

**MEASURE THE CHANGES OF HAND THERAPY
INTERVENTION PROTOCOL FOR PATIENT WITH TRIGGER
FINGER AT CRP-SAVAR**



By

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*This thesis project is submitted in total fulfillment of the requirement for the subject
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Statement of Authorship

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This thesis has not been submitted for the award of any other degree or diploma in any other tertiary institution. The ethical issues of the study have been strictly considered and protected. In case of dissemination the findings of this project for future publication, research supervisor will highly concern and it will be duly acknowledged as undergraduate thesis.

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List of Abbreviations

BHPI:	Bangladesh Health Professions Institute
CRP:	Centre for the Rehabilitation of the Paralysed
IBR:	Institutional Review Board
ADL:	Activities of Daily Living
SPSS:	The Statistical Package for Social Science
TF:	Trigger finger
OT:	Occupational Therapy
VAS:	Visual Analogue Scale
DIP:	Distal Interphalangeal
PIP:	Proximal Interphalangeal
MCP:	Metacarpophalangeal
NSAID:	Non-Steroidal Anti-Inflammatory Drugs
RCT:	Randomized Control Trial

Abstract

Background: Trigger finger is rare condition in Bangladesh. Now a days it is increasing day by day due to repetitive finger movement, overuse, diabetes etc. As it is very important to develop a comprehensive treatment protocol for patients with Trigger finger. Trigger finger hampered daily living activities and occupation because of severe pain, poor hand function, muscle strength and pinch strength when moving the finger or hand. It is not only a cause of disability, pain may limit self-care, productivity and leisure activities. Occupational therapy is very important to the patient when they have any injury in the hand. Because they have lost their life role and their quality of life for the Trigger Finger. Through occupational therapy, functional activities can be restored through specialized skills and treatment technique. The study protocol can be helpful for upgrading Occupational Therapy services in Bangladesh and promote the professional development. As a result, it is essential to find out the changes of hand therapy intervention after receiving hand therapy service. The protocol of this study guided the hand therapy practitioners to manage their individual's patients.

Objectives of the study: The purpose of this study was to evaluate and find out the effectiveness of treatment protocol for trigger finger patient.

Methodology: It was a quasi- experimental, pretest-posttest design of quantitative research. In this research, total 9 participants were selected and data was collected by using convenience sampling method. Patients were allocated for 4 weeks: treatment sessions were applied for the individual patient, the assessment was done again on a post- test on the same group by the same scales and changes between pre and posttest of the same groups were compared. Pain was measured by VAS scale; Hand function was measured by Disabilities of Arm, Shoulder and Hand (DASH) scale; Hand Strength was measured by Jamar Dynamo Meter & Pinch Strength was measured by Pinch Gauze.

Result and Discussion: After the 4 weeks intervention of treatment protocol of trigger finger the score of hand function in (DASH) mean pretest 106.33 and posttest 97.33, the score of hand strength in (Jamar Dynamo Meter) mean pretest 5.55 and posttest 8.88, the score of pinch strength in (Pinch Gauze) mean pretest 5.11 and posttest 7.77, the score of pain in (VAS) mean pretest 6.88 and posttest 5.33. In this study, the result shows positive changes in all the parametric area. At the end of the treatment sessions each of the participants had improvements to varying degree. However, the treatment was more effective, especially for the outcomes of decreasing symptom severity, pain reduction and patient satisfaction. The study examined the effectiveness of occupational therapy treatment program for 4 weeks helpful to reduce pain, improve hand strength, pinch strength, and improve hand function. This study should be replicated and prolonged to confirm the validity of findings.

Conclusion: Therefore, hypothesis can be proved that the 4 weeks intervention of protocol was effective in treating TF patients resulted in better outcomes. For long term effectiveness, the treatment program should be started as early as possible as part of the best practice for trigger finger patient.

Key words: Trigger Finger (TF); Effectiveness; Hand Therapy

CHAPTER 1: INTRODUCTION

1.1. Background:

The hand is a very important element of the human and it plays a vital role in activities of daily living. From birth, people learn from touch, which contribute to using their hands. Due to unavailable conditions, hand injury are often cause to the disruption of the structure. Hand therapy is a variety of rehabilitation implemented by an occupational or physical therapist with patients that suffer from conditions affecting the hands and upper extremities. Hand therapy services always assist the individual to promote hand function and approve active participations in activities of daily living (Agnihotri et al., 2006). Patients who are candidates for hand therapy may have been diagnosed with an accident or trauma, scars, burning, injuries tendons or nerve, fractures or even amputations are fingers, hand or arms. Others conditions may include such as carpal tunnel syndrome and tennis elbow, as well as from chronic problems such as arthritis or a neurologic condition (i.e. stroke).Hand therapy assist the patient to return their productive life (American Society for Surgery of the Hand, 2014). At one time or another, each person has had a minor injury to a finger, hand, or wrist that caused pain or swelling. Most of the time the movement of our body does not cause problems, but it is not surprising that symptoms develop from everyday wear and tear, overuse, or an injury. Finger, hand, or wrist problems can also be caused by natural process of aging or injuries.

The fingers, hands, or wrist injuries are most commonly arises during entertaining activities or sports, work related tasks, work or project of houses. In teenagers, most finger, hand, or wrist injuries happen during sports or play or from unintentional falls (Health wise, 2017). In 2011, American Society for Surgery of Hand expressed that Hand therapy is a developed rehabilitation intervention which is performed by experienced and qualified occupational therapist. After injury, patients are losing their role and their quality of life decreases (American Society for Surgery of Hand, 2011).Hand Therapy is the art and science of rehabilitation of the upper limb - shoulder to hand. It involves evaluation and testing to assess the injured limb from which a specific treatment program can be designed. A variety of specialized treatment techniques are used to achieve these goals (Australian Hand Therapy Association, 2014).The quality of hand therapy service can be enriching if ensure appropriate treatment protocol on the basis of individual need. In the country

perspective, TF is the more common condition in our country. So there is a need to have adequate care, along with their identifying risk factor and functional limitation for TF. In the country perspective, TF is increasing day by day due to their repetitive movements. So expectation is the most important part of the service management. All of patients expect their outcome about their hand depend upon the quality of effectiveness of service and try to find out the effectiveness of treatment protocol for TF patients of hand therapy services. Most of the Bangladeshi people are engage in cultivation and manual work. In the work place and home people do repetitive work because modern techniques are not available, to perform lots of repetitive activities e.g. clothes wringing, lifting any objects. Men who are engage in factory work, doing forceful and repetitive activities they are at the risk of developing TF. In TF the person suffers from pain and lock the finger joint they are unable to use their affected hand. When they hold any objects, they feel pain and they are not able to maintain their work. If a person has the limitation of activity then it will influence his or her productive life (American Society for Surgery of Hand, 2011).

Trigger finger is a most common finger problem, resulting in inflammation and consequent narrowing of the A1 pulley (Annular pulley at the level of the volar plate at the MCP joint and 6mm in length) (Makkouk et al., 2008). Trigger finger is categorized by pain, swelling and clicking of a digit during flexion or extension as well as functional restrictions and margins daily living activities (Tarbhai et al., 2012). It is most common among the adults, 50 to 60 years old involvement this disease. Dominant hand is more recurrently affected than the non-dominant (Huang, 2010). It is not rare for a single patient to have numerous trigger digits. The primary etiology of trigger finger is idiopathic without a clear history of trauma or change in the level of motion (Lee et al., 2011). In Triggering of the finger flexor tendons commonly occurs at the fibro-osseous tunnel formed by the metacarpal neck and the first annular pulley (Rayan, 1990). The occurrence of TF is 28:100,000 per year or a lifetime risk of 2.6% in the general population, but it rises to 10% in the diabetic population (Akhtar et al., 2005). The mean age of onset for TF is 58 years, and it is detected in women two to six times more frequently than in men (Makkouk et al., 2008).

1.2. Signification of this study:

This study can be helpful for Occupational Therapy Professionals because it will provide an evidence of practice through working with Trigger finger. As a result, it will help to increase confidence level of OTs. It could be a good resource for OT department. It will be helpful to develop a comprehensive treatment protocol for patients with TF. It is the first study of Occupational Therapy profession in Bangladesh. From the curiosity, the researcher inspired to study the effectiveness of treatment protocol to treat trigger digit along with usual hand therapy in Bangladeshi perspective. With this study, we can get idea about the treatment of trigger digit. Therefore, in this situation; this study might helpful for CRP hand therapy department as well as Bangladesh. The study findings can be helpful for upgrading Occupational Therapy services in Bangladesh and promote the professional development. As a result, it is essential to find out the effectiveness of hand therapy intervention after receiving OT service. Overall this study will be guided the hand therapy practitioners to manage their individuals patients

1.3. Operational Definition:

Hand Therapy:

Hand therapy is the art and science of rehabilitation of the upper limb, which includes the hand, wrist, elbow and shoulder girdle. A merging of occupational and physical therapy theory and practice combine comprehensive knowledge of the structure of the upper limb with function and activity. Using specialized skills in assessment, planning and treatment, hand therapists provide therapeutic interventions to prevent dysfunction restore function and/or reverse the progression of pathology of the upper limb in order to enhance an individual's ability to execute tasks and to participate fully in life situations (Hand Therapy Certification Commission, 2009).

Hand Therapy is the art and science of rehabilitation of the upper limb - shoulder to hand. It involves evaluation and testing to assess the injured limb from which a specific treatment program can be designed. A variety of specialized treatment techniques are used to achieve these goals (Australian Hand Therapy Association, 2014).

Hand therapy brings together techniques of Occupational Therapy (scar management, retraining, splinting and advice on activities of daily living) and physiotherapy (joint mobilization, stretching active and resisted exercise and ultrasound). The hand therapist can assist with emotional and psychological support as well as with restoration of hand function (The British Society for Surgery of the hand, 2016).

Trigger Finger:

Trigger digit is a painful condition that causes the finger or thumb to catch or lock when bent. In the thumb it's called trigger thumb. Trigger finger is a condition that affects the tendons in the fingers or thumb. Trigger digit is also known as stenosing tenosynovitis or stenosing tenovaginitis. On examination, there is often tenderness to palpation in the area of the A1 pulley just proximal to the metacarpal-phalangeal (MCP) joint. There may also be a palpable nodule distal to this area and this nodule will generally move with finger flexion and extension (Sempowski, 2008).

CHAPTER II: LITERATURE REVIEW

Trigger finger or thumb refers to a sensation when the fingers or thumb feels stuck or temporarily catches or snags during effort to straighten (extend) or bend (flex). In early stages, there may simply be a click with movement, tenderness in the palm over the tendon, and a diminished range of motion with a gradual loss of full flexion or extension of the finger or thumb (MDGuidelines Directory for Medical Topics, 2012). In our hands, the muscles are divided into two groups: the extrinsic muscle and intrinsic muscle groups. Primarily extrinsic muscle coordinates the powerful gripping and gross action (e.g.: lifting) of the hand and the intrinsic muscle are primarily responsible for intricate finger movements and fine motor control (e.g. eating, writing etc.). Trigger finger can minimize hand function. After TF the patient feels difficulties to accomplish their daily living activities due to impairment of the extrinsic muscle and intrinsic muscle groups. These muscles are connected to the finger bones by tendons. Contraction of the muscle pulls on the tendon to move the finger. In our hand if there is TF the persons are faced in fine and gross motor movements. Although the persons have difficulty in TF, they cannot perform their functional activities such as self-care, productivity and leisure (American Society of Hand Therapist, 2008).

Trigger finger arises through a discrepancy in the diameter of the flexor tendon and its sheath at the level of the metacarpal head. High pressures occur at the proximal edge of the A1 pulley on maximal flexion and during tight grip. Pressure is more evenly distributed in the remainder of the pulley system. In some patients, this seems to have an adverse effect, causing changes in the macroscopic appearance of the A1 pulley with hypertrophy and fibro cartilaginous metaplasia at the tendon-pulley interface. The thickening of the sheath, along with some localized tendon thickening, can result in a narrowed tunnel for tendon excursion and ultimately lead to a block to movement; the flexors are usually powerful enough to overcome this Obstruction, whereas the weaker extensors are less able to counteract the block (Seybold & Warhold, 1996). Resulting in the finger being locked in flexion. The A1 pulley is the site of disease in nearly all cases, owing to the high local forces and a steep pressure gradient; it is also the site of maximal tendon excursion. Alternative sites of tendon triggering have been described, including the A2 and A3 pulleys and the palmar aponeurosis (Akhtar et al., 2005). Various causes of trigger finger have been proposed, including repetitive finger movements or compressive forces at the A1 pulley and repetitive local trauma in such circumstances, occupation could be a major predisposing factor (Bonnici &

Spencer, 1988). There is a correlation between the incidence of trigger finger and the workplace. The classic presentation of popping and locking of a trigger finger is typically all that is needed for diagnosis; however, with acute onset of symptoms patients may present with pain and swelling over the involved flexor sheath with avoidance of finger motion. In these cases, the classic popping and triggering are not seen and the diagnosis of trigger finger must be differentiated from infection or some other traumatic injury (Trazies et al., 1998). If desired, the diagnosis may be confirmed with an injection of lidocaine into the flexor sheath, which should relieve the pain associated with the triggering and allow the digit to become actively or passively extended. There is no role for imaging in diagnosis, with x-rays considered unnecessary in patients without history of inflammatory disease or trauma. (Katzman et al., 1999). The finding of a locking digit is not unique to trigger finger, and can be associated with dislocation, Dupuytren's contracture, focal dystonia, flexor tendon/sheath tumor, sesamoid bone anomalies, post-traumatic tendon entrapment on the metacarpal head, and even hysteria. The differential diagnosis of pain at the MCP joint includes de Quervain's tenosynovitis (for trigger thumb only), ulnar collateral ligament injury of the thumb (gamekeeper's thumb), MCP joint sprain, extensor apparatus injury, and MCP osteoarthritis (Kalms & Højgaard, 1991). There is a variety of procedures to treat trigger finger; interventions include both non-surgical and surgical treatments. In most cases, conservative treatment is suggested before surgical intervention. (Valen & Foxworth, 2010). Conservative treatment includes anti-inflammatory drugs, steroid injections and rehabilitation. Occupational therapy (OT) recommendations for trigger finger include splint and correction and modification of activities and work or home environment; however, few studies have examined the efficacy of these practices (Radomski & Trombly, 2002). Various treatment has been used to treat trigger finger .According to review the literature to obtain the evidence for each method of treatment to guide practitioners in the best care. Activity modification, nonsteroidal anti-inflammatory drugs, splinting, steroid injection, surgical release all have been used in the management of trigger finger. Injection with corticosteroid and lidocaine has a high success rate and low morbidity. Surgical release appears to be more effective than corticosteroid injection for treatment of trigger finger, it is associated with increased pain at 1 month, although no differences by 6 month. Physical therapy (with multiple modalities including ultrasound, massage, finger exercise, stretching and wax therapy) is less effective than corticosteroid injection, but may have a role in prevention of recurrence of symptoms. Splinting may reduce pain and severity of triggering. (Akhtar et al, 2005)

Conservative treatment may be effective in managing symptoms, and the scientific literature provides evidence in support of some conservative therapies. Hand therapists may use a variety of conservative interventions in their management of persons with TF. Occupational therapy is very important to the patient when they have any injury in the hand. Because they have lost their life role and their quality of life for the TF. Through occupational therapy, functional activities can be restored through specialized skills in treatment (American Society of Hand Therapist, 2008).

The occupational therapist provides various exercise and treatments because of our specialized training and expertise. This advanced knowledge and training enables us to treat individual who sustain hand or upper extremity injuries with the most up to date information, techniques and protocol in order for them to return more quickly to a functional lifestyle (Hand & Upper Extremity Rehabilitation, 2010).

CHAPTER III: METHODOLOGY

3.1. Research question

What is the effectiveness of hand therapy intervention for patient with trigger finger?

3.2. Aim of the study

The purpose of this study the effectiveness of treatment protocol for Trigger finger

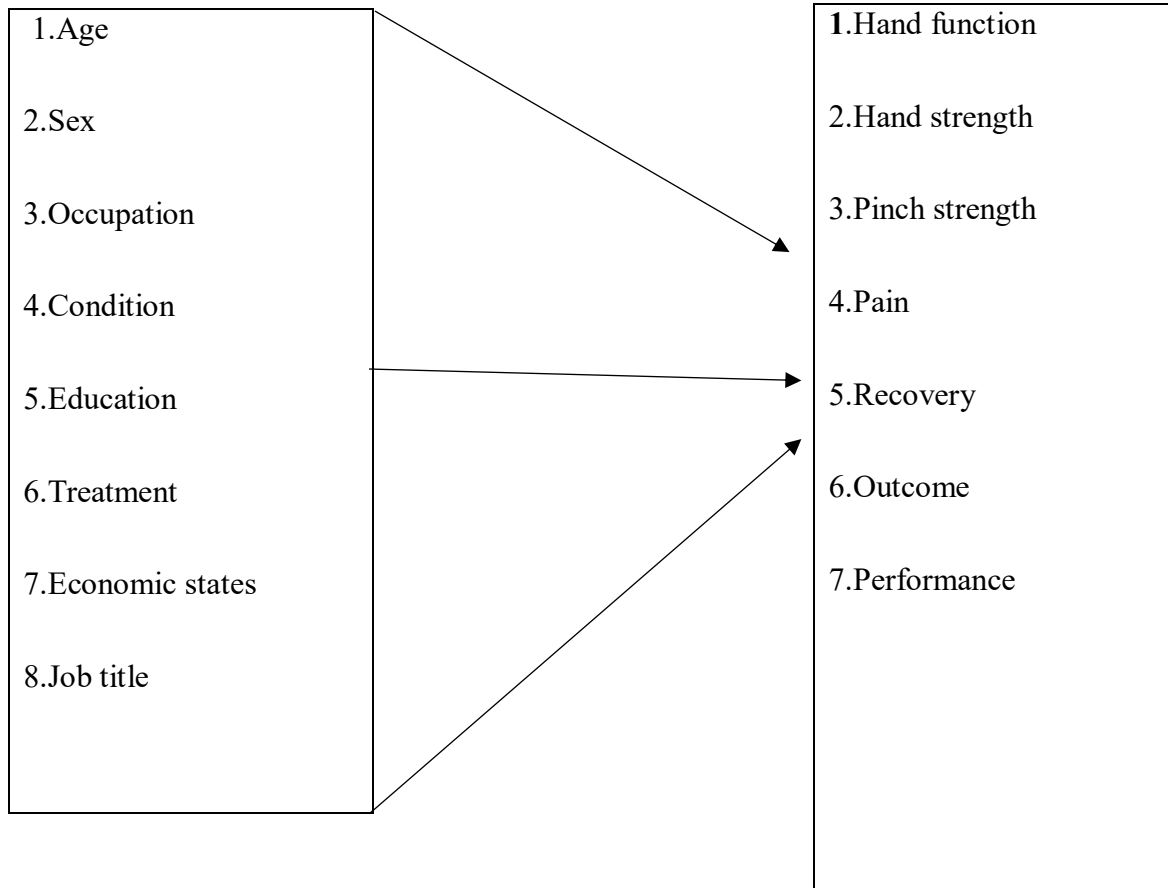
3.3 .Specific Objectives of the study

- To find out the effectiveness of treatment protocol to reduce pain, to improve the grip and Pinch strength, to improve hand function.

3.4. Conceptual frame work:

Independent Variables

Dependent Variables



3.5. Hypothesis: The Treatment Protocol can change the outcome of post-test in the management of Trigger Finger.

3.4. Null Hypothesis

The Treatment Protocol cannot change the outcome of post-test in the management of Trigger Finger.

3.6. Study design

It was a quasi- experimental design of quantitative research. This study was a single group and provides an intervention during the experiment. This design did not have a control group to compare with the experimental group. Quasi experimental design differs from a true experimental design in that, although it contains an independent variable that is manipulated in order to look for an effect on a dependent variable, either control group or randomization is lacking. These designs are useful to researcher looking for validation of treatment method and techniques, in experimental design, all three of the components- manipulation, control and randomization-are required (Bailey, 1997). But in this study all the three components were not present.

Therefore, this study was a quasi- experimental research design. Here, standard hand therapy treatment was applied to the patients who were suffering at Trigger Finger.

3.7. Study population: Person (adult) with trigger finger of any age above 18 years

3.8 .Study setting

The Researcher was conducted the patient with TF at Hand Therapy Unit of Centre for the Rehabilitation of the Paralysed (CRP) Savar, Dhaka

3.9. Study period: September to February 2018(6 month)

3.10. Sample size: Researcher took nine participants from Centre for the Rehabilitation of the Paralysed (CRP) Savar. There are 9 participant 8 female and 1 male

3.11. Inclusion criteria

- Patient who has diagnosed as TF and referred by occupational Therapist, physiotherapist and doctor.
- Both male and female patients
- Age above 18 years
- Without surgery and steroid injection for trigger finger.
- Patient who can attend up to one month (4 weeks) for the treatment.

3.12. Exclusion criteria

- Patient who has had surgery in his or her hands for removing trigger finger (TF).
- Patient who has digit fracture
- Participant who have joint disease like osteoarthritis, rheumatoid arthritis, trauma, and pregnancy because their symptom is similar as like as musculoskeletal symptoms.
- Who has psychiatric disorder
- Unwilling to participate in this study

3.13. Sampling technique

9 participants with TF were collected by using convenience sampling from the Hand Therapy department of CRP, Saver. Baily (1997) stated that „in convenient sampling participant are choose which can be studied most easily, cheaply or quickly. Usually all patient with problem in finger or hand directly refer to hand therapy unit of CRP-Savar by doctors at CRP. So all patient who meet the inclusion & exclusion criteria will be sample within the study periods.

3.14. Data collection Tools:

This research is quantitative exploration of the effectiveness of Hand Therapy Treatment Program for TF patients. To understand the effectiveness Hand Therapy Treatment Program for TF several measurement tools was used, such as; Visual Analogue Scale (VAS), Jamar Dynamometer and pinch gauge, Disabilities of the Arm, Shoulder and Hand (DASH)

3.15. Data collection procedure

- Observation
- Interview
- Engage functional tasks such as power grip, button etc.
- Test and measures

3.16. Data Collection method

The data collector fixed a date and time with the participant to his or her available time. At first the data collector informed the participant about the contents of the consent form. All participant names coded to maintain confidentiality, diagnosed and referred by qualified occupational Therapist, physiotherapist and doctor. Each participant received hand therapy intervention for TF.

Then the data collector measured pain, overall hand function, and muscle strength of patient with TF. The participant received treatment as regular patients in the Occupational Therapy department of CRP; they continue their treatment as per their schedule. Each participant received 4 weeks of a treatment program arrange by the researcher with the permeation from the Occupational Therapy department.

Before started the treatment there the initial assessment where the researcher assessed pain, overall hand function, and grip and pinch strength of patient with TF that carried out in each area that provides the pretest score.

After receiving 4 weeks intervention program, then the data collector collected the subjective and objective information including the pain, hand function, and muscle strength of each participant,

but the treatment applied by qualified Occupational Therapist. The data collector instructed the appointee about the treatment protocol. During this time, the participants continued their treatment as per their schedule. Each participant received 4 weeks of a treatment program arranged by the researcher with the permission from the Occupational Therapy department, that carries post-test score.

3.16. Data management and Analysis

Data analysis was done with statistical calculation using inferential statistical parametric paired “t” test which is performed during numerical data system as conveniently selected of the subjects for the participants. A quantitative research data analysis occurs at the conclusion of data collection (Bailey, 1997).

In this study, during the data analysis these sequence data was converted into numerical data by giving a specific value for specific sequence data. In this study there were four variables. The every variables may come different score in this research. The researcher took the average of those sub division and makes them into one variable. In this study there were 4 variables that were categories and they are hand function, hand strength, pinch strength, pain interfering daily activities. All the participants told about different variables before starting treatment and after completing the 4 weeks treatment sessions and were scored by the data collector.

The ‘t’ formula:

$$t = \frac{\sum d}{\sqrt{\frac{N \sum d^2 - (\sum d)^2}{N - 1}}}$$

Where,

$\sum d$ = the total of the differences

$(\sum d)^2$ = the total of the differences Squared

$\sum d^2$ = the total of the squared differences

N= Number of participants.

N-1= degree of freedom. The sign is df. A complex concepts involved in some statistical tests which refers to the extent to which data have the capacity to vary one certain limit has been Imposed (Hicks, 1999). $\sqrt{}$ = The square root of the final calculation of everything under the square root sign. In this study, the hypothesis was one tailed as it was predicting a specific direction to the results (Hicks, 1999). To support the hypothesis and/or to reject the null hypothesis the researcher used related „t“ test to find out the „p“ value so that the result can be significant

3.17. Quality control& quality assurance:

The researcher used standardized scales to ensure validity and reliability of the measurement. The measurement scales used by experienced therapist for ensuring the validity and reliability. The data were collected from Hand Therapy unit of CRP-Savar, it was ensured the quality of care of all patient with trigger finger by providing the treatment guideline and the service was provided by experienced therapist. All patient received similar treatment and intervention so the quality of care was assured in all cases.

3.18. Ethical consideration

- Researcher took permission from the authority of CRP.
- Researcher maintained confidentiality about service information of the institutes.
- Researcher ensured that the confidentiality is maintained about the participants.
- All participants were informed about the aim of the study.
- The researcher was available to answer any study related questions or inquiries from the participant
- All sources was cited and acknowledged appropriately
- The researcher concerned about the effect of biasness, as the study sample was selected based on inclusion and exclusion criteria.

CHAPTER IV: DATA ANALYSIS AND RESULT

Results

Table 1: Shows variables in the study statistically significant at the following level of significance

Variables	Mean pre-test	Mean post-test	Mean differences	t value	p value	Level
Hand function(DASH) scale	106.33	97.33	9	5.857	.005	Significant
Hand strength(Ibs)	5.55	8.88	3.33	7.3533	.005	Significant
Pinch strength(Ibs)	5.11	7.77	2.66	5.333	.005	Significant
Pain interfering daily activities	6.88	5.33	1.5	5.6	.005	Significant

P value: P=.005, If the *P*-value is less than (or equal to) α value, then the null hypothesis is rejected in favor of the alternative hypothesis. And, if the *P*-value is greater than α value, then the null hypothesis is not rejected.

$\alpha > p$ or $\neq p$, then null hypothesis is rejected and support alternative hypothesis

$p > \alpha$, then null hypothesis is not rejected, null hypothesis is in favors

Calculating the degree of freedom (df) from the formula,

$$Df = N-1 = 9-1 = 8$$

Hand Function (Disabilities of the Arm, Shoulder and Hand (DASH))

Hypothesis: The Treatment Protocol can change the outcome of post-test in the management of Trigger Finger.

Null Hypothesis: The Treatment Protocol cannot change the outcome of post-test in the management of Trigger Finger.

As it is one tailed hypothesis and degree of freedom is 8, so the tabulated value is 3.355 when probability error is 0.005. From the calculation it was found that the hand function of mean pretest and posttest are respectively 106.33, 97.33 and mean differences 9, the calculated t value is 5.857, when p value .005. Here, the calculated value is greater than the tabulated value so null hypothesis is rejected and support the experimental hypothesis which means that the hand function improved significantly due to intervention.

Hand strength (Jamar Dynamometer)

Hypothesis: The Treatment Protocol can change the outcome of post-test in the management of Trigger Finger.

Null Hypothesis: The Treatment Protocol cannot change the outcome of post-test in the management of Trigger Finger.

As it is one tailed hypothesis and degree of freedom is 8, so the tabulated value is 3.355 when probability error is 0.005. From the calculation it was found that the hand function of mean pretest and posttest are respectively 5.5 &, 8.88 and mean differences 3.33, the calculated t value is 7.3533, when p value .005. Here, the calculated value is greater than the tabulated value so null hypothesis is rejected and support the experimental hypothesis which means that the hand strength improved significantly due to intervention.

Pinch strength (pinch gauge)

Hypothesis: The Treatment Protocol can change the outcome of post-test in the management of Trigger Finger.

Null Hypothesis: The Treatment Protocol cannot change the outcome of post-test in the management of Trigger Finger.

As it is one tailed hypothesis and degree of freedom is 8, so the tabulated value is 3.355 when probability error is 0.005. From the calculation it was found that the hand function of mean pretest and posttest are respectively 5.11, 7.77 and mean differences 2.66, the calculated t value is 5.333 when p value .005. Here, the calculated value is greater than the tabulated value so null hypothesis is rejected and support the experimental hypothesis which means that the pinch strength improved significantly due to intervention.

Pain interfering daily activities (Visual Analogue Scale (VAS))

Hypothesis: The Treatment Protocol can change the outcome of post-test in the management of Trigger Finger.

Null Hypothesis: The Treatment Protocol cannot change the outcome of post-test in the management of Trigger Finger.

As it is one tailed hypothesis and degree of freedom is 8, so the tabulated value is 3.355 when probability error is 0.005. From the calculation it was found that the hand function of mean pretest and posttest are respectively 6.88, 5.33 and mean differences 1.5, the calculated t value is 5.6 when p value .005. Here, the calculated value is greater than the tabulated value so null hypothesis is rejected and support the experimental hypothesis which means that the pain decrease significantly due to intervention. All of data show that the intervention were statistically significant. The participant reported to decrease their pain and improve hand function, hand strength, pinch strength after the intervention.

From the above we can see the difference before and after receiving treatment.

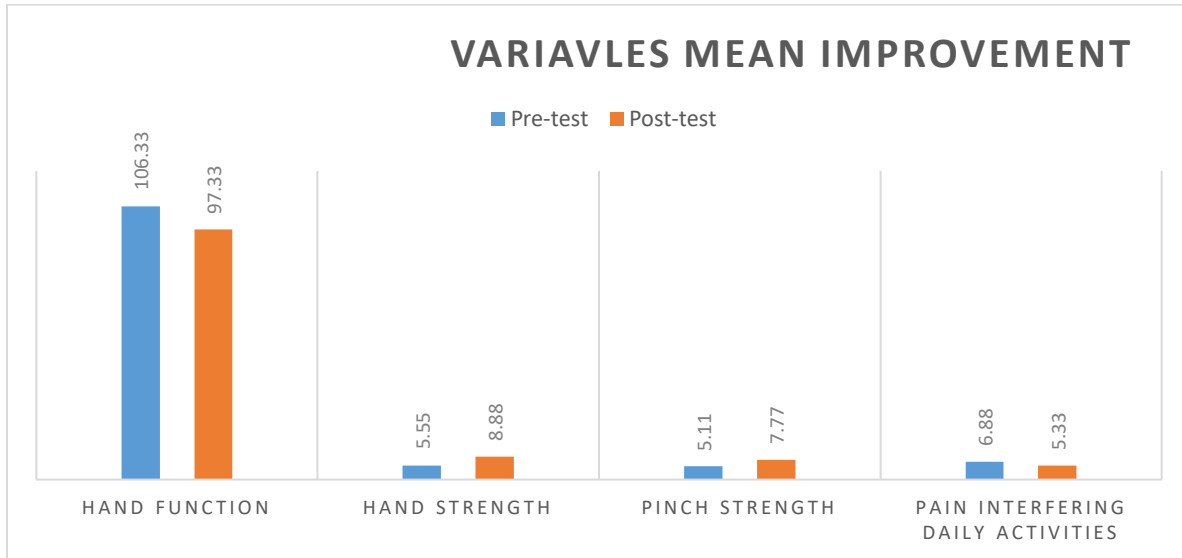


Figure 1: show the mean improvement in different variables between pretest and posttest.

Interpreting the Result:

The total findings of the outcome measures represent that, the mean score of pre- test of participants that applying treatment protocol for TF patients and after applying that protocol (data is presented in table 1). Therefore the mean score of participants of total findings improved after applying treatment protocol for TF patients. Improvement seen in the hand function, hand strength and pinch strength. The study shows that the average score after receiving treatment is greater than before receiving treatment. Statistical analysis of the data represented that the probability of the hypothesis support for significant level of the experimental hypothesis is therefore it can be said that the findings of the study is significant. Compare the test statistic to the critical value. If the test statistic is more extreme in the direction of the alternative than the critical value, reject the null hypothesis in favor of the alternative hypothesis. If the test statistic is less extreme than the critical value, do not reject the null hypothesis.

The bar chart (figure 1) is representing the improvement rate of each of 9 participants before and after applying treatment protocol for trigger finger patients. This study finds out that pain represent

that, the mean score of participants before applying treatment protocol for TF patients and after applying this protocol. The overall finding is showing in table 1. Therefore the mean score of participants in the area of pain reduction after applying treatment protocol for TF This result demonstrates that the average score after receiving treatment was greater than before receiving treatment. Overall finding of data show that the critical value of t is greater than p value in all variables such as hand function, hand strength, pinch strength and pain interfering daily activities, so in this case null hypothesis is rejected and experimental hypothesis is favor to positive outcome Finally all of data findings support the hypothesis of this protocol for treat trigger finger patient.

CHAPTER V: DISCUSSION

The purpose of the study was to find out the effectiveness of Hand therapy treatment program for Trigger finger and the objectives were to find out the effectiveness of treatment protocol to improve the grip strength and pinch strength, to improve hand function and reducing pain. To see the improvement rate of the participant and to make a specific treatment protocol for Triger finger patient.

A 2009 Cochrane review of 2 methodologically flawed RCTs with a total of 63 adult patients evaluated the effectiveness of an intra-sheath corticosteroid plus lidocaine injection compared with lidocaine alone for the treatment of trigger finger. The Splinting is a conservative treatment option for Trigger finger. There have several splinting designs for managing trigger finger or thumb. The splinting designs includes DIP blocking splint, PIP blocking, MCP Blocking, Thumb or Finger extension (Peters-Veluthamaningal, et al., 2009).

In the Evans et al., (1988), Suggested in his single group pre and posttest study -splint as the metacarpophalangeal (MCP) joint is immobilized in 0 to 15 degrees of flexion using a custom-made hand splint allowing full proximal interphangeal (PIP) and distal interphangeal (DIP) movements with hook and first exercises. The results of study indicated decreased triggering of a single isolated trigger finger.

In a study of Koh et al., (2012), found that in splint group, 92% of the patients experienced complete relief symptom within 22 months, whereas 60% resolved completely in 59 months in observation group. The differences were statistically significant. So it indicates that splint is efficient in shortening the time for symptom relief for the Pediatric trigger thumb with locked interphalangeal joint.

Splinting was successful in 77% patients with symptoms of 6 months or less and in 44% in those with symptoms of longer than 6 months. This compared to successful injection of 84% of patients with symptoms of 6 months or less and 71% in those with symptoms longer than 6 months. These figures exclude the thumb where splinting has poor outcomes (50% success) (Patel & Bassini, 1992).

One of a case series study of) provided Splint & digit range of motion (ROM), home exercise program (HEP) and the result shown significant improvement in the 28 participants out of 28. In a single-centred, prospective, block randomized study with 74 patients; 39 patients for steroid injection and 35 patients for physiotherapy. , to determine which of the two conservative treatments more effective .After 3 months the success rate was 97.4% for patients treated with corticosteroid injection and 68.6%, for patients treated with physiotherapy. Success rate was measured by absence of pain and triggering. The patients with success at 3 months had an additional follow-up at 6 months following treatment to measure recurrence (Altman, 2008).

At the 6 month period assessment results revealed that patients who received corticosteroid injections had better pain scores, higher satisfaction rate, and stronger grip strength. However, patients that received physiotherapy treatment had no recurrence of pain or triggering. So, the study shows that though corticosteroid injection is better to relief symptoms, but physiotherapy may be better at preventing recurrence of trigger finger (Salim et al., 2012).

In a prospective study on the trigger digit management, offered the treatment modes in clinics were combination therapy of topical NSAIDS, occupational therapy and splinting or invasive modes involving corticosteroid injections and trigger finger release. From the study it was noted that 26% of the digits which were subjected to combination therapy eventually underwent surgery whereas 60% of digits which received corticosteroid injections underwent surgery. Even though the results comparing operation rates were not statistically significant, they appeared to show that combination therapy was more effective in avoiding surgery than corticosteroid injection (Choudhury&Tay,2014).

In a retrospective study, it was found that mean pain score pre-splinting is 5.63 and post-splinting is 1.20. Mean stage of stenosing tenosynovitis (SST) score pre-splinting is 3.93 and post-splinting is 1.21. There was an 87% (40 patients) success rate with the splinting intervention. The duration between pre and posttest was one year. The study demonstrated the efficacy of splinting for the reduction of pain and SST score for patients who have trigger finger (Valdes, 2012).

According to Colbourn, et al., (2008), study result it was found statistically significant treatment outcome by using MCP blocking splint. The result shown that the paired mean difference between pre and post-test in NPRS was 2.231(SD 2.75), SST 1.535(SD 1.23) and number of triggering 2.679(SD 3.72). In this study result, it is found that the paired mean difference of pre and post - test in NPRS was 6.15 (SD 1.474), SST 2.135 (SD 0.768) and number of triggering 6.30 (SD 1.639). So, the treatment outcome was highly significant in the study.

CHAPTER VI: STUDY LIMITATION

It is the first study in Bangladesh, so there were some barriers and limitations during conducting the research project. In this study the researcher used one experimental group which represented their own control group. However, in the study settings, this study's need to long time but study was done in shorter time, this study used 9 participants to evaluate the effectiveness of hand therapy intervention for TF patients. Financial support and duration of this project is so poor that why it is not possible to move any other hospital to gather much more participants. In this study the participant get only 4 weeks treatment sessions due to lack of time limitation. Though the treatment was effective but it could not check the long term effect. There was no available research done in this area in Bangladesh. So, as a result in the Bangladesh Health Professions Institute (BHPI) library, there were no relevant data found in this area and relevant information about TF and occupational therapy treatment of hand is very limited. Due to lack of number of the participants the external validity of the study decreased, and there might be lack of agreement about distributing of confounding variables e.g. socio-economic status, age, time of onset and severity of the condition. These unmeasured variable were not controlled in the analysis might have affect the outcome.

CHAPTER VII: CONCLUSION

Our country's education rate is very poor, many of us are uneducated and government and non-governmental activities in the health sector are not enough, now a one-day government health program is a population appeal, and still separate private clinics and hospitals are trying to bring the latest medical services to our people in the development of public health, Most of the people do not know about occupational therapy and why occupational therapy is important to treat patient. But in the other development country occupational therapy is familiar and considered as an important treatment. As a developing medical profession, it is the duty of the occupational therapy in Bangladesh should make a strong evidence for practice which will increase strength and improve the skill of the occupational therapy as well as developed our occupational therapy profession.

The result of this study has the effectiveness of occupational therapy treatment program for TF patients. Now a days TF is a common condition in our country it may be the causes of chronic pain, decrease functional ability, decrease hand function, decrease Muscle strength of hand, and decrease range of motion. If this condition is not properly treated at the acute stage, finally this may turn into disability. It is important to decrease pain, improve functional ability, improve hand function, and improve muscle strength of hand, increase range of motion and to improve ADLs are needed. This occupational therapy treatment program for TF may provide a simple therapeutic measure, which patients can learn to use by themselves, so they would be able reduce some of the burden resulting from TF. The study examined the effectiveness of occupational therapy treatment program for 4 weeks helpful to reduce pain, improve functional ability, improve hand function, and improves Muscle strength of hand, increase range of motion and to improve ADLs. Because of the above-mentioned limits, this study lacks generalize ability. This study should be replicated and prolonged to confirm the validity of findings.

CHAPTER VIII: RECOMMENDATION

In this study the researcher found significant result about the effectiveness of hand therapy intervention for TF patients. To reducing pain, increase range of motion, and improve muscle strength, improved hand function were found by occupational therapy treatment program for the patients with TF. But this study should be done in future. This study should be conducted with longer duration to evaluate long term effectiveness of hand therapy intervention for TF patients. It is suggested to include an occupational therapy treatment program in rehabilitation program of TF patients to provide better service. As the consequence of the study, another study should be done with large number of participants so that the result can be generalized for TF patients in Bangladesh. In future, in this type of study during sample selection randomization should be done and as control group should be taken to compare the effectiveness of hand therapy intervention for TF patients, so that this treatment can be more evidence based for this kind of the patients. Finally, it is recommended that, it will be valuable if the study will be done in other areas of occupational therapy. It is also recommended to the further research by using a larger sample size with a control group in different clinical settings. The researcher think that to ensure reliability and validity of this study further research must be needed.

REFERENCES

- Agnihotri, A. K., Purwar, B., Jeebun, N., & Agnihotri, S. (2006). Determination of Sex by Hand Dimensions. *The Internet Journal of Forensic Science* 1 (2). Available at: <http://www.fayoum.edu.eg/Medicine/ForensiToxicology/pdf/DrGhada9.pdf> [Accessed on 30 November 2014].
- Akhtar, S., Bradley, M. J., Quinton, D.N., & Burke, F.D. (2005). Management and referral for trigger finger/thumb .*BMJ*, 3331(7507), pp.30-33.
- Hand Therapy Certification Commission (HTCC). (2009). Definition of hand therapy. [Online] Available at:<<https://www.htcc.org/consumer-information/the-htcc-credential/definition-of-hand-therapy>>[Accessed 30 may 2016].
- Ryzewicz, M., & Wolf, J. M. (2006). Trigger digit: principle, management, and complication. *Journal of Hand Surgery* 31A:135-146.
- Radomski, M.V., & Trombly, C. A. (2002). *Occupational Therapy for Physical Dysfunction* (5TH edn). Philadelphia,PA:Lippincott Williams& Wilkins.
- Bailey, D. M. (1997). ., *Research for the Health Professional: A Practical Guide* (2nd ed.), United States: F. A. Davis Company.
- Australian hand Therapy Association. (2014). what is hand therapy Available at: <http://www.ahta.com.au/site/hand-therapy> [Accessed on 1st January 2015].
- Depoy, E., & Gitlin, L. (1998). *Introduction to Research: multiple strategies for health and human service*. Toronto: Mosby.
- Altman, E. (2008). Clinical commentary in response to: effectiveness of splinting for the treatment of trigger finger. *Journal of Hand Therapy* 21(4): 344–346.

- Evans, R. B., Hunter, J.M., & Burkhalter, W. E. (1988). Conservative management of the trigger finger: a new approach. *Journal of Hand Therapy* 1(2): 59–68.
- Hudak, P., Amadio, P. C., & Bombardier, C. (1996). Development of an upper extremity outcome measure: the DASH (Disabilities of the Arm, Shoulder, and Hand). *American Journal of Industrial Medicine* 29: 602–608.
- Makkouk, A. H., Oetgen, M.E., Swigart, C. R., & Dodds, S.D. (2008). Trigger finger: etiology, evaluation, and treatment. *Current Reviews in Musculoskeletal Medicine* 1: 92–96.
- Tarbhaj, K., Hannah, S., & Von Schroeder, H. P. (2011). Trigger finger treatment: a comparison of 2 splint designs. *The Journal of Hand Surgery* 37(2): 243–249.
- Rayan, G.M. (1990). Distal stenosing tenosynovitis. *Journal of Hand Surgery* 15A: 973.
- The British Society for Surgery of the Hand (BSSH). (2016). What is Hand Therapy? [Online] Available at: http://www.bssh.ac.uk/patient/what_is_hand_therapy.aspx [Accessed 30 May 2016].
- Sempowki, I. P. (2008). The Management of occasional trigger finger. *Canadian Journal of Rural Medicine*, 13(3), pp.136-139.
- Health wise staff. (2017). Finger, Hand, and Wrist Injuries. Retrieved form <https://myhealth.alberta.ca/Health/Pages/conditions.aspx?hwid=handi>.
- American Society for Surgery of the Hand. (2014). Hand Therapy. Retrieved form <http://www.assh.org/handcare/hand-therapy-description-and-treatment>.
- American society for surgery of the hand. (2011). what is hand therapy, Available at: http://www.assh.org/public/hand_conditions/pages/Hand_therapy.aspx [Accessed on 1st January 2015].

- Australian hand therapy Association. (2014) what is hand therapy Available at:<http://www.ahta.com.au/site/hand-therapy>[Accessed on 1st January 2015].
- American Occupational Therapy Association.(2008) Occupational therapy practice frame work: Domain and Process (2nded.),American Journal of Occupational Therapy, vol.16,pp.625-683.
- Hand and Upper Extremity Rehabilitation. (2010). Importance of hand therapy, Available at :<
<http://www.physicaltherapyspecialists.com/Hand%20Specialisties%20Page.htm>> . [Accessed on 1st January 2015].
- Hicks, C. M. (1999). Research Methods for Clinical Therapist: Applied Project Design and Analysis (3rd Ed.). Edinburgh: Churchill Livingstone.
- Bae, D. S. (2008). Pediatric trigger thumb. The journal of Hand Surgery, 33(7), pp.1189-1191.
- Bonnici, A.V., & Spencer, J. D. (1988). A survey of trigger finger in adult. Journal of Hand Surgery (British and European volume), 13(2), pp.202-203.
- Katzman, B.M., Steinberg, D.R., Bozenka, D.J., Cain, E., Caligiuri, D.A., & Geller, J. (1999). Utility of obtaining radiograph in patients with trigger finger. American journal of orthopedics (Belle Mead, NJ), 28(12), pp. 703-705.
- Kalms, S.B., & Hojgaard, A.D. (1991). Trigger finger: report of an unusual case. The Journal of trauma, 31(4), pp.582-583.
- American Society for Surgery of the Hand. (2008). Hand Therapy. Retrieved form <http://www.assh.org/handcare/hand-therapy-description-and-treatment>.

- Valen, P.A., & Foxworth, J. (2010). Evidence supporting the use of physical modalities in the treatment of upper extremity musculoskeletal conditions. *Current opinion in rheumatology*, 22(2), pp.194-204.
- Lee, M.P., Biafara, S.J., & Zelouf, D. S. (2011). Management of hand and wrist tendinopathies. In: Skirven TM, Ferdorczy AL, Amadio P (eds). *Rehabilitation of the Hand and Upper Extremity* (6th edn). Philadelphia: Mosby.
- MDGuidelines Directory for Medical Topics. (2012). Trigger finger or Thumb. [online] Available at :< <http://www.mdguidelines.com/trigger-finger-or-thumb>>[Accessed 30 May 2016].
- Treziez, A.J.H., Lyons, A.R., Fielding, K., & Davis, T.R.C. (1998). Is occupation an aetiological factor in the development of trigger finger? *Journal of Hand Surgery (British and European Volume)*, 23(4), pp.539-540.
- Seybold, E.A., & Warhold, L.G., (1996). Impingement of the flexor pollicis longus tendon by an enlarged radial sesamoid causing trigger thumb: A case report. *The Journal of hand surgery*, 21 (4), PP.619-620.
- Pack, M. (2015). Best Practice Recommendations for Management of Flexor Tenosynovitis in the RA Hand. Retrieved from <http://mpap.vch.ca/wp-content/uploads/sites/16/2015/10/Best-Practise-Recommeondations-for-Management-of-Flexor-Tenosynovitis-in-Rheumatoid-Arthritis.pdf>.
- Peter, M. R., & Bassini, L. (1992). Trigger finger and thumb: when to splint, inject or operate. *The Journal of hand therapy*, 17(1), PP.110-113.

- Peters-Veluthamaningal, C., Van der Windt, D.A., Winters, J.C., & Meyboom-de Jong, B. (2009). Corticosteroid injection for trigger finger in adults. *Cochrane Database Syst Rev*, 1.
- Koh, S., Horri, E., Hattori, T., Hiroishi, M., & Otsuka, J. (2012). Pediatric trigger thumb with locked interphalangeal joint: can observation or splinting be a treatment option? *Journal of pediatric Orthopedics*, 32 (7), pp.719-721.
- Salim, N., Abdulla, S., Sapuna J., & Haflah, N. H. M. (2012). Outcome of corticosteroid injection versus physiotherapy in the treatment of mild trigger finger. *Journal of Hand Surgery (European Volume)*, 37(1), pp 27-34.
- Colbourn, J., Heath, N., Manary, S., & Pacifico, D. (2008). Effectiveness of splinting for the treatment of trigger finger. *Journal of Hand Therapy*, 21(4), pp.336-343.
- Choudhury, M.M., & Tay, S.C. (2014). Prospective study on the management of trigger finger. *Hand Surgery*, 19(03), pp.393-397.
- Valdes, K. (2012). A retrospective review to determine the long-term efficacy of orthotic devices for trigger finger. *Journal of Hand Therapy*, 25(1), pp.89-96.

Appendix 1:

Pretest and post-test data & their differences

Overall hand function:

Hand Function

Participant	Hand function Pre-test (X1)	Hand function Post-test x2	Difference between Pretest and post test	
			d=x1-x2	d^2
P1	119	101	18	36
P2	58	51	7	49
P3	96	88	8	64
P4	118	108	10	100
P5	119	111	8	64
P6	119	110	9	81
P7	90	80	10	100
P8	120	113	7	49
P9	118	114	4	16
	$\sum x1=957$	$\sum x2=876$	$\sum d=81$	$\sum d^2=559$
	X1=106.33	X2=97.33		

The 't' formula

$$t = \frac{81}{\sqrt{\frac{9 \times 559 - (81)^2}{9 - 1}}}$$

t = 5.857

Hand strength

Participant	Hand strength Pre-test x1	Hand strength Post-test x2	Difference between Pretest and post test	
			d=x1-x2	d^2
P1	03	05	02	4
P2	10	15	05	25
P3	08	10	02	4
P4	05	08	03	9
P5	03	06	03	9
P6	04	08	02	4
P7	08	10	02	4
P8	05	10	05	25
P9	04	08	04	16
	$\sum x1=50$	$\sum x2=80$	$\sum d=28$	$\sum d^2=100$
	$X1=5.55$	$X2=8.88$		

The 't' formula

$$t = \frac{\sum d}{\sqrt{\frac{N \sum d^2 - (\sum d)^2}{N - 1}}}$$

$$t = \frac{28}{\sqrt{\frac{9 \times 100 - (28)^2}{9 - 1}}}$$

$$t = 7.3533$$

Pinch strength

Participant	Pinch strength Pre-test x1	Pinch strength Post-test x2	Difference between Pretest and post test	
			d=x1-x2	d^2
P1	04	06	2	4
P2	08	12	4	16
P3	05	08	3	9
P4	04	06	2	4
P5	04	07	3	9
P6	03	06	3	9
P7	10	12	2	4
P8	04	07	3	9
P9	04	06	2	4
	$\sum x1=46$	$\sum x2=70$	$\sum d=24$	$\sum d^2=68$
	$X1=5.11$	$X2=7.77$		

The 't' formula

$$t = \frac{\sum d}{\sqrt{\frac{N \sum d^2 - (\sum d)^2}{N - 1}}}$$

$$t = \frac{24}{\sqrt{\frac{9 \times 68 - (24)^2}{9 - 1}}}$$

$$t = 5.333$$

Pain interpreting daily living activities

Participant	Pain Pre-test x1	Pain Post-test x2	Difference between Pretest and post test	
			d=x1-x2	d ²
P1	8	6	2	4
P2	5	4	1	1
P3	5	4	1	1
P4	8	6	2	4
P5	7	6	1	1
P6	7	5	2	4
P7	5	4	1	1
P8	9	7	2	4
P9	8	6	2	4
	∑x1=62	∑x2=48	∑d=14	∑d ² =24
	X1=6.88	X2=5.33		

The 't' formula

$$t = \frac{\sum d}{\sqrt{\frac{N \sum d^2 - (\sum d)^2}{N - 1}}}$$

$$t = \frac{14}{\sqrt{\frac{9 \times 24 - (14)^2}{9 - 1}}}$$

$$t = 5.6$$

Appendix-2:

Treatment procedure for trigger finger

The data collector fixed a date and time with the participant to his or her available time. At first, the data collector informed the participant about the contents of the consent form. All participant names coded to maintain confidentiality, diagnosed and referred by qualified occupational Therapist, physiotherapist and doctor. Each patient will be received 7-10 hand therapy session for TF & every session will be 25-30 minute

Then the data collector measured pain, overall hand function, and muscle strength of patient with TF. The participant will be received treatment as regular patients in the Occupational Therapy department of CRP; they continue their treatment as per their schedule. Each participant will be received 4 weeks of a treatment program arrange by the researcher with the permeation from the Occupational Therapy department.

Before started the treatment there the initial assessment where the researcher will be assessed pain, overall hand function, and muscle strength of the muscle of patient with TF that carried out in each area that provides the pretest score.

After receiving 4 weeks intervention program, then the data collector will collect subjective and objective information including the pain in VAS, hand function, and muscle strength of each participant, but the treatment applied by qualified Occupational Therapist. The data collector instructed the appointee about the treatment protocol. During this time, the participants will continue their treatment as per their schedule. Each participant received 4 weeks of a treatment program arranges by the researcher with the permission from the Occupational Therapy department, that will caries post-test score.

Treatment protocol for trigger finger

Treatment The success of conservative management, reported in the literature, varies from 50-94% Conservative management has a poorer outcome if multiple fingers are involved or if symptoms have persisted longer than 4-6 months; or if there is diffuse tendon thickening versus a discrete nodule or significant triggering (Pack, 2015).

Special Test

Open & Close Hand 10 Times: Ask patient to open and close the hand 10 times. The number of triggering events (not locking) in 10 active full fists is scored out of 10. If patient's finger remains Locked at any time in making 10 active full fists, the test is discontinued and an automatic score of 10/10 is recorded.

Modalities:

Heat Therapy: Heat increases blood flow and extensibility of collagen tissues assisting in Resolution of edema, decreasing joint stiffness and pain. Therapeutic heat modalities include hot pack, paraffin wax and hot water bath .Suggested method (MPAP): 10 to 15 minutes each application, 2 to 3 times a day.

Contrast bath: Use for decreasing pain and swelling, increasing ROM.

Suggested Method (MPAP): Alternate hot (5 seconds) and cold (10 seconds), repeat for 10 minutes, 2 to 3 times a day, temperature according to patient's tolerance.

Exercise

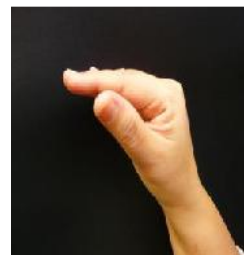
Tendon gliding exercise: Use to help improve tendon nutrition and mobility.

Suggested Method (MPAP): 5 repetitions using minimal effort, 3 times a day.

Starting Position (SP) _ Table top _ SP _ Hook Fist _ SP _ Straight Fist _ SP _ Full Fist
_ SP



1. SP: Straight hand Position



2. Table Top: Keeping PIP & DIP joints straight, flex MCP joints. Return to SP. Use cautiously with intrinsic tightness



3. Hook Fist: Keeping MCP joints straight, flex MCP & PIP joints. Return to SP.



4. Straight Fist: Keeping DIP joints straight, flex PIP & DIP joints. Return to SP.



5. Full Fist: Flex MCP, PIP, & DIP joints. Return to SP

Compression

Indications:

Swelling in volar surface of proximal phalange or generalized swelling in palm. Use Digi sleeve for single finger swelling and a compression glove for multiple fingers or palmar swelling.

Wearing regime: Can be worn under splint of choice providing it does not compromise splint fit, for day or night use.

Precautions: Re-size or discontinue use if numbness or tingling in the fingers. Discontinue if skin irritation occurs.

Joint Protection

Flexor tendons are subjected to maximal stress at the A1 pulley as MCP flexion increases. Also Stress increases during pinch activities (tip to tip) because the resistance arm is at its longest

Hand Use Guidelines:

- Avoid activities that require tight, prolonged grip, such as holding a steering wheel or a heavy tool. Encourage use of a padded steering wheel cover, padded gloves (e.g. Weight lifters gloves) or modify tools so that the affected area is not stressed.
- Avoid a full or repetitive fist position while symptoms are present
- Avoid prolonged, forceful tip to tip pinch with the affected finger
- Avoid power tools that cause vibration or use anti-vibration gloves.
- Avoid pressure in the palm. For example, when holding plastic grocery bags or suitcases use adapted handles, shoulder straps, backpacks or wheels. If the use of a cane is required, it should be padded (Pack, 2015).

Appendix-3



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

Ref. CRP-BHPI/IRB/10/18/1246

Date: 21/10/2018

To
Kazi A.H.M Anwar Bablu
B.Sc. in Occupational Therapy
Session: 2014-2015, Student ID: 122140154
BHPI, CRP, Savar, Dhaka-1343, Bangladesh

Subject: Approval of research proposal "Effectiveness of Hand Therapy Intervention for Patient with Trigger Finger at Centre for the Rehabilitation of the Paralysed (CRP) Bangladesh" by ethics committee.

Dear Kazi A.H.M. Anwar Bablu,

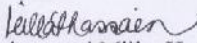
Congratulations,
The Institutional Review Board (IRB) of BHPI has reviewed and discussed your application to conduct the above-mentioned dissertation, with yourself, as the Principal investigator. The following documents have been reviewed and approved:

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

Since the study involves "Disabilities of the Arm, Shoulder and Hand (DASH) Questionnaire" questionnaire that takes 10 to 15 minutes and provide 30 minute hand therapy intervention and have no likelihood of any harm to the participants, the members of the Ethics committee have approved the study to be conducted in the presented form at the meeting held at 10 am on September 01, 2018 at BHPI.

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

Best regards,


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

October 18, 2018
The Chairman
Institutional Review Board (IRB)
Bangladesh Health Professions Institute (BHPI)
CRP- Chapain, Savar, Dhaka- 1343, Bangladesh

Subject: Application for review and ethical approval
Sir,

With due respect I would like to draw your kind attention that I am a student of 4th year B. Sc. in Occupational Therapy course at Bangladesh Health Professions Institute. For the requirement of my course curriculum, I have to conduct a research project. My research title is "Effectiveness of Hand Therapy Intervention for Patient with Trigger Finger at Centre for The Rehabilitation of The Paralyzed (CRP) Bangladesh" that will be supervised by Md. JulkerNayan, AssociateProfessor, Department of Occupational Therapy, BHPI, CRP. The purpose of this study is to find out the effectiveness of treatment protocol for Patient with Trigger finger. Visual Analogue Scale (VAS), Jamar Dynamometer, pinch gauge, Disabilities of the Arm, Shoulder and Hand (DASH) scale will be used to measure the pre-test and post-test score of the patient. Related information will be collected from the participant. The study will not be cause of any harm to the participant. Data collectors will receive informed consents from all participants as written. Any kind of collected data will be kept confidential.

Therefore, I look forward to having your kind approval for the research proposal and to data collection. I also assure you that I will maintain all the requirements for study.

Sincerely yours,

Kazi Anowar
20.10.18

Kazi A.H.M Anowar Bablu

Session: 2014-2015

Student ID: 122140154

4th Year Student, B. Sc in Occupational Therapy

BHPI, CRP, Savar, Dhaka- 1343, Bangladesh

Recommendation from Thesis Supervisor & Head of the Department

Approved by	Signature & Date
Research Supervisor Md. Julker Nayan Associate Professor Dept. of Occupational Therapy BHPI, CRP- Chapain, Savar, Dhaka- 1343	<i>He may allow to conduct the study as mentimed.</i> <i>[Signature]</i> 20.10.18
Head of the Department SK.Moniruzzaman Assistant Professor Dept. of Occupational Therapy BHPI, CRP- Chapain, Savar, Dhaka- 1343	<i>Sri. Md</i> 20/10/2018

Appendix-5:

Questionnaire (Pre-test and Post-test)

This Questionnaire is develop to measure the pre-test & post-test score of the patients with trigger finger (TF)

Patient 'code:

Occupation:

Age:

Contact number:

Sex:

Date:

Address:

Components:

1. Hand function
2. Muscle Strength
3. Pain

1. Hand function (Disabilities of the Arm, Shoulder and Hand (DASH) scale)

Instruction: This questionnaire asks about your symptoms as well as your ability to perform certain activities. Please answer every question, based on your condition in the last week. If you did not have the opportunity to perform an activity in the past week, please make your best estimate on which response would be the most accurate. It does not matter which hand or arm you use to perform the activity; please answer based on your ability regardless of how you perform the task.

Please rate your ability to do the following activities in the last week.

No difficulty-1, Mild difficulty-2, Moderate difficulty-3, Severe difficulty-4, Unable-5

Items	Score				
	No difficulty	Mild difficulty	Moderate difficulty	Severe difficulty	Unable
1.Open a tight or new jar					
2.Write					
3.Turn a key					
4. Prepare a meal.					
5.Push open a heavy door					
6.Place an object on a shelf above your head					
7.Do heavy household jobs (e.g. wash windows, clean floors)					

8. Garden or outdoor property work					
9. Make a bed					
10. Carry a shopping bag or briefcase					
11. Carry a heavy object (over 10 lbs/ 5kgs)					
12. Change a lightbulb overhead					
13. Wash or blow dry your hair					
14. Wash your back					
15. Put on a jumper					
16. Use a knife to cut food					
17. Recreational activities which require little effort (e.g. card playing, knitting, etc)					

<p>18.Recreational activities which require</p> <p>you to take some force or impact through your arm, shoulder or hand (e.g. golf, hammering, tennis etc)</p>					
<p>19.Recreational activities in which you move your arm freely (e.g.</p>					

playing Frisbee, badminton etc)					
20.Manage transport needs (getting from one place to another					
21.Sexual activities					

Not at all-1, Slightly-2, Moderately-3, Quite a bit-4, Extremely-5

	Not at all	Slightly	Moderately	Quite a bit	Extremely
22.During the past week, to what extent has your arm, shoulder or hand problem interfered with your normal social activities					

With family. Friends, neighbors or groups?					
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Not at all-1, Slightly limited-2, Moderately limited-3, Very limited-4, Unable-5

	Not at all	Slightly limited	Moderately limited	Very limited	Unable
23. During the past week, were you limited in your work or other regular daily activities as a result of your arm, shoulder or hand Problem?					

Please rate the severity of the following symptoms in the last week

None-1,Mild-2,Moderate-3,Severe-4,Extreme-5

	None	Mild	Moderate	Severe	Extreme
24. Arm, shoulder or hand pain					
25. Arm, shoulder or hand pain when you do any specific activity					
26. Tingling (pins and needles) in your arm, shoulder or hand					
27. Weakness in your arm, shoulder or hand					
28. Stiffness in your arm, shoulder or hand					

No difficulty-1, Mild difficulty -2, Moderate difficulty-3, Severe difficulty-4, So much difficulty I can not sleep-5

	No difficulty	Mild difficulty	Moderate difficulty	Severe difficulty	So much difficulty I can not sleep
29. During the past week, how much difficulty have you had sleeping because of the pain in your arm, shoulder or hand?					

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
30. I feel less capable, less confident or less useful because of my arm, shoulder or hand problem					

Muscle Strength of Hand

Hand strength (Jamar Dynamometer)

Date:

Date:

Pre-test(Score kg)		Post-test(Score kg)	
Right	Left	Right	Left

Pinch strength (pinch gauge)

Date:

Date:

Pre-test(Score kg)		Post-test(Score kg)	
Right	Left	Right	Left

Pain (using VAS scale).

a. In which area of your hand, you feel pain.

1. Elbow
2. Forearm
3. Wrist
4. Metacarpophalangeal (MCP)
5. Proximal interphalangeal (PIP)
6. Thumb interphalangeal (IP)

b. How much have you been suffering from pain?

Appendix-6:

Informed Consent Form for the Occupational therapy clients

Title: “Effectiveness of Hand Therapy Intervention for patients with trigger finger at Center for the Rehabilitation of The Paralysed (CRP) Bangladesh

Investigator: Kazi Anowar Student of B.Sc. in Occupational Therapy, Bangladesh Health Professions Institute (BHPI), CRP- Savar, Dhaka- 1343

Supervisor: Md. Julker Nayan, Associate professor, Occupational Therapy Department, Bangladesh Health Professions Institute

Place: Hand therapy unit, Centre for the Rehabilitation of the Paralysed (CRP), Savar, Bangladesh

Part I: Information Sheet Introduction

I am Kazi Anowar, B.Sc. in Occupational Therapy student of the Bangladesh Health Professions Institute (BHPI), have to conduct a thesis as a part of this Bachelor course, under thesis supervisor, Md Julker Nayan. You are going to have details information about the study purpose, data collection process, ethical issues. You do not have to decide today whether or not you will participate in the research. Before you decide, you can talk to anyone you feel comfortable with about the research. If this consent form contains some words that you do not understand, please ask me to stop. I will take time to explain.

Background and Purpose of the study

You are being invited to be a part of this research because the researcher want to find out how hand therapy intervention is effective for patients with triggers finger and the purpose of this study is to find out the effectiveness of treatment protocol for Patient with Trigger finger. It is the first study of Occupational Therapy profession in Bangladesh. From the curiosity, the researcher inspired to study the effectiveness of treatment protocol to treat trigger digit along with usual hand therapy in Bangladeshi perspective.

Research related information

The research related information will be discussed with you throughout the information sheet before taking your signature on consent form after that participants will be asked to complete a “Disabilities of the Arm, Shoulder and Hand (DASH) Questionnaire” questionnaire that takes 10 to 15 minutes and provide 30 minute hand therapy intervention and have no likelihood of any harm to the participants. The members of the Ethics committee have approved the study to be conducted in the presented form at the meeting held at 10 am on September 01, 2018 at BHPI.Ref:CRP-BHPI/IRB/10/18/1246.The data collection period will be one month followed by the date of approval. During that time, the questionnaire will be distributed among you. If you do not wish the questions included in the survey. The information recorded is confidential, your name is not being included on the forms, only a number will identify you, and no one else except Md.Julker Nayan, Supervisor of the study will have access to this survey.

Voluntary Participation

The choice that you make will have no effect on your personal life. You can change your mind at any time of the data collection process even throughout the study period. You have also right to refuse your participation even if you agreed earlier. Right to refuse or Withdraw I will give you an opportunity at the end of the interview to review your remarks, and you can ask to modify or remove portions of those, if you do not agree with my notes or if I did not understand you correctly.

Risks and benefits

We are asking to share some personal and confidential information, and you may feel uncomfortable talking about some of the topics. You can provide all information without any hesitation which are related to questionnaire because all information will be keep confidential. You do not have to give us any reason for refusing to take part in the interview. On the other hand, you may not have any direct benefit by participating in this research, but your valuable participation is likely to help me to find out the the effectiveness of treatment protocol of hand therapy intervention

Confidentiality

Information about you will not be shared to anyone outside of the research team. The information

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

Sharing the Results

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

Who to Contact

If you have any questions, you can ask me now or later. If you wish to ask questions later, you may contact any of the following: Kazi Anowar, Bachelor science in Occupational Therapy, Department of Occupational Therapy, e-mail: Kazibablu894@gmail.com, Cell phone- 01839031800. This proposal has been reviewed and approved by Institutional Review Board (IRB), Bangladesh Health Professions Institute (BHPI), CRP-Savar, Dhaka-1343, Bangladesh, which is a committee whose task it is to make sure that research participants are protected from harm. If you wish to find about more about the IRB, contact Bangladesh Health Professions Institute (BHPI), CRP-Savar, Dhaka-1343, Bangladesh You can ask me any more questions about any part of the research study, if you wish to. Do you have any questions?

Can you withdraw from this study?

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

Withdrawal Form

Participants Name:

Registration number:

Reason for Withdraw:

.....

Participants Signature:

Day/Month/Year:

Part II: Certificate of Consent

Statement by Participants

I have been invited to participate in research titled “Effectiveness of Hand Therapy Intervention for patients with trigger finger at Center for the Rehabilitation of The Paralysed (CRP) Bangladesh. I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions about it and any questions I have been asked have been answered to my satisfaction. I consent voluntarily to be a participant in this study

Name of Participant _____

Signature of Participant _____

Date _____

Statement by the researcher taking consent

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

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

Name of Researcher taking the consent _____

Signature of Researcher taking the consent _____

Date _____

Appendix-7:



বাংলাদেশ হেল্থ প্রফেশন্স ইনস্টিটিউট (বিএইচপিআই)

অকুপেশনাল থেরাপি বিভাগ

সিআরপি চাপাইন, সাভার, ঢাকা ১৩৪৩. টেলি: ০২-৭৭৪৫৪৬৪৫, ৭৭৪১৪০৪, ফ্যা.: ০২-৭৭৪৫০৬

কোড নং:

অংশগ্রহণকারীদের তথ্য এবং সম্মতিপত্র

গবেষণার বিষয়: ট্রিগার ফিঙ্গার রোগীদের জন্য হাতের থেরাপি কতটা কার্যকরী তা খুঁজে বের করা।

গবেষক: কাজি আনোয়ার, বি.এস.সি ইন অকুপেশনাল থেরাপি (৪র্থ বর্ষ), সেশন: ২০১৪-২০১৫ ইং, বাংলাদেশ হেল্থ প্রফেশন্স ইনস্টিটিউট (বিএইচপিআই), সাভার, ঢাকা-১৩৪৩

তত্ত্বাবধায়ক: মোঃ জুলকার নায়েন, সহযোগী অধ্যাপক, অকুপেশনাল থেরাপি বিভাগ, বাংলাদেশ হেল্থ প্রফেশন্স ইনস্টিটিউট।

গবেষণার স্থান: হ্যান্ড-থেরাপি ইউনিট, পক্ষাঘাতগ্রস্থদের পুনর্বাসন কেন্দ্র (সিআরপি), সাভার, ঢাকা-১৩৪৩ বাংলাদেশ।

পর্ব ১ তথ্যপত্র:

ভূমিকা:

আমি কাজি আনোয়ার, ঢাকা বিশ্ববিদ্যালয়ে চিকিৎসা অনুষদের অধীনে বাংলাদেশ হেল্থ প্রফেশন্স ইনস্টিটিউটে বি.এস.সি.ইন অকুপেশনাল থেরাপি বিভাগে ৪র্থ বর্ষের ছাত্র হিসেবে শিক্ষাকার্যক্রম (২০১৪-২০১৫ ইং) সেশনে অধ্যয়নরত আছি। বিএইচপিআই থেকে অকুপেশনাল থেরাপি বি.এস.সি শিক্ষাকার্যক্রমটি সম্পন্ন করার জন্য একটি গবেষণা প্রকল্প পরিচালনা করা

বাধ্যতামূলক। এই গবেষণা প্রকল্পটি অকুপেশনাল থেরাপি বিভাগের সহকারী অধ্যাপক এর তত্ত্বাবধায়নে সম্পন্ন করা হবে। অংশগ্রহনকারিকে তথ্যপত্রের মাধ্যমে গবেষণা প্রকল্পটির উদ্দেশ্য, উপাত্ত সংগ্রহের প্রণালী ও গবেষণাটির সাথে সংশ্লিষ্ট বিষয় কিভাবে রক্ষিত হবে তা বিস্তারিতভাবে উপস্থাপন করা হবে। যদি এই গবেষণায় অংশগ্রহন করতে আপনি ইচ্ছুক থাকেন, সেক্ষেত্রে এই গবেষণার সম্পৃক্ত বিষয় সম্পর্কে ধারণা থাকলে সিদ্ধান্ত গ্রহন সহজতর হবে। অবশ্য এখন আপনার অংশগ্রহন আমাদের নিশ্চিত করতে হবে না। যে কোন সিদ্ধান্ত গ্রহনের পূর্বে, যদি চান তাহলে আপনার আত্মীয়, বন্ধু অথবা আস্থাভাজন যে কারো সাথে এই ব্যাপারে আলোচনা করে নিতে পারেন। অপরপক্ষে, অংশগ্রহনকারী তথ্যপত্রটি পড়ে, যদি কোন বিষয়বস্তু বুঝতে সমস্যা হয় অথবা যদি কোন কিছু সম্পর্কে আরো বেশি জানার প্রয়োজন হয়, তবে নির্দিধায় প্রশ্ন করতে পারেন।

গবেষণার প্রেক্ষাপট ও উদ্দেশ্য:

এটি বাংলাদেশে অকুপেশনাল থেরাপি পেশার প্রথম গবেষণা। এই গবেষণার উদ্দেশ্য হল ট্রিগার ফিঙ্গার রোগীর জন্য চিকিৎসা প্রোটোকলের কার্যকারিতা খুঁজে বের করা। এই গবেষণাতে পক্ষাঘাতগ্রস্থদের পূর্নবাসন কেন্দ্রে চিকিৎসা নিতে আসা ট্রিগার ফিঙ্গার রোগীদের অন্তর্ভুক্ত হবার জন্য আমন্ত্রন জানানো হবে। ট্রিগার ফিঙ্গার রোগীদের জন্য হাতের থেরাপি কতটা কার্যকরী তা খুঁজে বের করা হবে এবং এর অংশ হিসাবে আপনাকেও উক্ত গবেষণা প্রকল্পে অংশগ্রহনের জন্য আমন্ত্রণ জানানো হলো। এই গবেষণা পেশাগত চিকিৎসার জন্য সহায়ক হতে পারে কারণ এটি ট্রিগার ফিঙ্গার রোগীদের সাথে কাজ করার একটি প্রমাণ প্রদান করবে। এটি থেরাপিস্ট এবং রোগীদের আত্মবিশ্বাস লেভেল বাড়াতে সাহায্য করবে। এটি হ্যান্ড-থেরাপি ইউনিট এর জন্য একটি ভালো সম্পদ হতে পারে। এই গবেষণাটি বাংলাদেশে অকুপেশনাল থেরাপি চিকিৎসা সেবা আপগ্রেড ও পেশাগত উন্নয়নের জন্য সহায়ক হবে বলে আমি আশা করি।

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

আপনার থেকে অনুমতিপত্রে স্বাক্ষর নেবার আগে, এই অংশগ্রহনকারী তথ্যপত্রের মাধ্যমে গবেষণা প্রকল্পটির পরিচালনা করার তথ্যসমূহ বিস্তারিত ভাবে আপনার কাছে উপস্থাপন করা

হবে। অংশগ্রহণকারীদের "হাতের অক্ষমতা", সোল্ডার এবং হাত (ড্যাশ) প্রশ্নমালা সম্পূর্ণ করতে বলা হবে। প্রশ্নমালা যা ১০ থেকে ১৫ মিনিট সময় লাগে এবং ২৫-৩০ মিনিট হ্যান্ড থেরাপি প্রদান করা হবে, নীতি কমিটির সদস্যরা গত ০১ সেপ্টেম্বর ২০১৮ বিএইচপিআই অনুষ্ঠিত বৈঠকে উপস্থাপিত সভায় এই সংক্রান্ত সমীক্ষা পরিচালনা করার অনুমোদন দিয়েছেন। রেফারেন্স: বিএইচপিআই/আইআরবি/১০/১৮/১২৪৬। আপনি যদি এই গবেষণায় অংশগ্রহন করতে চান, তাহলে সম্মতিপত্রে আপনাকে স্বাক্ষর করতে হবে। আপনি অংশগ্রহন নিশ্চিত করলে, আপনার সংরক্ষনের জন্য সম্মতিপত্রটির একটি অনুলিপি দিয়ে দেয়া হবে। পরবর্তীতে গবেষক কর্তৃক গঠিত তথ্য-উপাত্ত সংগ্রহের একটি দলের প্রতিনিধি আপনার কাছে যাবে। আপনার থেকে চেয়ে নেওয়া যে কোন একটি নির্দিষ্ট সময়ে একটি প্রশ্নপত্রের মাধ্যমে তথ্য সংগ্রহ করা হবে। এই গবেষণার প্রকল্পে আপনার অংশগ্রহণ ঐচ্ছিক। যদি আপনি সম্মতি প্রদান না করেন তবে আপনাকে অংশগ্রহন করতে হবে না। আপনি সম্মতি প্রদান করা সত্ত্বেও যে কোন সময় গবেষককে কোন ব্যাখ্যা প্রদান করা ছাড়াই নিজের অংশগ্রহন প্রত্যাহার করতে পারবেন। গবেষণা প্রকল্পটিতে অংশগ্রহন করা কিংবা না করা অথবা পরবর্তীতে অংশগ্রহন প্রত্যাহার করার সিদ্ধান্তের সাথে আপনার সিআরপিতে অবস্থাকালীন চিকিৎসা, চিকিৎসকদের সাথে সম্পর্ক, অকুপেশনাল থেরাপিস্টদের সাথে আপনার সম্পর্ক অথবা সিআরপির সহযোগী প্রতিষ্ঠানের সাথে সম্পর্ক কোনভাবে প্রভাবিত হবে না।

অংশগ্রহনের সুবিধা ও ঝুঁকিসমূহ কি ?

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

তথ্যের গোপনীয়তা কি নিশ্চিত থাকবে?

এই সম্মতিপত্রে স্বাক্ষর করার মধ্য দিয়ে, আপনি এই গবেষণা প্রকল্পে অধ্যয়নরত গবেষণা কর্মীকে আপনার ব্যক্তিগত তথ্য সংগ্রহ ও ব্যবহার করার অনুমতি দিয়েছেন। এই গবেষণা প্রকল্পের জন্য সংগৃহীত যেকোন তথ্য, যা আপনাকে সনাক্ত করতে পারে তা গোপনীয় থাকবে। আপনার সম্পর্কে

সংগৃহীত তথ্যসমূহ সাংকেতিক উপায়ে উল্লেখ থাকবে। শুধুমাত্র এর সাথে সরাসরি সংশ্লিষ্ট গবেষক ও তার তত্ত্বাবধায়ক এই তথ্যসমূহে প্রবেশাধিকার পাবেন। সাংকেতিক উপায়ে চিহ্নিত উপাত্ত সমূহ পরবর্তী উপাত্ত বিশ্লেষণের কাজে ব্যবহৃত হবে। তথ্যপত্রগুলো তালাবদ্ধ ড্রয়ারে রাখা হবে। বিএইচপিআই এর অকুপেশনাল থেরাপি বিভাগে ও গবেষকের ব্যক্তিগত ল্যাপটপে উপাত্তসমূহের ইলেকট্রনিক ভার্শন সংগৃহীত থাকবে। প্রত্যাশা করা হচ্ছে যে, এই গবেষণা প্রকল্পের ফলাফল বিভিন্ন ফোরামে প্রকাশিত এবং উপস্থাপিত হবে। যে কোন ধরনের প্রকাশনা ও উপস্থাপনার ক্ষেত্রে তথ্যসমূহ এমন ভাবে সরবরাহ করা হবে, যেন আপনার সম্মতি ছাড়া আপনাকে কোন ভাবেই সনাক্ত করা না যায়। তথ্য-উপাত্ত প্রাথমিক ভাবে কাগজপত্র সংগ্রহ করা হবে।

গবেষণা সম্পর্কে জানতে কোথায় যোগাযোগ করতে হবে?

গবেষণা প্রকল্পটির বিষয়ে যোগাযোগ করতে চাইলে অথবা গবেষণা প্রকল্পটির সম্পর্কে কোন প্রশ্ন থাকলে, এখন অথবা পরবর্তীতে যে কোন সময়ে তা জিজ্ঞাসা করা যাবে। সেক্ষেত্রে আপনি গবেষকের সাথে উল্লেখিত ০১৮৩৯০৩১৮০০(কাজি আনোয়ার) নাম্বারে যোগাযোগ করতে পারেন। এই গবেষণা প্রকল্পটি বাংলাদেশ হেল্থ প্রফেশন্স ইনস্টিটিউট, সাভারের প্রাতিষ্ঠানিক নৈতিকতা পরিষদ থেকে পর্যালোচিত ও অনুমোদিত হয়েছে। এই গবেষণা প্রকল্প পরিচালনা প্রসঙ্গে যেকোন উদ্বিগ্ন অথবা অভিযোগকারী ব্যক্তি প্রাতিষ্ঠানিক নৈতিকতা পরিষদের সাথে এই নাম্বারে (৭৭৪৫৪৬৪-৫) যোগাযোগ করবেন।

গবেষণা থেকে নিজেকে প্রত্যাহার করা যাবে কি?

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

অংশগ্রহণকারীর প্রত্যাহার পত্র

(শুধুমাত্র -সেচ্ছায় প্রত্যাহারকারীর জন্য প্রযোজ্য)

অংশগ্রহণকারীর নাম:

প্রত্যাহার করার কারন:

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.....

পূর্ববর্তী তথ্য ব্যবহারের অনুমতি থাকবে কিনা?

হ্যাঁ/না

অংশগ্রহণকারীর নাম:

অংশগ্রহণকারীর স্বাক্ষর:

তারিখ:

নং:

ট্রিগার ফিঙ্গার রোগীদের জন্য হাতের থেরাপি কতটা কার্যকরী তা খুঁজে বের করা - শীর্ষক গবেষণায় অংশগ্রহনের জন্য আমাকে আমন্ত্রন জানানো হয়েছে। আমি পূর্বলিখিত তথ্য পত্রটি পড়েছি বা এটা আমাকে পড়ে শোনানো হয়েছে। এই বিষয়ে আমার প্রশ্ন জিজ্ঞাসা করার সুযোগ ছিল এবং যে কোন প্রশ্নের আমি সন্তুষ্টজনক উত্তর পেয়েছি। এই গবেষণায় একজন অংশগ্রহনকারী হবার জন্য আমি সেচ্ছায় সম্মতি দিচ্ছি।

অংশগ্রহনকারীর নাম:

অংশগ্রহনকারীর স্বাক্ষর:

তারিখ:.....

গবেষক ও সম্মতিকারীর বিবৃতি:

আমি অংশগ্রহনকারীকে অংশগ্রহনকারীর তথ্যপত্রটি পড়ে শুনিয়েছি এবং আমার সর্বোচ্চ সামর্থ অনুযায়ী নিশ্চিত করেছি যে, অংশগ্রহনকারীর বোধগম্য হয়েছে যে, নিম্নউক্ত বিষয়সমূহ করা হবে।

১) সকল তথ্য গবেষণার কাজে ব্যবহৃত হবে।

২) তথ্যসমূহ সম্পূর্ণভাবে গোপনীয় করা হবে।

৩) অংশগ্রহনকারীর নাম ও পরিচয় প্রকাশ করা হবে না।

আমি নিশ্চিত করেছি যে, এই বিষয় সম্পর্কে অংশগ্রহনকারীকে প্রশ্ন জিজ্ঞাসা করার সুযোগ দেয়া হয়েছে এবং অংশগ্রহনকারী যে সকল প্রশ্ন জিজ্ঞাসা আমার সর্বোচ্চ সামর্থ অনুযায়ী, সেগুলোর সঠিক উত্তর প্রদান করা সম্ভব হয়েছে। আমি নিশ্চিত করেছি যে, কোন ব্যক্তিকে সম্মতি দান করতে

বাধ্য করা হয়নি। তিনি অবাধে অথবা সেচ্ছায় সম্মতি দিয়েছেন। অংশগ্রহনকারীকে অংশগ্রহনকারীর তথ্য ও সম্মতিপত্রের একটি অনুলিপি দেওয়া হয়েছে।

গবেষকের নাম:

গবেষকের স্বাক্ষর :

তারিখ: