জানাচ্ছি।এই গবেষণার শিরোনাম হচ্ছে মেরুরডজুতে আঘাতপ্রাপ্ত ব্যক্তিদের প্রবেশগম্য বাগানে অংশগ্রহণের অভিজ্ঞতা সম্পর্কে অনুসন্ধান করা।তাদের অনুভূতি সনাক্তকরণই আমার গবেষণার উদ্দেশ্য।

গবেষণায় আপনার অংশগ্রহণ স্বতঃস্ফূর্ত। গবেষণাটিতে আপনার অংশগ্রহণ না করা অথবা যেকোনো সময় বা ধাপে সম্মতি প্রত্যাহারের ক্ষেত্রে আপনার পূর্ণ অধিকার আছে।

গবেষণায় অংশগ্রহণের জন্য কোন উপহার দেয়া হবেনা।এই গবেষণা থেকে আপনি সরাসরি ভাবে উপকৃত নাও হতে পারেন।তবে গবেষণা থেকে প্রাপ্ত ফলাফল কতৃপক্ষকে মেরুরডজুতে আঘাতপ্রাপ্ত ব্যক্তিদের জন্য একটি কার্যকরী বাগান কর্মকাল্ড পরিকল্পনা করতে সাহায্য করবে।

গবেষণার সাথে সম্পর্কিত কিছু প্রশ্ন নিয়ে আপনার একটি সাক্ষাৎকার নেয়া হবে যা অডিও টেপ দ্বারা সংরক্ষণ করা হবে।আপনার কাছ থেকে প্রাপ্ত তথ্য গোপনীয়তার সাথে রাখা হবে।শুধুমাত্র গবেষক এবং তার তত্তাবধায়ক তথ্যগুলো ব্যবহার করতে পারবেন।আপনার পরিচয় গবেষণার কোথাও প্রকাশ করা হবেনা।আপনার যদি গবেষণা সংক্রান্ত কোন প্রশ্ন থেকে থাকে তাহলে আমাকে দ্বিধাহীনভাবে জিজ্ঞেস করতে পারেন।গবেষণা বিষয়ক সকল প্রশ্নের উত্তর দেয়ার জন্য আমি সচেষ্ট থাকব।

তাছলিমা আক্তার

বি.এস.সি ইন অকুপেশনাল থেরাপি বিভাগ,৪র্থ বর্ষ

বাংলাদেশ হেলথ প্রফেশনশ ইন্সটিটিউট (বিএইচপিআই)

সি.আর.পি,চাপাইন,সাভার,ঢাকা-১৩৪৩

Consent form (English)

A. For participant's

Please read the following statement and put tick marks on yes or no. Following information will state your opinion about participation in the study.

1. Have you read the information sheet? Yes/No

2. Have you an opportunity to discuss this study and ask any question? Yes /No

3. Have the researcher explain the study to you? Yes/No

4. Do you understand that you have opportunity to withdraw from the study at any time, without having to give a reason? Yes /No

5. Information from interview and question, those will be collected by the investigator might be examined by research supervisor. Do you give your permission for the research supervisor to have access to your records? Yes/No

6. Do you have sufficient time to come to your decision about participation..... Yes/No

7. Do you agree to take part in this study? Yes/No

Participant's signature: Date:

B. Investigator: I have explained the study to the above participant precisely and he/she has provided consent his/her willingness to take part in the study.

Investigators signature..... Date:

Consent form (Bangla)

সম্মতিপত্র

ক) অংশগ্রহণকারীর জন্য

দয়া করে নিচের তথ্যগুলো পড়ে হ্যা বা না টিক চিহ্ন দিন। নিম্নলিখিত তথ্যগুলো প্রকাশ করবে আপনি এই পত্রের তথ্যগুলো বুঝতে পেরেছেন এবং উপরের গবেষণায় অংশ গ্রহনে আপনার মতামত আছে।

১। আপনি কি তথ্যপত্রটি পড়েছেন?..... হ্যা/না

২। আপনার কি এই গবেষণা নিয়ে আলোচনা বা প্রশ্ন করার সুযোগ আছে? হ্যা/না

৩। গবেষক কি আপনার কাছে গবেষণাটি ব্যাখ্যা করেছেন?..... হ্যা/না

৪। আপনি গবেষণা থেকে যেকোনো সময় অংশগ্রহণ প্রত্যাহার করতে পারেন এবং এজন্য কারো কাছে জবাবদিহি করতে হবেনা। এ ব্যাপারে কি আপনি বুঝতে পেরেছেন?..... হ্যা/না

৫। প্রশ্নমালা এবং স্বাক্ষরকার থেকে গবেষক কতক সংগৃহীত তথ্য গবেষকের তত্ত্বাবধায়ক দ্বারা নিরীক্ষণ করা হবে। আপনি কি গবেষকের তত্ত্বাবধায়ককে আপনার তথ্য জানার অনুমতি প্রদান করেছেন?..... হ্যা/না

৬। আপনি কি অংশগ্রহণের জন্য সিদ্ধান্ত নেয়ার পর্যাপ্ত সময় পেয়েছেন?..... হ্যা/না

৭। আপনি কি এই গবেষণায় অংশগ্রহণ করতে সম্মত আছেন?..... হ্যা/না

অংশগ্রহণকারীর স্বাক্ষর..... তারিখ.....

খ) গবেষক: আমি গবেষণা সম্পর্কে উপরোক্ত অংশগ্রহণকারীর কাছে যথাযথভাবে ব্যাখ্যা করেছি এবং তিনি এই গবেষণায় স্বেচ্ছায় অংশগ্রহণের সম্মতি প্রকাশ করেছেন।

গবেষকের স্বাক্ষর..... তারিখ.....

Withdrawal form (English)

You are able to withdrawal your participation from this research any time you want. The withdrawal form will specify whether the data can be used or not after cancellation.

Name of
participant's:

Reason of withdrawal
(Optional):
.....
.....
.....
.....

Whether the use of previous data will be allowed or not?

Yes/No

Participant's signature:

Date:

Withdrawal form (Bengali)

প্রত্যাহারপত্র

আপনি যেকোনো সময় এই গবেষণা প্রকল্পের জন্য সংগৃহীত তথ্য বাতিল করতে পারেন। বাতিল করার পর তথ্যসমূহ ব্যবহার যাবে কি যাবে না তার অনুমতি অংশগ্রহণকারীর প্রত্যাহার পত্রে উল্লেখ করা থাকবে।

অংশগ্রহণকারীর নাম :

.....

প্রত্যাহারের কারণ :

.....

.....

.....

.....

পূর্ববর্তী তথ্য ব্যবহারের অনুমতি থাকবে কি না?

হ্যা/না

অংশগ্রহণকারীর স্বাক্ষর.....

তারিখ.....

Appendix C: Interview Guide

Interview guide (English)

General Question

Code no:	Others physical condition:
Age:	Previous occupation:
Gender:	Number of family member:
Diagnosis: Spinal Cord Injury	Earning member of family:
Types of injury: Tetraplegia/ Paraplegia	

1. Please tell me something about activities of CRP's garden.
2. Tell me about the purpose of this garden.
3. What do you do in your leisure time? Please describe about your leisure activity.
4. How much do you garden activity in your leisure time? Please explain.
5. Do you prefer gardening as leisure or productivity? Why?
6. Are you self-motivated to perform gardening as leisure and productivity?
7. What type of difficulty you faced during gardening?
8. Please give me your opinion about CRP's garden.
9. What are the characteristics of this garden that makes easy your gardening participation?
10. How much gardening is useful during your rehabilitation?
11. What is your future plan regarding gardening?
12. How you will perform garden activities when you will return to your home after rehabilitation?

Interview guide (Bengali)

প্রশ্নাবলী

সাধারণ প্রশ্ন

কোড নং:	অন্যান্য শারিরিক সমস্যা:
বয়স:	পরিবারের সদস্য সংখ্যা:
লিঙ্গ:	পূর্বের পেশা:
নির্ণেয় রোগ: স্পাইনাল কর্ড ইনজুরি	পূর্বের পেশা:
আঘাতের ধরণ: টেট্রাপ্লেজিয়া/পেরাপ্লেজিয়া	

১। দয়া করে সি.আর.পি এর বাগান কার্যক্রম সম্পর্কে কিছু বলুন।

২। এই বাগানের উদ্দেশ্য সম্পর্কে কিছু বলুন।

৩। অবসর সময়ের আপনি কি কি করেন? দয়া করে আপনার একটি বিনোদনমূলক কাজের বর্ণনা দিন।

৪। অবসর সময়ে বাগান এ কাজ করতে আপনার কেমন লাগে? দয়া করে ব্যাখ্যা করুন।

৫। বাগান করাটা আপনি অবসর সময়ের বিনোদনমূলক কাজ হিসাবে নাকি আয়ের উৎস হিসাবে বেশি পছন্দ করেন? পছন্দের কারণ?

৬। অবসর সময়ের কাজ বা পেশাগত কাজ হিসেবে বাগান করতে আপনি কি নিজের দ্বারা অনুপ্রাণিত?

৭। এই কাজ করতে আপনি কি কি সমস্যার সম্মুখীন হয়েছেন?

৮। আপনার মতে সমস্যা গুলো কমিয়ে আনার জন্য কি কি পদক্ষেপ গ্রহণ করা উচিত?

৯। এই বাগানের বৈশিষ্ট্যগুলো কি কি যা আপনাকে বাগানে অংশগ্রহণের কাজে সুযোগ করে দিয়েছে?

১০। বাগান কার্যক্রম আপনার পুনর্বাসনের সময় কতটা উপযোগী? অনুগ্রহ করে কিছু উদাহরণ দিন।

১১। প্রবেশগম্য বাগানে কাজ করার পর এটা নিয়ে আপনার ভবিষ্যৎ পরিকল্পনা কি?

১২। পুনর্বাসন শেষে আপনি যখন আপনার বাড়িতে ফিরে যাবেন তখন কি আপনি অবসরে বা পেশাগত কাজ হিসাবে বাগানের কার্যক্রম এ অংশগ্রহণ করবেন?

Appendix D: Supervision Record Sheet

Bangladesh Health Professions Institute
Department of Occupational Therapy
4th Year B. Sc in Occupational Therapy
OT 401 Research Project

Thesis Supervisor- Student Contact; face to face or electronic and guidance record

Title of thesis: Experience of participating in accessible garden of person with Spinal Cord Injury.

Name of student: Taslima Akter

Name and designation of thesis supervisor: S K Moniruzzaman

Associate Professor and Head of the Department

Department of Occupational Therapy

Appointment No	Date	Place	Topic of discussion	Duration (Minutes/Hours)	Comments of student	Student's signature	Thesis supervisor signature
1	20.08.22	BHPI, office building	Introduction and Research title, aim, objective	2 hours 30 minutes	Effective discussion about proposal write up	Taslima	S.K. Monir
2	21.08.22	Library building	Discussion about research background	10 minutes	Helpful information about how to write background	Taslima	S.K. Monir
3	25.08.22	Library building	Guideline on proposal presentation	25 minutes	Effective guideline on proposal presentation.	Taslima	S.K. Monir

4	28.08.22	Library building	Feedback of research aim, objective and proposal presentation	20 minutes	Discussion about possible question at presentation.	Taslima	S.K. Monir
5	29.08.22	Library building	Discuss about research objectives and interview guide	10 minutes	Able to relate interview guide with objectives.	Taslima	S.K. Monir
6	31.08.22	Library building	Discuss about research objectives.	2 hours	Able to relate interview guide with objectives.	Taslima	S.K. Monir
7	03.09.22	Library building	Research proposal submission	15 minutes	Get guideline about proposal.	Taslima	S.K. Monir
8	11.09.22	Library building	Research proposal feedback, guideline for next step	2 hours	Want to know about Appendix.	Taslima	S.K. Monir
9	22.09.22	Library building	Discussion about Bangla form of Appendix	1 hours	Proper guideline about Appendix	Taslima	S.K. Monir
10	11.10.22	Library building	Final feedback of research Proposal.	2 hours 30 minutes	Effective feedback on proposal.	Taslima	S.K. Monir
11	15.10.22	Library building	Submission and discussion about permission letter	50 minutes	Get idea how to write permission letter.	Taslima	S.K. Monir
12	16.10.22	Library building	Field Test related sharing and discussion	2 hours	Get idea about how to collect data.	Taslima	S.K. Monir
13	17.10.22	Library building	Participants and withdrawal form related discussion.	2 hours	Effective guideline on appendix	Taslima	S.K. Monir
14	2.11.22	Library building	Overall guideline about write up	2 hours	Structured guideline about write up	Taslima	S.K. Monir

No	Date	Place	Topic of discussion	Duration (Minutes/Hours)	Comments of student	Student's Signature	Thesis supervisor signature
15	13.11.22	Library building	Discussion about data collection	1 hour 30 minutes	Effective discussion about data collection	Toslima	
16	19.11.22	Library building	Discussion and update on data collection.	1 hour 40 minutes	Effective discussion on data collection	Toslima	
17	26.11.22	BHPI building	Discussion and update on data collection	2 hours	Great idea how to collect data	Toslima	
18	2.12.22	Library building	Guideline for ongoing research project work	2 hours	Proper guideline for research	Toslima	
19	12.12.22	"	Discussion on introduction Background and Literature Review.	2 hours 50 minutes	Effective feedback on overall write up.	Toslima	
20	18.12.22	"	Introduction, Background and Literature review feedback.	1 hour 40 minutes	Effective feedback on overall write up.	Toslima	
21	20.12.22	"	Submission and discussion on introduction, background review and methods.	2 hours	Helpful feedback was correct mistakes	Toslima	
22	27.12.22	"	Discussion on theme subtheme.	2 hours 30 minutes	Helpful feedback on selecting theme subtheme.	Toslima	
23	01.01.23	"	Discussion on analysis related problem.	2 hours	Effective feedback on analysis	Toslima	
24	6.1.23	BHPI building	Discussion on Analysis.	2 hours	Helpful feedback on data analysis	Toslima	

25	09.02.23	BHPI building	Feedback on 1st draft.	2 hours	Helpful feedback on research draft	Toslima	
26	21.03.23	Library building	Guideline for completing thesis writeup.	1 hour	Effective guide line for thesis write up.	Toslima	
27	08.04.23	"	Discussion about preparation for defense.	1 hour	Helpful information about presentation	Toslima	
28	10.05.23	Library building	Discussion on final draft	1 hour 20 minutes	Structured guide line on thesis.	Toslima	
29	15.05.23	Library building	Feedback of thesis presentation	30 minutes	Effective guideline on thesis back	Toslima	
30							
31							
32							
33							
34							