# A Study Protocol for a Randomized Trial on Effect of Safe Patient Handling (SPH) program on Rehabilitation Outcomes and on Safety of Physical Therapists in Rural Hospital

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## Abstract

**Introduction:** Patient management and intervention practices are a crucial component of patient treatment in the hospitals. In recent times the focus is put on early and regular mobilization of patients to boost recovery during and after hospitalization. Increase in inpatient mobilization to improve patient treatment raises a physiotherapist's physical demands and therefore risk of injury. With the context of a patient mobilization program, better work procedures and decrease in physiotherapist's injuries while working, SPH program will be incorporated.

**Purpose :** The goal of this research is to evaluate the effect of SPH program and mobilization in context of efforts to improve quality of health care and safety of patients as well as the physical therapist.

**Method :** There will be 2 groups, intervention (SPH) and comparison (no-SPH) each group will consist of 20 patients. The intervention group will be consisting the patients admitted in rehabilitation unit for the first three months of the research and the comparison group will consist the patients admitted in rehabilitation unit in the last 3 months of the research. Intervention group will undergo rehabilitation with SPH program which will include equipments like lifts based on ceiling and floors, sit to stand supports, motorized hospital beds and ambulation aids.

**Result :** Statistical analysis will be conducted. Comparison will be made on a variety of characters such as age, duration of stay and diagnosis to determine equivalence between the groups. Evaluation of the impact of SPH program on recovery outcome will be done by linear regression model. FIM scores of intervention group at admission and discharge will be compared to the comparison group FIM scores at the time of admission and discharge. The linear regression model will represent the graphical overview of the mean mobility scores at the time of admission and at the time of discharge for each group.

**Conclusion:** The publication of conclusion will be done after conducting the study and obtaining the results through statistical analysis.

***Keywords :*** *Safe Patient Handling(SPH) program, physiotherapist, mobilization , moving and lifting.*

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## Introduction

Recent trends in improving patient care in acute settings include early and regular patient mobilization; however, this may add to the physical demands on patient care staff, raising their risk of injury[(1)]. Manual patient management procedures result in repetitive physical loads that can result in injuries in health care settings. SPH program have been introduced in response

to high rates of injury from health care providers[2]. Therapeutic patient handling tasks pose a substantial risk for the therapist to sustain work related musculoskeletal disorders than typical patient handling tasks do because the therapists are exposed for longer amounts of time to high mechanical loads[3]. This program of SPH and mobilization is going to take place in the context of incorporating worker safety procedures associated with patient handling into a wider effort to improve patient care through early and regular patient mobilization and implementing safe equipment and practices for patient handling and mobilization[1].

Patient management and intervention practices are a crucial component of patient treatment in the hospitals. In recent times the focus is put on early and regular mobilization of patients to boost recovery during and after hospitalization. Increase in inpatient mobilization to improve patient treatment raises a physiotherapist's physical demands and therefore risk of injury. With the context of a patient mobilization program, better work procedures and decrease in physiotherapist's injuries while working, S P H program will be incorporated.

Programs for safe patient handling and mobilization of patients are focused on data from biomechanical studies demonstrating that proper biomechanics may not prohibit musculoskeletal disorders which are work related and are caused due to shifting, raising or repositioning the patients. Instead of relying on traditional body mechanics to protect the physical therapists, safe patient handling program provides steps that reduce the weight that the therapist can physically raise and offers guidance on how to use the equipments for mobilization and handling the patients[4]. However S P H program equipment were intended to minimize physical exertion during patient handling tasks and not necessarily to alter the rehabilitation process[4].

While originally designed to protect health care staff from accidents associated with transporting and treating patient, safe patient handling procedures have been developed as a viable strategy of intervention to improve patient recovery[4]. Rehabilitation services, in particular, are seen to be significantly affected by safe patient handling program. In conventional rehabilitation environment therapist offer patient practical mobility support (e.g., ambulance and transfers), rehabilitating patients to walk and transfer by picking them up and protecting them physically[2]. In addition to increased therapist and patient safety, therapist have observed that S P H programs have increased patient involvement and activities, and therapist were able to mobilize the bariatric and medically complex patients in rehabilitation[2]. Advanced equipment for patient handling is used in rehabilitation settings with SPH programs to help or pick up patients, especially when patients are hefty or dependable[2]. The program will be designed such that it will provide more flexibility to the therapist while working on recovery programs to reduce the risk of overloading[2].

In view of the number and variety of S P H programs and the fact that they radically modify the patient care, the impact of S P H programs on the functional well being of the patient in recovery needs to be immediately investigated . This work will assess the impact of an safe patient handling program on patient's functional independence as calculated by Functional Independence Measure(F I M)[2].

## Objectives

1. To assess the impact of safe patient handling on recovery of the patient.

2. To observe if there is decrease in patient care worker injuries after incorporating safe patient handling program.

3. The goal of this research is to evaluate the effect of S P H program and mobilization in context of efforts to improve quality of health care and safety of patients as well as the physical therapist.

## Material and Methodology

The study will be conducted in Ravi Nair Physiotherapy College, after getting the approval from the Institutional Ethics Committee (IEC) of Datta Meghe Institute Of Medical Sciences Deemed to be University, Sawangi (Meghe)

**Study type:** Retrospective cohort study.

**Study setting:** Rehabilitation unit of hospital.

**Study duration:** 6 months.

**Outcome Measure:** Functional Independence Measure ( FIM) scale.

Validity of Functional Independence Measure (FIM) – I C C > 0.83.

Reliability of Functional Independence Measure ( FIM) - ranges from 0.86 to 0.88.

**Equipment included:**

1. Performing lifts which depends on floor and ceiling

2. Sit to stand assists

3. Motorized hospital beds.

4. Ambulation aids.

**Inclusion criteria:**

1**.** Patient admitted to the hospital for stay of more than 3 days

2. Patients in Out Patient Department (O P D) coming for rehabilitation.

3. Patients with diagnosis of disorder related to musculoskeletal system.

**Exclusion criteria:**

1. Any patient who is critically ill on ventilator

2. Any patient who had a stay of less than 2 days or fewer

3. Any patient who is unwilling to participate.

**Sampling type :** Simple random sampling.

**Sample size :** Twenty in intervention group.

Twenty in non-intervention group.

**Procedure**

Ethical clearance will be obtained from I E C. Data will be obtained from medical records of patients admitted to the hospital, patients will be selected on the basis of their stay in the hospital and diagnosis. Inclusion criteria and exclusion criteria will be implemented. The research will consist of two groups, intervention group (S P H) and comparison group (no-S P H) each group will consist of twenty patients. The intervention group will be consisting the patients admitted in rehabilitation unit for the first three months of the research and the comparison group will consist the patients admitted in rehabilitation unit in the last three months of the research. Intervention group will undergo rehabilitation with S P H program which will include equipments like lifts which depend on floor or ceiling, sit to stand support, motorized hospital beds and ambulation aids.

## Data / Statistical Analysis

Statistical analysis will be conducted. Comparison will be made on a variety of characters such as age, duration of stay and diagnosis to determine equivalence between the groups. Evaluation of the impact of S P H program on recovery outcome will be done by linear regression model. F I M scores of intervention group at admission and at discharge will be compared to the comparison group F I M scores at the time of admission and at the time of discharge. The linear regression model will represent the graphical overview of the mean mobility scores at the time of admission and at the time of discharge for each group.

## Expected Result

Considering the high rates of injuries therapists are going through, these services may potentially play a significant role in reducing accidents and at the same time allowing for successful recovery of the patient.

## Discussion

S P H and mobilization strategy dramatically lowers the workplace injury rates for the physiotherapist[5]. Use of mechanical patient lifting equipment has proven to not only avoid musculoskeletal injuries but also reduce the discomfort and damage while manually lifting patients[6]. S P H and mobilization also increases the job satisfaction of a health care worker[7]. Measurement of the effect of the program is important for clinical management evaluation of the success of recovery services and its long term effect on functioning of the patients[8].

Studies show that the S P H programs results in comparable or even slightly better mobility results for majority of patients. This may alleviate concerns among therapists who fear that S P H programs can lead

to dependency and interfere with functional mobility recovery[2]. Several researches indicate that mechanical patient lifts can help lower the rates of musculoskeletal injuries in therapists[9].

Less is known concerning the effects of S P H programs on the carrying out of simple everyday tasks (A D Ls), for example dressing or bathing, combing[4]. One of a kind element in the S P H program is embedded and integrated usage of safe handling of the patients and mobilizing equipment for patients and practices in patient care program to improve patient mobility with goals to maintain proper safety of the therapist[1].

Further research works are required to identify comprehensive guidelines for the S P H program, tailored to variable patient care settings and work requirements[5]. Strategies should be pursued to promote the use of mechanical lifting tools, as fewer amounts of accidents can be expected with its increased use[10]. Aim of the physiotherapy rehabilitation involves maintaining the range of motion and avoiding deformity. It is also necessary to promote active movements to improve trunk control and postural balance[11]. Physical activity and exercise play an significant role to maintain adequate state of health[12]. Positive effects of physiotherapy interventions are gaining trust, confidence of the patient during the rehabilitation process[13]. To prevent differences in the recovery phase between the two groups, recovery time for the both groups should be equal. Evidence of this research will support the patients and the therapists by having a rehabilitation process which is safe and reliable[14].

**Conclusion:** Recovery does not seem to be hampered by the use of Safe Patient Handling Program. There may be irrational concern among therapists that the use of equipment may result into dependency.

**Ethical Clearance:** The study will be conducted in Ravi Nair Physiotherapy College, after getting the approval from the Institutional Ethics Committee (IEC) of Datta Meghe Institute Of Medical Sciences Deemed to be University, Sawangi (Meghe).

**Source of Funding:** None

**Conflict of Interest:** Nil

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