

Effectiveness of Music Therapy in Relation to the Mental Health of Spinal Cord Injury Patients at Centre for the Rehabilitation of the Paralysed (CRP)



By
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*This thesis is submitted in total fulfilment of the requirements for the subject
RESEARCH 2 & 3 and partial fulfilment of the requirements for the degree*

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Statement of authorship

Except where it is made in the text of the thesis, this thesis contains no material published elsewhere or extracted in whole or in part from a thesis presented by me for any other degree 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 in any other tertiary institution. The ethical issue of the study has been strictly considered and protected. In case of dissemination of the findings of this project for future publication, the research supervisor will be highly concerned, and it will be duly acknowledged as an undergraduate thesis.

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Dedication

Dedicated to.....My Beloved Parents and Friends

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List of Abbreviations

CRP- Centre for the Rehabilitation of the Paralysed

OT- Occupational Therapy

PT- Physiotherapy

BHPI- Bangladesh Health Professions Institute

MT- Music Therapy

SCI- Spinal Cord Injury

TBI- Traumatic Brain Injury

AD- Alzheimer's disease

DASS- Depression, Anxiety, Stress Scale

SPSS- Statistical Package for Social Science

Abstract

Introduction: Many studies have shown the positive effects of music therapy on managing anxiety, stress, and depression. Therefore the study examined how effectiveness of music therapy in relation to the mental health of spinal cord injury patients.

Aim: The purpose of this study is to find out effectiveness of music therapy in relation to the mental health of spinal cord injury patients.

Objectives: To find out depression, anxiety and stress level of spinal cord injury patients before and after attending to the music therapy session.

Methodology: A sample of 13 spinal cord injury patients was recruited and purposively assigned to a treatment group (n = 13). Before the start of the music therapy session, researchers collected pre-test data from participants. Then participants received 45 minutes of group music therapy sessions for eight sessions after completing an eight-session researcher collected post-test data and compared it to their pre and post-test scores. Depression, anxiety, and stress were measured using the Depression, Anxiety, and Stress Scale (DASS 21).

Results: Findings from the study indicated that music therapy is significantly effective at reducing depression, anxiety, and stress.

Conclusion: The results support the hypothesis that music therapy is a good therapeutic treatment approach for the treatment of spinal cord injury patients.

Key Terms: Effectiveness, Music Therapy, Mental Health, SCI.

CHAPTER I: Introduction

1.1 Background

Music is called life; it is the melodic arrangement of sounds of the instruments or people for the producing desired effect. Music is as ancient as the universe. Though generation after generation has passed, it is one of the most important evident for every culture (Nettl, 2000).

The active/receptive approach to music therapy can be classified into two types. Active approaches including the uses of musical instruments, free improvisation, and reproduction of songs. In receptive technique, the therapist plays the listening music for the client and the music is selected by either therapist or client. Music therapy includes music-making, listening to music, writing songs, and talking about lyrics. It may also imagery (Drieschner & Pioch, 2002). Music is experienced in a number of different ways throughout daily life. Listening to music is a regular experience in the average person's daily life, whether that's listening to music on the way to work, listening to relaxing music in a physician's office, or exercising while listening to an upbeat playlist. Many people use music to evoke different emotions or to induce a specific psychological state. After a long day, listening to slow, relaxing music may help someone relax. Athlete may listening to a selection of their favorite songs to get in to the mood for a contest, whilst college students may listen to classical music to help them participate in the study. Music is a wonderful tool that can be used in a variety of ways on a regular basis. Music can be applied as a therapeutic tool because of its versatility, specifically in the field of occupational therapy (KAYSER, 2018).

Music therapy is an effective approach in which music can be used to help individuals develop, enhance, and regain overall psychological well-being. It's a therapeutic interaction that helps individuals increase their psychological, physical, emotional, and social well-being. People with mental health disorders and neurological diseases benefit from music

therapy as it inspires individuals to engage in exercise and activities (Ogba et al. (2019). Also, O'Kelly and Koffman indicated the music therapy is a suitable therapeutic intervention for treating individuals with pain (O'Kelly & Koffman, 2007). Spinal cord injury (SCI) refers to any injury to the spinal cord. It is most commonly caused by trauma instead of disease. Spinal cord injury also is a non-traumatic origin as in the case of cancer, infection, intervertebral disc disease, vertebral injury, and spinal cord vascular disease (van den Berg et al., 2010). SCI usually begins with a sudden traumatic blow to the spine that fractures or dislocates vertebrae resulting in the loss of motor function and sensation. It is a devastating event that has not only physical effects but also a psychological effect on the injured person. The psychosocial effects include; depression, stress, anger, rage, bitterness, rejection, loneliness, social isolation, suicidal thoughts, low self-esteem, damaged self-event, poor social functioning, inadequate social support, loss of relationships, and others (Singh et al., 2012).

Many studies have revealed that music has such a significant impact on one's mental health and body. Music therapy has been shown to increase the moods of people suffering from depression. Guétin et al. (2009) found that the patients with depression and anxiety associated to Alzheimer's disease reported significantly diminished anxiety levels immediately after music therapy and 6 months later. Patients suffering moderate-to-severe depression who experienced music therapy have been shown to be at the end of the seven music therapy sessions to be significantly fewer depressed than others who got psychotherapy (Castillo-Pérez et al., 2010). Music therapy also improves social interaction in traumatic brain injury patients (Nayak et al., 2000). Music therapy has been shown to help hospitalized patients to manage anxiety, stress, and depression (Fernandes & D'silva, 2019). A recent study has shown that music therapy is effective for decreasing anxiety in patients with cardiovascular disease (Selle & Silverman, 2019). Another study shows that music can

promote recovery from individuals who have suffered traumatic brain injuries. Hedge investigated patients who had suffered a traumatic brain injury in their studies. They are either being provided music or encouraged to sit silently for thirty minutes. As compared to a control group, the music therapy group showed significant improvements in executive mental functions and mental flexibility. While these changes could not last in long run, the authors stated that significant changes would require a longer period of intervention and that this type of intervention is completely achievable (Hedge, 2014).

1.2 Justification of the Study

To my knowledge, it is the first study of the Occupational Therapy profession in Bangladesh. This study could be helpful for occupational therapy professionals because it will provide evidence of practice through working with SCI patients. As a result, it will help to increase the quality and evidence-based practice of OTs. It could be a good resource for the OT department. The study findings can be helpful for upgrading Occupational Therapy services in Bangladesh and promoting professional development. As a result, it is essential to find out the effectiveness of music therapy in relation to mental health after receiving OT service. Overall, this study will guide Occupational Therapy practitioners in managing their patients.

1.3 Operational Definition

“Music therapy is the professional use of music and its elements as an intervention in medical, educational, and everyday environments with individuals, groups, families, or communities who seek to optimize their quality of life and improve their physical, social, communicative, emotional, intellectual, and spiritual health and wellbeing. Research, practice, education, and clinical training in music therapy are based on professional standards according to cultural, social, and political contexts” (“World Federation of Music Therapy (WFMT)", 2011).

CHAPTER II: Literature Review

Studies on the effectiveness of music therapy in relation to the mental health of spinal cord injury patients, 26 articles were identified in PubMed, Research Gate, Science Direct, Tandfonline, NRR Online, Dovpress, Frontiers, and AJOL database. 19 articles were reviewed. Among them 9 studies were Randomized control trial, 6 studies were quasi-experimental (Pre-test- post-test), 1 studies was Qualitative, 1 studies was mixed method, 1 studies was pilot study and 1 studies was Systematic review. These articles have studied different types of conditions such as Stroke, Spinal cord injury, Traumatic Brain Injury, Schizophrenia, Alzheimer's disease, Parkinson's disease and Cancer. After reviewing related articles, the findings are given below:

2.1 Music and Mood

A study was conducted in Nigeria on 120 spinal cord injury patients to find out the effectiveness of music therapy in the psychosocial management of spinal cord injury patients. This study includes the patient's pain, mood, anxiety, and physical mental social wellbeing. Results showed that music therapy reduced patient's pain and improved their mood (Ruth Ololade & Jacob Kehinde, 2015). Similar findings came out from a randomized controlled pilot study conducted in Australia where they applied music therapy to 26 patients in an in-patient setting. This study investigates the patient's pain, mood, anxiety, stress, depression, and attention levels. The findings in this study says that, applying music therapy has reduced pain and elevated mood (Tan et al., 2020).

Kim et al. (2011) conducted a study in Korea that aimed to find out the effects of music therapy on 18 stroke patients. Eighteen post-stroke patients, within 6 months of onset and with a mini-mental status examination score of over 20, were participants in this study. Patients participated in two groups: music and control groups. The music group participated

in the music therapy program for four weeks. In this study, music therapy was found to have a positive effect on mood in post-stroke patients and should be beneficial for mood improvement after stroke (Kim et al., 2011). Nayak et al. (2000) conducted a study in America to see if music therapy improved the mood and social interaction of 18 patients with traumatic brain injury and stroke. This study also found that applying music therapy improves the mood of TBI and stroke patients and leads to significant changes in social interaction (Nayak et al., 2000). Tamplin et al. (2014) conducted a qualitative study on 24 patients at a large public hospital in Melbourne, Australia. Where they used to randomize controlled trial design to determine the effects of singing on Respiratory function, respiratory muscle activation, voice, mood, and quality of life for people with quadriplegia. They used an existing statewide SCI database. Individuals in this database with C4-C8 quadriplegia who were at least 1-year post-injury and aged between 18 and 70 years (n = 86). This study found six main themes were generated from the interview data. Six main themes are; (1) Positive effect on mood and mental state (both groups), (2) Positive effect on physical state (both groups), (3) Encouraged social engagement (both groups), (4) (Re) connecting with musical identity/ relationship with music (both groups), (5) Challenging and confronting (singing group only) and (6) General increase in motivation (singing group only). Four of these were shared themes and indicated that both types of group music treatment had a positive impact on mood/mental state and physical state, empowering social engagement, and reconnecting members. In addition, the participants who took part in the singing groups found singing to be challenging and confronting but experienced a common increase in motivation (Tamplin et al., 2014).

2.2 Music and stress

Ogba et al. (2019) conducted a study on 142 students at Southeastern Nigeria University where they wanted to see how effective music therapy with relaxation techniques is in stress

management. In this study, there were two groups: a control group and another experimental group. The findings indicated that there was no baseline difference in levels of stress management between participants in the experimental and control groups. Results revealed significant improvement in stress management for participants within the music therapy with relaxation group, whereas the control group showed no significant change in their score over an equivalent period. Even though the study found the same findings for both groups, the participant group was students, not any specific disease or disorder. There might be confounding factors that influenced the result (Ogba et al., 2019). Taets et al. (2019) conducted a quasi-experimental study with 18 chemically dependent people undergoing treatment at a philanthropic institution in Rio de Janeiro, Brazil. Salivary cortisol (stress hormone) was collected at three moments: sometime recently, 60 minutes after, and 120 minutes after a music treatment group intervention. The statistical analysis adopted a significance level of $p < 0.05$ and used the Wilcoxon and Kruskal-Wallis non-parametric tests. This study finds that a single 60-minute session of group music therapy is shown to be able to reduce the stress (salivary cortisol levels) of chemically dependent people (Taets et al., 2019). The narrative synthesis included thirty studies appearing that music treatment overall had positive impacts on a wide range of results, with methods and impacts changing in different phases. During curative treatment, results were most promising with regard to anxiety, depression, and pain medication intake, while in palliative settings, improvements with regard to the quality of life, spiritual well-being, pain, and stress were reported (Köhler et al., 2020). That study was conducted on 120 spinal cord injury patients to find out the effectiveness of music therapy in the psychosocial management of spinal cord injury patients. This study found that music therapy reduces stress (Ruth Ololade & Jacob Kehinde, 2015). It was also a randomized pilot study. This study applied music therapy in inpatient settings. These studies also showed that applying music therapy reduces stress (Tan et al., 2020).

Another quasi-experimental study was conducted among 35 male patients who were suffering from spinal cord injuries on the fifth day of their admission to the paraplegic unit, with no complications from the Department of Orthopedics, Government General Hospital, Chennai. Researchers investigate the efficacy of music therapy on stress reduction among spinal cord injury patients. Music therapy significantly reduced the overall psychological stress level of the patients, regardless of their age, education, occupation, income, marital status, family type, length of injury, or severity of injury. Music therapy reduces the physical parameters, like systolic pressure and diastolic pressure. Furthermore, it raises the oxygen saturation level, which was low. Furthermore, music therapy reduced the physiological stress signs among the spinal cord injury patients (Indira, 2021).

2.3 Music and Anxiety

Ruth Ololade and Jacob Kehinde (2015) conducted a study on 120 spinal cord injury patients to find out the effectiveness of music therapy in the psychosocial management of spinal cord injury patients. This study found that music therapy reduces anxiety (Ruth Ololade & Jacob Kehinde, 2015). Another randomized controlled pilot study where they applied music therapy to 26 patients in an in-patient setting. The findings in the study show that applying music therapy elevates mood and significantly changes anxiety (Tan et al., 2020). Similar findings from a randomized controlled trial were conducted in Paris, France. Researchers wanted to see the effect of music therapy on anxiety and depression in patients with Alzheimer's type dementia. These studies found that applying music therapy reduces anxiety and depression in Alzheimer's and other types of dementia patients. (Guétin et al., 2009).

2.4 Music and depression

Guétin et al. (2009) randomized controlled study was conducted in Paris, France where the researchers investigated the effect of music therapy on anxiety and depression in patients with Alzheimer's Type Dementia. The study was conducted over a total duration of 18

months, with a follow-up period of 6 months. This randomized, controlled study, conducted in a population of patients suffering from AD, confirms the efficacy of music therapy on anxiety and depression (Guétin et al., 2009). Another study was conducted in China a meta-analysis of as of now accessible randomized controlled trials and controlled clinical trials. Eight electronic databases (CNKI, PubMed, EMBASE, Cochrane Library, PsycINFO, Web of Science, Psychology and Behavioral Sciences Collection, and Medline) were methodically looked at from initiation to January 2020. Standard mean difference (SMD) with 95% certainty interim (CI) values were utilized to assess the impacts of music therapy. The study found that adjunct music treatment progressed total symptoms, negative symptoms, depression symptoms, and quality of life in patients with schizophrenia compared with the control group. But adjunct music treatment did not significantly progress positive symptoms in patients with schizophrenia. Music therapy would have been more effective in patients with schizophrenia if high-quality clinical trials, as well as the long-term follow-up, were followed (Jia et al., 2020). Lu et al. (2013), a randomized controlled study was conducted where they wanted to examine the effects of group music therapy on psychiatric symptoms and depression for patients with schizophrenia in a psychiatric nursing home. This study included eighty patients with schizophrenia who were randomly assigned to a music intervention group (MIG) or normal care group (UGC). Both groups received comparable therapeutic and routine care. The MIG gets a 60-minute group music treatment twice a week and adds up to ten sessions. The UAG only got regular care with no music treatment. Psychiatric symptoms and depression evaluations were conducted utilizing the positive and negative disorder scales and the depression scale for schizophrenia at the pattern, the posttest, and at a 3-month follow-up. The result of this study is Thirty-eight patients in the MIG and 42 in the UCG completed the study. The groups appeared to have measurably significant differences in psychiatric symptoms ($p.05$) and depression status ($p.05$) after 10 sessions of

group music therapy (Lu et al., 2013). A systematic review included twenty-one studies that met all inclusion criteria. This study included 16 Cochrane reviews. As a whole, the quality of the article was very good. There were eight studies on "Mental and behavioral disorders," two studies on "Diseases of the Nervous System," two studies on "Diseases of the Respiratory System," and one study each on "Endocrine, nutritional, and metabolic disease," "Diseases of the Circulatory System," and "Pregnancy, childbirth, and puerperium." That study found that music therapy intervention improved global and social functioning in schizophrenia and other serious mental disorders, gait and related activities in Parkinson's disease, depressive symptoms, and sleep quality (Kamioka et al., 2014). Another study was conducted on 120 Spinal cord injury patients to find out the effectiveness of music therapy in the psychosocial management of Spinal cord injury patients. This study found that music therapy decreases depression (Ruth Ololade & Jacob Kehinde, 2015). Sumakul et al. (2020) conducted quasi-experimental study on 59 stroke patients at a public hospital in Manado, Indonesia. Researchers investigated the effectiveness of instrumental music therapy in reducing depressive symptoms in stroke patients. This study found that music therapy is significantly effective in reducing depression in stroke patients (Sumakul et al., 2020).

2.5 Music and Pain

Mondanaro et al. (2017) mixed-method study was conducted on sixty patients (35 females and 25 males) at Mount Sinai Beth Israel. Researchers investigated whether music therapy increases comfort and reduces pain in patients recovering from spine surgery. This study's findings applied to music therapy significantly increased comfort, reduced pain, and improved gait, increased range of motion, endurance, and ability to relax and enhanced quality of life (Mondanaro et al., 2017). Wood et al. (2021) pilot study was conducted on 20 patients with spinal cord injuries at Mayo Clinic Hospital—Rochester, Saint Marys Campus. Researchers investigated the feasibility of offering music-assisted relaxation (MAR) during

rehabilitation for patients with SCI and also measured the effect of MAR on the patients' pain, anxiety, and stress levels. This study's findings suggest that music therapy with live music assisted relaxation is a feasible treatment for spinal cord injury patients and is effective for reducing pain and anxiety (Wood et al., 2021).

2.6 Respiratory, Behavioral and Emotional

Li et al., (2022) conducted a randomized control study on 26 patients at Capital Medical University in Beijing, China. Researchers investigated the effects of vocal respiratory training on respiratory function and respiratory neural plasticity in patients with cervical spinal cord injury. According to the study's findings, music therapy improves respiratory function and vocal function in patients with spinal cord injury (Li et al., 2022). Grau-Sánchez et al. (2021) conducted a parallel-group randomised controlled trial on sixty stroke patients in the Barcelona metropolitan area (Hospitals del Mar and l'Esperança and Bellvitge University Hospital). The researcher investigated the enrichment of music-supported therapy for chronic stroke patients. This study suggests that music therapy shows a larger improvement in motor and cognitive function, emotional wellbeing, and quality of life (Grau-Sánchez et al., 2021). Siponkoski et al. (2021) randomized controlled study was conducted by 40 people with TBI from the Helsinki and Uusimaa regions were recruited through the Brain Injury Clinic of the Helsinki University Central Hospital (HUCH), Validia Rehabilitation Helsinki, and the Department of Neurology of This RCT was carried out at Lohja Hospital between 2014 and 2017. Researchers investigate the effects of neurological music therapy on behavioral and emotional recovery after traumatic brain injury. Researchers performed a cross-over randomized controlled trial where 40 people with moderate-severe TBI received a 3-month neurological music therapy intervention (two sessions per week, 60 minutes each) either during the first (AB, n = 20) or second (BA, n = 20) half of a 6-month follow-up period. According to the findings of this study, music therapy has a positive effect

on everyday behavioral regulation skills after TBI (Siponkoski et al., 2021).

CHAPTER III: Methodology

3.1 Research Question

What is the effectiveness of music therapy in relation to the mental health of spinal cord injury patients?

3.2 Research Aim

The purpose of this study is to find out effectiveness of music therapy in relation to the mental health of spinal cord injury patients.

3.3 Research Objectives

- To find out depression level of spinal cord injury patients before and after attending to the music therapy session.
- To find out anxiety level of spinal cord injury patients before and after attending to the music therapy session.
- To find out stress level of spinal cord injury patients before and after attending to the music therapy session.
- To observe the difference between statistical tests.

3.4 Research design

This study was conducted using a quasi-experimental (pre-post-test) design of quantitative research. In this study, there was a single group where intervention was provided. There is no control group in this study. The researcher took pre-test data from a single group before starting the treatment session. At the end of the eight treatment sessions, post-test data was collected. Then researchers compare both the pre-test and post-test data.

3.5 Study area

The researchers conducted this study at the in-patient unit of the Centre for the Rehabilitation

of the Paralysed (CRP), Savar. The in-patient unit mainly works with spinal cord injury patients. This unit conducts a music therapy group once a week. The researcher has arranged the three music therapy sessions for a week.

3.6 Study Period

The study was conducted from April 21 to February 22.

3.7 Sampling and Participant selection

Initially, the researcher planned 15 participants. Then the researcher selected 13 participants with spinal cord injury by using purposive sampling from the in-patient unit at the Centre for the Rehabilitation of the Paralysed.

3.7.1 Inclusion Criteria

- Age over 14
- Both male and female patients
- Patients who were active phase and rehabilitation phase who were stable enough to participate in the music therapy sessions.

3.7.2 Exclusion Criteria

- Patients who have secondary complications like autonomic dyreflexia, pressure ulcer, postural hypotension etc.
- Person with SCI who have history of diagnosed brain injury or mental illness.

3.8 Data collection

Firstly, the researcher introduced the participant. Then the researcher takes written consent from the participant. After that, data collection was done through a questionnaire from the participants through face-to-face conversation.

3.8.1 Data collection tools

This research is a quantitative exploration of the effectiveness of music therapy treatment in

relation to mental health for spinal cord injury patients. To understand the effectiveness of music therapy treatment programs, researchers used the "DASS21" scale (depression, anxiety, and stress).

DASS21: DASS 21 used to assess participant's depression, anxiety, and stress state before treatment and at the end of the study. DASS 21 was chosen for measurement because it is one among the tools currently employed by other allied health professionals within the hospital. The DASS 21 is a self-report tool that measures anxiety, depression, and stress on a four-point Likert scale between zero (did not apply to me at all) and three (applied to me very much, or most of the time). Studies have shown that both the 42 items and 21 item versions are reliable and valid in measuring depression, anxiety, and stress in adults in both clinical and non-clinical settings.

3.8.2 Data collection process

The data collector took a predetermined schedule from the participants to collect data. At first, the data collector informed the participant about the contents of the consent form. The participants received treatment as regular patients in the Occupational Therapy department of CRP; they continued their treatment as per their schedule. Each participant received eight treatment programs arranged by the researcher with permission from the Occupational Therapy department.

Before starting the treatment, there was an initial assessment where the researcher assessed depression, anxiety, and stress levels by using the DASS-21 scale on the patient with spinal cord injury. This was carried out in each area that provided the pre-test score. After receiving an eight-music therapy intervention program, the data collector collected post-test data using the same scale.

3.9 Data Analysis

Data entry and analysis were performed by using the Statistical Package for Social Science (SPSS) Inc. Version 20. Information was collected and gathered for data analysis. Initially, the researcher set variables. There were 23 variables, and they were ID No, Age, Gender, Religion, Marital status, Occupation, Level of Injury, Pre depression, Pre anxiety, Pre stress, Post-depression, Post anxiety, and Post stress, and some confounding variable OT-Session, PT-Session, Counselling and Sports activity. There are 15 categorical and 8 quantitative datasets. In the case of setting categorical data, first set variables, then set values and label them (For example, 1 = Male, 2 = Female in the gender field; in the case of religion, 1 = Islam, 2 = Hindu, 3 = Christian, 4 = Buddha). In the same way, the researcher inputs the rest of the data. First, the researcher input the pre-test data, followed by the post-test data after eight music therapy interventions. After the data entry, the data cleaning process (outliers and potential errors) was done by descriptive statistics with frequencies. The researcher checks the normality test of quantitative data by using a histogram and a Q-Q plot. Histograms and Q-Q plots show that quantitative data is normally distributed. Then the researcher's data analysis used statistical calculation using a parametric paired "t" test to show the effectiveness of music therapy in relation to the mental health of spinal cord injury patients by calculating pre-test and post-test scoring of the intervention.

3.10 Quality control & quality assurance

When needed, the researcher sought help from the supervisor while conducting the study. The result is not influenced by the researcher's biases, values, or own perspectives during data collection and analysis. The data was collected carefully, and the confidentiality of the participants' personal information was maintained throughout the study. Without the influence of the researcher, the participant's answers were accepted. The researcher double-checked all of the data to ensure that it was accurately recorded into the SPSS files. By

showing any personal interpretation, the outcome of the result is not influenced.

3.11 Ethical considerations

At first, the researcher takes permission from the Institutional Ethical Review Board of BHPI through the Department of Occupational Therapy, BHPI. The researcher ensure confidentiality was maintained about the patients. All participants were informed aim and objective of the study. The researcher concerned about the effect of biasness, as the study sample was selected based on inclusion and exclusion criteria. The researcher ensured that the service of patients would not be hampered by participants in this study. Participants had the full right to withdraw their participation from this study at any time. A written information sheet and consent form signed by each participant who participated in the study. They provided the information and there was no risk for them. There was also no beneficence for the participant. The researcher was available to any study-related questions or inquiries from the participant.

3.12 Music Therapy Intervention Protocol

Occupational Therapy has an important role in patients with Spinal cord injury in CRP. Occupational therapists provide intervention in 4 phases: Acute phase, Active phase, Rehabilitation phase, Community reintegrate phase. When SCI patient goes to the Rehab phase from the active phase, then those patients are included in the music therapy treatment session. Every week, a music therapy session takes place from 4.00-4:45 pm. approximately 10-15 patients join the music therapy session with the caregiver. Clinical Occupational Therapists of SCI department makes a detail session plan to run the music therapy group. Music therapy groups are conducted under the direct supervision of occupational therapists. An occupational therapy assistant and one member from peer support assist in the music therapy session. Occupational therapists encourage and facilitate every patient so that they actively participate in therapy sessions. Some patients are given a variety of musical

instruments that they can play and sing to their liking. The objectives of music therapy session include:

- To improve respiratory rate
- To reduce stress
- To create a joyful mind
- To improve caregivers mood as they may have caregiver burden.

There are some remarkable differences between music therapy sessions in abroad and in Bangladesh due to some cultural factors. They are:

Factors	In Abroad	In Bangladesh
Music therapist	In abroad, generally certified music therapists run a music therapy session.	In Bangladesh, there are no such requirements to run a music therapy session. Usually, Clinical OTs runs music therapy session.
Child	Abroad, a music therapy session is run for children in the pediatric unit. As music choices of a child are different from an adult, so they are not mixed up usually with spinal cord injury unit	In our country, there are no such benefits for children in the pediatric unit. They get music therapy along with other SCI patients in the SCI unit.

	<p>patients. They get their music therapy in the pediatric unit.</p>	
Instrument	<p>In foreign countries, there are different updated music instruments available for music therapy. Such as Piano, Banjo, Fiddle, Harmonica, violin, guitar, ukelele drums, Khanjari, etc. Patients get attracted towards music therapy sessions while using different musical instruments.</p>	<p>In Bangladesh, there are limited music instruments available for patients which are commonly used all the time. Common instruments are: Guitar, Cajon, Khanjari.</p>

Objectives:

- To find out depression level of spinal cord injury patients before and after attending to the music therapy session.

- To find out anxiety level of spinal cord injury patients before and after attending to the music therapy session.
- To find out stress level of spinal cord injury patients before and after attending to the music therapy session.

Target Group: Spinal Cord Injury Patients.

Inclusion criteria:

- Age over 14
- Both male and female patients
- Patients who are active or rehabilitation phase who will be stable enough to participate in the music therapy sessions.

Frequency: Two day a week (Saturday, Thursday)

Time: 4.00-4.45 PM

Place: Reddway hall/ Return to work room

Duration: 45 minutes

Preparation/ Set up required: A silent room

Materials:

Different musical instrument:

- Guiter
- Cajon
- Khanjari

Professionals Include:

- Clinical Occupational Therapist
- Occupational Therapy assistant
- Peer support member

Volunteer support:

- My classmate
- Junior OT Student

Instruction:

- a) Orientation: Give warm welcomed to the participants will take 2 minutes
- b) Introduction: Introduce participants with each other's and also the facilitator. The instructor will explain the roles. It will take 3-4 minutes
- c) Main Activity:
 - Patient will be given different musical instrument.
 - Facilitators will sing a song according to patient choice. Patient will play instruments.
 - Group song where patient and facilitator will sing together.
 - Solo song of patients and facilitator.

CHAPTER IV: Results

In this study, the researcher's aim was to investigate the effectiveness of music therapy in relation to the mental health of spinal cord injury patients. So the researcher collected 13 respondents and collected data from them. Descriptive statistics were used to analyze the data.

4.1 Demographic Information

The participants' average age was 35.15, with a standard deviation of 11.179. There are 11 paraplegia (84.6%) and two tetraplegia (15.4%) among the participants. Table 2.1 displays additional demographic information.

Demographic characteristics of the participants

Sample Characteristics	n	%	M	std
Age			35.15	11.179
Gender				
Male	13	100		
Female	0	0		
Marital Status				
Married	10	76.9		
Unmarried	3	23.1		
Occupation				
Wage employment	5	38.5		
Self-employment	5	38.5		
Private Job	1	7.7		
Student	2	15.4		
Level Of Injury				
Paraplegia	11	84.6		
Tetraplegia	2	15.4		
Total Participant: 13				

Paired Sample “t” test

4.2 Depression (Pre-test & Post-test)

Null Hypothesis: There is no association between music therapy and reducing depression in spinal cord injury patients.

Alternative Hypothesis: There is an association between music therapy and reducing depression in spinal cord injury patients.

Table: 4.2.1

Paired Sample Statistics

	Mean	N	Std. Deviation	Std. error mean
Pair 1: Pre-Depression Of respondent	8.85	13	2.734	.758
Post-Depression of respondent	4.77	13	1.166	.323

Table: 4.2.2

Paired Samples test

	Paired differences					t	df	Sig.(2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1: Pre-Depression the respondent – Post-Depression the respondent	4.077	2.060	.571	2.832	5.322	7.136	12	.000

Table 4.4.1 & 4.4.2 shows that:

The mean pre-test score for the depression level was 8.85. This score indicates a moderate level of depression. After applying music therapy, the mean post-test score was 4.77. This score indicates a mild level of depression. Therefore, we can say that applying music therapy helps reduce depression. The results were analyzed using the paired sample t-test. The difference between the mean pre-test and post-test scores is 4.077, the t-test value is 7.136, and the P-value is 0.000. As the p-value is <0.05 , the null hypothesis is rejected. The significance level of 0.000 means that this result means music therapy significantly reduces depression in spinal cord injury patients.

4.3 Anxiety (Pre-test & Post-test)

Null Hypothesis: There is no association between music therapy and reducing anxiety in spinal cord injury patients.

Alternative Hypothesis: There is an association between music therapy and reducing anxiety in spinal cord injury patients.

Table: 4.3.1

Paired Sample Statistics

	Mean	N	Std. Deviation	Std. error mean
Pair 1: Pre- Anxiety of respondent	7.62	13	2.219	.615
Post- Anxiety of respondent	4.15	13	1.405	.390

Table: 4.3.2**Paired Samples test**

	Paired differences					t	Df	Sig.(2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of Difference				
				Lower	Upper			
Pair 1: Pre-Anxiety of respondent – Post-Anxiety of respondent	3.462	1.330	.369	2.658	4.265	9.383	12	.000

Table 4.3.1 & 4.3.2 shows that:

The mean pre-test score for the anxiety level was 7.62. This score indicates a moderate level of anxiety. After applying music therapy, the mean post-test score was 4.15. This score indicates the mild level of anxiety. Therefore, we can say that applying music therapy helps reduce anxiety. The results were analyzed using the paired sample t-test. The difference between the mean pre-test and post-test scores is 3.462, the t-test value is 9.383, and the P-value is 0.000. As the p-value is <0.05 , the null hypothesis is rejected. The significance level of 0.000 means that this result means music therapy significantly reduces anxiety in spinal cord injury patients.

4.4 Stress (Pre-test & Post-test)

Null Hypothesis: There is no association between music therapy and reducing stress in spinal cord injury patients.

Alternative Hypothesis: There is an association between music therapy and reducing stress in spinal cord injury patients.

Table: 4.4.1**Paired Sample Statistics**

	Mean	N	Std. Deviation	Std. error mean
Pair 1: Pre- Stress of respondent	11.77	13	2.455	.681
Post- Stress of respondent	6.92	13	2.178	.604

Table: 4.4.2**Paired Samples test**

	Paired differences					T	df	Sig.(2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of Difference				
				Lower	Upper			
Pair 1: Pre- Stress of respondent – Post- Stress of respondent	4.846	1.281	.355	4.072	5.620	13.640	12	.000

Table 4.4.1 & 4.4.2 shows that:

The mean pre-test score for the stress level was 11.77. This score indicates a moderate level of stress. After applying music therapy, the mean post-test score was 6.92. This score indicates the normal level of stress. Therefore, we can say that applying music therapy helps reduce stress. The results were analyzed using the paired sample t-test. The difference

between the mean pre-test and post-test scores is 4.846, the t-test value is 13.640, and the P-value is 0.000. As the p-value is <0.05 , the null hypothesis is rejected. The significance level of 0.000 means that this result means music therapy significantly reduces stress in spinal cord injury patients.

CHAPTER V: Discussion

The purpose of the study was to evaluate the effectiveness of music therapy in relation to the mental health of spinal cord injury patients. According to the findings of this study, the level of depression, anxiety, and stress of the spinal cord injury patients decreased significantly after providing music therapy intervention. Though the current study found significant results in depression, anxiety, and stress reduction for patients with spinal cord injury, the results could be highly significant due to a confounding factor present during the study. Possible confounding factors are age, level of injury, regular treatment sessions, sports, vocational training, psychological counselling, and caregiver support of individual patients. Ogba et al. (2019) conducted a quasi-experimental (pre-test, post-test) study of 142 students in Southeastern Nigeria. In this study, there were two groups: a control group and another experimental group. This study found that there was no baseline difference in levels of stress management between participants in the experimental and control groups. But results revealed significant improvement in stress management for participants within the music therapy with relaxation group. Similar findings came out of a quasi-experimental study conducted on philanthropic institutions in Rio de Janeiro, Brazil. That study indicates the effectiveness of music therapy sessions in reducing stress in chemically dependent people (Taets et al., 2019). Researcher also found that music therapy is significantly effective in reducing stress.

In Nigeria, a study was conducted with 120 spinal cord injury patients to find out the effectiveness of music therapy in psychosocial management. This study found that music therapy is effective for reducing stress (Ruth Ololade & Jacob Kehinde, 2015). Similar findings came out of a randomized control trial study that was conducted on 26 patients in Australia. These study findings also show that music therapy reduces stress (Tan et al., 2020).

Another quasi-experimental study was conducted in Chennai on 35 male spinal cord injury paraplegic patients. Similar findings in this study suggest that music therapy is effective for reducing stress (Indira, 2021). In this study, researcher found that music therapy significantly decreases stress. In France, a randomized control study was conducted with 30 patients with Alzheimer's type dementia. This study found that applying music therapy reduces anxiety in Alzheimer's and other types of dementia patients (Guétin et al., 2009). Similar findings came out of a pilot study that was conducted on 20 patients with spinal cord injuries at Mayo Clinic Hospital—Rochester, Saint Marys Campus. This study's findings suggest that music therapy with live music assisted relaxation is a feasible treatment for spinal cord injury patients and is effective for reducing anxiety (Wood et al., 2021). Another randomized controlled pilot study was conducted on 26 patients in an inpatient setting. That study shows that music therapy is significantly effective at reducing anxiety (Tan et al., 2020). In this study, the researcher found that music therapy is effective for decreasing anxiety in spinal cord injury patients. In Indonesia, a quasi-experimental study was conducted on 59 patients to find out the effectiveness of instrumental music therapy in reducing depression in stroke patients. The study results indicated that music therapy is significantly effective in reducing depression in stroke patients (Sumakul et al., 2020). Similar findings came out of a randomized control pilot study that was conducted on 30 patients to find out the effect of music therapy on anxiety and depression in patients with Alzheimer's Type Dementia. This study was conducted over a total duration of 18 months, with a follow-up of 6 months. The study results show that music therapy is effective at reducing depression (Guétin et al., 2009). In this study, researcher found similar results: music therapy significantly reduces depression. All of the studies indicate that music therapy can and should be used it to promote physical and mental health. Music therapy has shown to be helpful in decreasing depression, anxiety, and stress in the majority of studies. Music therapy has been shown to improve respiratory

function, vocal function, as well as behavioral, emotional, and cognitive function in other research. Music therapy also has been found to improve social interaction and motor function in other studies.

CHAPTER VI: Conclusion

This study aims to determine the effectiveness of music therapy in relation to the mental health of spinal cord injury patients in inpatient settings. That study found that music therapy is significantly effective in reducing depression, anxiety, and stress in spinal cord injury patients. So, in conclusion, the current evidence supports that music therapy is a good therapeutic treatment approach for the treatment of spinal cord injury patients. In future music therapy trials, well-trained therapists who can play a variety of musical instruments should be used to facilitate treatment. The study examined the effectiveness of music therapy intervention, an eight-session program that significantly shows, with its constant confounding factor influences, that it significantly reduces depression, anxiety, and stress.

CHAPTER VII: Limitation & Recommendation

Limitation

This is the first study of the effectiveness of music therapy in relation to the mental health of SCI patients in Bangladesh. So, there were some situational limitations and barriers during the time period of the study conducted. This study was conducted with 13 participants. This was a very small number of participants, so it was very difficult to generalize the results. This study had a short time frame, the sample size was small; and true experimental study was not possible due to the academic and pandemic situation. Because sampling is non-probability, regression does not assume. The reason for not doing regression is that the factor of pre and post-tests was the same. No research was done in this area in Bangladesh, so relevant information about music therapy was very limited in this study.

Recommendation

The study was done within a short period of time with only 13 participants for the whole study. There was a small number of participants to conduct a study to find out the effectiveness of music therapy in SCI patients. So the external validity of the study decreased. Further research can be conducted with a wide range of participant sizes as well as with a large sample size. The number duration of the study should be much larger.

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APPENDICES

Appendix A: Ethical Approval



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

Ref:

CRP/BHPI/IRB/11/2021/528

Date:

16/11/2021

To
 Tarikul Islam
 4th Year B.Sc. in Occupational Therapy
 Session: 2016-17 Student's ID: 122160231
 BHPI, CRP, Savar, Dhaka-1343, Bangladesh

Subject: Approval of the thesis proposal "Effectiveness of music therapy in relation to the mental health of spinal cord injury patients at Centre for the Rehabilitation of the Paralysed" by ethics committee.

Dear Tarikul Islam,
 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 Md. Mohsiur Rahman as thesis supervisor. The Following documents have been reviewed and approved:

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

The purpose of the study is to determine The Effectiveness of music therapy in relation to the mental health of spinal cord injury patients at Centre for the Rehabilitation of the Paralysed. The study involves use of a tool name named "DASS21" questionnaire which is consist of 21 questions that may take 20-25 minutes fill in the questionnaire for collection of specimen and there is no likelihood of any harm to the participants. The members of the Ethics committee have approved the study to be conducted in the presented form at the meeting held at 9:15 AM on 15th September, 2021 at BHPI 29th IRB Meeting.

The institutional Ethics committee expects to be informed about the progress of the study, any changes occurring in the course of the study, any revision in the protocol and patient information or informed consent and ask to be provided a copy of the final report. This Ethics committee is working accordance to Nuremberg Code 1947, World Medical Association Declaration of Helsinki, 1964 - 2013 and other applicable regulation.

Best regards,

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

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Appendix B: Information sheet [English & Bangla]

Information sheet (English)

The name of the researcher is Tarikul Islam. He is a student in his 4th year in the Department of Occupational Therapy at the Bangladesh Health Professions Institute (BHPI). As a part of his academic issues, he has to conduct a dissertation during this academic year. So researchers would like to invite you to participate in this study. The title of the study is "effectiveness of music therapy in relation to the mental health of spinal cord injury patients."

Your participation in the study is totally voluntary. You have the option to discontinue your participation at any moment. There is no way to be compensated for your participation. The study will never cause any harm to you.

The confidentiality of all information will be strictly maintained. The gathered information from you will not be disclosed anywhere except for this study and supervisor. This study will certainly never reveal the name of a participant.

If you have any queries regarding the study, please feel free to ask the contact person stated below:

Tarikul Islam
4th year student
B.sc in Occupational Therapy
Bangladesh Health Professions Institute
Centre for the Rehabilitation of the Paralysed (CRP)

তথ্যপত্র

গবেষকের নাম তরিকুল ইসলাম। তিনি বাংলাদেশ হেলথ প্রফেশন ইনস্টিটিউটের বি. এস. সি. ইন অকুপেশনাল থেরাপি চতুর্থ বর্ষের ছাত্র। প্রাতিষ্ঠানিক কাজের অংশ হিসেবে চলতি শিক্ষাবর্ষে তাকে একটি গবেষনামূলক কাজ করতে হবে। তাই গবেষক আপনাকে এই গবেষণায় অংশগ্রহন করার জন্য আমন্ত্রণ জানাচ্ছে। গবেষনার বিষয় “মেরুরজ্জুতে আঘাত প্রাপ্ত রোগীদের মানসিক স্বাস্থ্যে মিউজিক থেরাপির কার্যকারিতা”। এই গবেষণায় আপনার অংশগ্রহন সম্পূর্ণরূপে স্বেচ্ছায়। আপনি এই গবেষণা থেকে যেকোনো সময় আপনার অংশগ্রহন প্রত্যাহার করতে পারবেন। এই গবেষণায় অংশগ্রহনের মাধ্যমে আপনি আর্থিক ভাবে লাভবান হবেন না। এই অংশগ্রহন কখনোই আপনার জন্য ক্ষতির কারন হয়ে দাঁড়াবে না কিন্তু এই গবেষণার মাধ্যমে সেবা প্রদানকারী সদস্যগণ আপনার অভিজ্ঞতার কথা জানতে পারবেন এবং প্রাপ্ত তথ্যসমূহ সেবার মানোন্নয়নে সাহায্য করবে। আপনার থেকে প্রাপ্ত তথ্যসমূহের সর্বোচ্চ গোপনীয়তা রক্ষা করা হবে। গবেষণা ও গবেষণার তত্ত্বাবধায়ক ব্যতীত এই তথ্যগুলো অন্য কোথাও প্রকাশিত হবে না এবং গবেষণার কোথাও অংশগ্রহনকারীর নাম প্রকাশ করা হবে না। গবেষণা সম্পর্কিত যেকোন ধরনের প্রশ্নের জন্য নিম্নলিখিত ব্যক্তির সাথে যোগাযোগ করার জন্য অনুরোধ করা যাচ্ছেঃ

তরিকুল ইসলাম

৪র্থ বর্ষ, বিএসসি ইন অকুপেশনাল থেরাপি

বাংলাদেশ হেলথ প্রফেশন ইনস্টিটিউট, সিআরপি

Appendix C: Consent form [English & Bangla]

Consent Form

Assalamu alaikum,

I am Tarikul Islam, 4th year B.Sc. in Occupational Therapy student at Bangladesh Health Professions Institute (BHPI). To obtain my Bachelor degree, I have to conduct a research project and it is a part of my study. My research title is “**Effectiveness of music therapy in relation to the mental health of spinal cord injury patients**”. To fulfill my research project, I need some information from you to collect data. So, you can be a respected participant of this research and the conversation time will be 20-25 minutes.

I would like to inform you that this is a purely academic study and will not to be used for any other purposes. I assure that all data will be kept confidential.

Your participation will be voluntary. You may have the right to withdraw consent and discontinue participation from the study anytime.

If you have any query about the study, you may contact with researcher Tarikul Islam or/and my supervisor, MD. Mohsiur Rahman, Lecturer, Dept. of Occupational Therapy, BHPI, CPR, Savar, and Dhaka-1343).

Do you have any questions before start this session?

So, I can proceed with the interview.

Yes

No

Signature of the participant and Date:

Data collector signature and date:

Researcher signature and Date:

সম্মতিপত্র

আসসালামু আলাইকুম,

আমার নাম তরিকুল ইসলাম, আমি বাংলাদেশ হেলথ প্রফেশন্স ইনস্টিটিউট (বিএইচপিআই)-এর ৪র্থ বর্ষ বিএসসি ইন অকুপেশনাল থেরাপী কোর্সের একজন ছাত্র। আমি আমার কোর্সের অংশ হিসেবে একটি গবেষণা পরিচালনা করছি যার শিরোনাম হলো “মেরুরজ্জুতে আঘাত প্রাপ্ত রোগীদের মানসিক স্বাস্থ্যে মিউজিক থেরাপির কার্যকারিতা”। আমি এক্ষেত্রে আপনার নিকট থেকে ব্যক্তিগত কিছু বিষয় সম্পর্কে তথ্য জানতে চাচ্ছি। এতে আনুমানিক ২০-২৫ মিনিট সময় লাগবে।

আমি আপনাকে নিশ্চয়তা দিচ্ছি যে, এটা আমার গবেষণার অংশ এবং আপনার প্রদানকৃত তথ্য অন্য কোন উদ্দেশ্যে ব্যবহৃত হবে না। এই গবেষণায় আপনার অংশগ্রহণ আপনার বর্তমান ও ভবিষ্যৎ চিকিৎসায় কোন প্রকার প্রভাব ফেলবে না। আপনি যে সব তথ্য প্রদান করবেন তার গোপনীয়তা বজায় থাকবে এবং আপনার প্রতিবেদনের ঘটনা প্রবাহে এটা নিশ্চিত করা হবে যে এই তথ্যের উৎস অপ্রকাশিত থাকবে।

এই গবেষণায় আপনি স্বেচ্ছায় অংশগ্রহণ করছেন এবং আপনি যে কোন সময় এই গবেষণা থেকে আপনার অংশগ্রহণ কোন নেতিবাচক প্রভাব ছাড়াই প্রত্যাহার করতে পারবেন।

এই গবেষণায় অংশগ্রহণকারী হিসেবে যদি আপনার কোন প্রশ্ন থাকে তাহলে আপনি গবেষক তরিকুল ইসলাম অথবা /এবং সুপারভাইজার, মোঃ মোহসিনুর রহমান, প্রডাষক, অকুপেশনাল থেরাপী বিভাগ, বিএইচপিআই, সিআরপি, সাতার, ঢাকা-তে যোগাযোগ করতে পারেন।

সাক্ষাৎকার শুরু করার আগে কি আপনার কোন প্রশ্ন আছে ?

আমি কি আপনার অনুমতি নিয়ে এই সাক্ষাৎকার শুরু করতে পারি ?

হ্যাঁ

না

অংশগ্রহণকারীর স্বাক্ষর ও তারিখ.....

উপাত্ত সংগ্রহকারীর স্বাক্ষর ও তারিখ.....

গবেষকের স্বাক্ষর ও তারিখ

Appendix D: Data collection tool [English & Bangla]



DASS 21 NAME _____ DATE _____

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

The rating scale is as follows:

- 0 Did not apply to me at all - NEVER
- 1 Applied to me to some degree, or some of the time - SOMETIMES
- 2 Applied to me to a considerable degree, or a good part of time - OFTEN
- 3 Applied to me very much, or most of the time - ALMOST ALWAYS

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

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ডাস-২১ বাংলা জার্নাল (DASS-21 B V)	
নাম:	তারিখ:
<p>অনুগ্রহ করে নিচের প্রতিটি বিবৃতি পড়ুন এবং ০, ১, ২ অথবা ৩ এর মধ্যে গত সপ্তাহ ব্যাপী আপনার জন্য প্রযোজ্য যে কোন একটি সংখ্যায় গোল চিহ্ন দিন। এখানে কোন সঠিক বা ভুল উত্তর নেই। কোন বিবৃতির জন্য বেশী সময় ব্যয় করবেন না।</p> <p>মানদণ্ডটি (রেটিং স্কেল) নিম্নরূপ:</p> <p>০ আমার জন্য একেবারেই প্রযোজ্য নয়</p> <p>১ আমার জন্য অল্পমাত্রায় বা কখনো কখনো প্রযোজ্য</p> <p>২ আমার জন্য বেশ কিছুমাত্রায় বা বেশখানিকটা সময়ের জন্য প্রযোজ্য</p> <p>৩ আমার জন্য খুব বেশী বা বেশীরভাগ সময়ের জন্য প্রযোজ্য</p>	
১. কোন উৎকর্ষা বা উত্তেজনামূলক কাজের পর আরামদায়ক অবস্থায় ফিরে আসা আমার জন্য কঠিন ছিল।	০ ১ ২ ৩
২. আমি বুঝতে পারতাম যে আমার গলা শুকিয়ে আসছে।	০ ১ ২ ৩
৩. ইতিবাচক কোন অনুভূতিই আমার মধ্যে কাজ করত না।	০ ১ ২ ৩
৪. আমার শ্বাসকষ্টের অনুভূতি হত (যেমন অতিদ্রুত শ্বাসপ্রশ্বাস, শারীরিক পরিশ্রম ছাড়াই নিশ্বাস বন্ধ হয়ে আসা)	০ ১ ২ ৩
৫. নিজেকে উদ্যোগী হয়ে কোন কাজ শুরু করা আমার জন্য কঠিন হত।	০ ১ ২ ৩
৬. আমার মধ্যে বিভিন্ন পরিস্থিতিতে অতিরিক্ত প্রতিক্রিয়া করার প্রবণতা ছিল।	০ ১ ২ ৩
৭. আমার শরীর কাঁপার অভিজ্ঞতা হয়েছিল (যেমন হাত কাঁপা)।	০ ১ ২ ৩
৮. আমার মনে হতো যে আমি খুব বেশী স্নায়ু চাপে ছুগছি।	০ ১ ২ ৩
৯. আমি এমন পরিস্থিতি সম্পর্কে দৃষ্টান্তহীন ছিলাম যেখানে আমি তীব্রভাবে আতঙ্কিত হতে পারি এবং এমন কোন কাজ করতে পারি যাতে অন্যরা আমাকে বোকা মনে করবে।	০ ১ ২ ৩
১০. আমার মনে হচ্ছিল, অবিশ্বাস্যে আমার ভালো কিছুই আশা নাই।	০ ১ ২ ৩
১১. আমি অনুভব করতাম যে আমি খুব অস্থির হয়ে যাচ্ছি।	০ ১ ২ ৩
১২. আরাম বোধ করা আমার জন্য কঠিন হত।	০ ১ ২ ৩
১৩. আমি মনমরা এবং বিষণ্ণ অনুভব করতাম।	০ ১ ২ ৩
১৪. আমার কাজে বাধা হয় এমন যে কোন জিনিসই আমার কাছে অসহ্য লাগত।	০ ১ ২ ৩
১৫. আমার মনে হত এই বুঝি আমি হঠাৎ তীব্রভাবে আতঙ্কিত হচ্ছি।	০ ১ ২ ৩
১৬. কোন কিছুতেই আমি বেশী আগ্রহী হতে পারতাম না।	০ ১ ২ ৩
১৭. আমি অনুভব করতাম ব্যক্তি হিসেবে আমার বিশেষ কোন মূল্য নেই।	০ ১ ২ ৩
১৮. আমি অনুভব করতাম আমি একটুতেই মনে ব্যাথা পাই।	০ ১ ২ ৩
১৯. শারীরিক পরিশ্রম না করলেও আমি হৃদপিণ্ডের কাজ করা বুঝতে পারতাম (যেমন: হৃদস্পন্দন বৃদ্ধির অনুভূতি বা বুক ধড়ফড় করা, হৃদপিণ্ডের স্পন্দনে ব্যাঘাত)।	০ ১ ২ ৩
২০. বর্থাধ কারণ ছাড়াই আমি ভীত-সন্ত্রস্ত বোধ করতাম।	০ ১ ২ ৩
২১. জীবনটা অর্থহীন বলে মনে হত।	০ ১ ২ ৩