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Research Article

Effect of psycho-motor physical therapy on self-esteem among community-dwelling individuals with locomotor disabilities

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ABSTRACT

Locomotor disabilities not only impair physical mobility but also adversely affect psychological well-being, particularly self-esteem. Traditional physiotherapy often emphasizes physical recovery while overlooking psychosocial aspects. Psychomotor Physical Therapy (PMP), a body–mind intervention, may bridge this gap by integrating movement, body awareness, and emotional reflection. To assess the impact of Psychomotor Physical Therapy on self-esteem among community-dwelling individuals with locomotor disabilities. A single-blinded randomized controlled trial was conducted with 40 participants aged 18–60 years, diagnosed with locomotor disabilities (e.g., stroke, polio, amputation). Participants were randomly assigned to either an intervention group (n = 20) that received weekly PMP for 6 months or a control group (n = 20) that received no intervention. Self-esteem was measured at baseline and post-intervention using the Rosenberg Self-Esteem Scale. The PMP group showed a significant improvement in self-esteem scores (mean increase = 10.2 ± 2.1), compared to the control group (mean increase = 0.5 ± 2.3), with a statistically significant between-group difference ($t = 4.89$, $p < 0.001$). Following the intervention, 55% of the PMP group achieved high self-esteem, compared to only 10% in the control group. Psychomotor Physical Therapy significantly enhances self-esteem in individuals with locomotor disabilities by addressing both physical and psychological dimensions. These findings support the inclusion of mind–body therapies like PMP in community-based rehabilitation programs to promote holistic recovery and improve quality of life. Psychomotor Physical Therapy, Locomotor Disability, Self-Esteem, Holistic Rehabilitation, Body Awareness Therapy, Randomised Controlled Trial.

Keywords: Adverse drug reactions, Artificial intelligence, Big data, Machine learning, Deep learning, Pharmacovigilance, Predictive modeling, Electronic health records, Genomic data, Drug safety.

INTRODUCTION

In the mid-1990s ideas about disability were dominated by the World Health Organization's International Classification of Impairments, Disabilities and Handicap, which was frequently interpreted (wrongly) as implying that a linear relationship existed between impairments (anatomical or physiological damage), disabilities (difficulties in performing normal activities) and handicaps (social consequences of impairments and disabilities). The distinctions between impairments, disabilities and handicaps

certainly helped to clarify assessment of outcomes for clinical practice and evaluation of health care, and resulted in the development of new measures to evaluate the impact of complex interventions on handicap.⁸

Our programmed of work on locomotor disability has three main aims: first, to describe the meaning and experience of disability; second, to examine the causes of disability in representative samples of older people; and

finally, to systematically review trials of the effects of complex interventions for disability.

While osteoarthritis and cardiovascular diseases were often reported to be the underlying cause of locomotor disability,²⁸ by 1999 a review of risk factors for disability (defined as limitations in activities of daily living) confirmed the importance of co-morbid disease (i.e. cognitive impairment, depression, poor vision and overall burden of co-morbidities), lifestyle (body mass index, smoking, heavy consumption or abstention from alcohol and physical inactivity) and social contacts.²⁹ Neither osteoarthritis nor cardiovascular diseases were highlighted as major causes of disability in this review, which emphasized the need to examine specific types of disability rather than make inferences from one type of disability to another.³⁰ Consequently, we chose to focus on locomotor disability in our programmed. Disability in old age may not be irreversible and progressive. Cohort studies have demonstrated that up to one-third of older people experience decreased levels of disability over periods of 2 to 7 years.^{31–34}

Psychomotor physical therapy belongs to the realm of so-called "Body and Mind" or "Body Awareness" therapies (Kvåle & Ljunggren, 2007). The main body awareness therapies used by physiotherapists are NPMP, basic body awareness therapy (BBAT), Mensendieck system physical therapy, relaxation, and meditation programmed (Kvåle & Ljunggren, 2007). Physiotherapy has become an important contributor to those applying for help within the arena of mental health and psychosomatics. PMP is process-oriented, and treatment aims to facilitate change of the affected functions through training, massage, and therapeutic reflection. The training

consists of body awareness through grounding exercises, as well as relaxation training. The approach is based on the theory that bodies react to physical, emotional, and social strain that may influence the whole

body and can affect respiration, muscular tension, posture, balance, movements, flexibility, and body awareness. The aim is to assess the effect of Psychomotor physical therapy on self-esteem among community-dwelling individuals with locomotor disability.

Self-esteem is one of the important resources for students undergoing the transition to university. Self-esteem is a personal judgment of one's self-worth.⁸ It is also

designated as self-worth, self-respect, self-acceptance, self-regard, self-feeling, and self-evaluation.⁹ Self-esteem ranges from extremely positive to extremely negative. An environment of success raises it while an environment of failure lowers it. A few indications of positive self-esteem will be certainty, an awareness of personal strengths, optimism, self-direction, an independent and cooperative attitude, a capacity to confide in others and to feel good with an extensive variety of feelings. Whereas a person who has low self-esteem feels incapable, dependent, unworthy, and incompetent, they have a fear of being derided. Low self-esteem is a weakening condition that shields an individual from understanding their full potential. A previous study reported that low self-esteem is like a loss of inner certainty and power and has an impact on occupational performance.²⁰

Need of the study

The number of people with a disability has been increasing with population growth and medical advances. In 2018, Thailand reported that 3.08% of the population were people with some disability.¹ There are seven categories of people with disability: hearing or communication disability, physical or locomotion disability, mental or behavioral disability, intellectual disability, learning disability, autism, and multiple disabilities. The majority, approximately 1,000,000 people, have physical impairments and locomotor limitations, so due to the lack of articles on psychomotor physical therapy on locomotor disabilities, while physiotherapy commonly addresses functional recovery, the psychosocial aspects, such as self-esteem, are often overlooked. This study aims to assess the impact of psychomotor physical therapy on self-esteem, providing holistic care beyond physical rehabilitation.

Aim

This study aims to assess the impact of psychomotor physical therapy on self-esteem, providing holistic care beyond physical rehabilitation.

Objectives

To assess the baseline self-esteem levels in individuals with locomotor disabilities

To implement a structured psychomotor therapy intervention.

To evaluate the effect of the intervention on self-esteem post-therapy ^[1, 2].

MATERIALS AND METHODS

Study design and setting

The study was a single-blinded pragmatic RCT comparing an intervention (IT) group with a CT group. The IT group received PMP once weekly over 6 months, whereas the CT group received no intervention. Measurements were done at baseline and 6 months after baseline. The order of the following section follows the CONSORT statement (Schulz, Altman, & Moher, 2010).

Sample Size: Total = 40 participants; Group A (Intervention): 20; Group B (Control): 20

Sampling Technique: Purposive sampling.

Inclusion and exclusion criteria

Inclusion criteria were as follows: Aged 18–60 years; Diagnosed locomotor disability (e.g., post-stroke, amputee, polio); Community-dwelling; Can follow verbal instructions. Exclusion criteria were as follows: Cognitive impairment; Psychiatric illness, Participation in other psychological therapies.

Randomization and blinding

The study participants were randomly allocated to two groups via concealed allocation by the researchers who designed the study. The participants were randomly assigned in a 1:1 ratio to the IT or CT group. Drawing lots was used to allocate the participants. Due to the nature of the intervention, it was not possible to blind the participants or physiotherapists to group allocation. Assessment cannot be considered blinded because the outcome measures were all self-reported.

Study intervention

The IT group received an individually adapted PMP once a week for 6 months. This duration was chosen based on previous research. We have added a more thorough description of PMP treatment. In short, PMP aims to integrate the mind–body connection with lived experience by therapeutic reflection, movement/exercises, and massage. The PMP is based on the assumption that patients with long-lasting problems, physical and/or psychological, may react with general aberrations related to posture, respiration, and movements, as well as with muscular tension. Considered interdependent factors, and the primary difference between the PMP examination and that of so-called traditional physiotherapy is the emphasis on respiration and body awareness. During the treatment, techniques such as relaxation, massage, and movement training are used for normalizing respiration and muscular control and helping the patient to become aware of how the body and mind interact.

Thus, the intervention was individually tailored to each participant, but with the same approach of PMP. The CT group received no intervention as they remained on the waiting list for 6 months, whereas the IT participants received PMP. These participants were asked to continue their daily activities as before, and not to start PMP elsewhere while taking part in the study.

Assessments at baseline and 6 months follow-up

Demographic data on age, gender, living arrangement, years of education, and disability pension were collected.

Primary outcome variable

Rosenberg Self-Esteem Scale (Rosenberg, 1965a) was used to assess self-worth and attitudes towards the self. The Rosenberg Self-Esteem Scale is a 10-item scale that requires participants to directly report feelings about the self. Examples of questions are as follows: I feel that I'm a person of worth, at least on equal with others. I feel that I have many good qualities. All in all, I am inclined to feel that I'm a failure. I can do things as well as most other people. Participants responded to these items on a 5-point Likert scale, ranging from strongly agree (1) to

strongly disagree (5), giving a minimum of 10 and a maximum of 50 points summary score (Rosenberg, 1965a). We calculated the CA at 0.92

Statistical test

Sample size was based on the primary outcome of HRQOL, SF-36. To obtain 80% statistical power ($\beta = 0.8$) at 5% significance level ($\alpha = 0.05$) with an independent samples t test, to examine the effect of the intervention, independent sample t tests were performed with the “difference in mean values.” A two-sided p value less than or equal to 0.05 was considered statistically significant, all statistical analyses were performed with the IBM SPSS Statistics version 22 [3, 4].

RESULTS AND DISCUSSION

A total of 40 participants were included, with 20 each in the Psychomotor Physical Therapy (PMP) group and the Control group. The mean age was similar between groups: 51.2 ± 7.6 years in the PMP group and 49.6 ± 8.9 years in the control group.

The gender distribution was comparable, with a slightly higher number of males in both groups (PMP: 12 males, Control: 11 males). Participants presented with various locomotor disabilities, including stroke, polio, and

amputation. Employment rates and disability pension status were also relatively balanced across groups.

Table 1: Demographic and Clinical Profile

Variables	PMP Group (n=20)	Control Group (n=20)
Age (Mean $\pm$ SD)	51.2 $\pm$ 7.6	49.6 $\pm$ 8.9
Gender (Male / Female)	12 / 8	11 / 9
Type of Disability	Stroke (8), Polio (6), Amputee (6)	Stroke (7), Polio (7), Amputee (6)
Employment (Yes / No)	10 / 10	9 / 11
Disability Pension (%)	30%	25%

Table 2: Self-Esteem Scores Pre- and Post-Intervention

Group	Baseline Mean $\pm$ SD	Follow-Up Mean $\pm$ SD	Mean Score Change
PMP Group	12.5 $\pm$ 2.3	22.7 $\pm$ 2.1	+10.2
Control Group	13.0 $\pm$ 2.0	13.5 $\pm$ 2.3	+0.5

At baseline, both groups had similar self-esteem scores (PMP: 12.5 $\pm$ 2.3; Control: 13.0 $\pm$ 2.0).

However, after the intervention, the PMP group showed a marked increase in self-esteem (22.7 $\pm$ 2.1), reflecting a mean improvement of +10.2 points.

In contrast, the control group showed only a minimal change (+0.5 points), with a post-test mean score of 13.5 $\pm$ 2.3.

Figure 1: Self-esteem scores before and after intervention

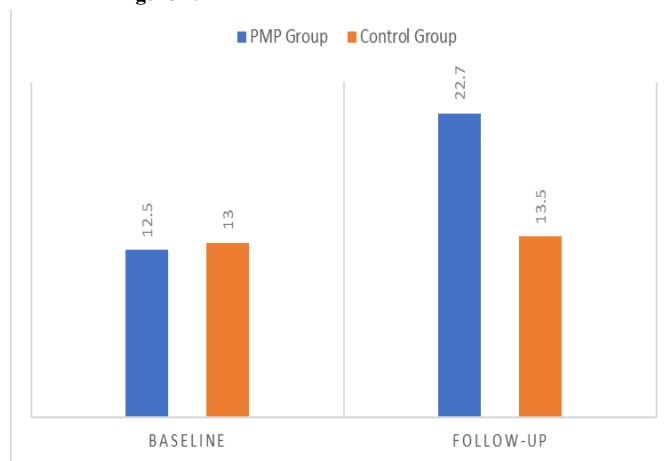


Table 3: Statistical Comparison of Post-Test Scores

Variable	Mean (PMP)	Mean (Control)	Mean Difference	t-value	p-value	Interpretation
Score Change (Post-Pre)	10.2	0.5	9.7	4.89	<0.001	Statistically significant

The mean difference in self-esteem improvement between the two groups was 9.7 points, which was statistically significant ($t = 4.89$, $p < 0.001$).

This indicates a robust therapeutic effect of the psychomotor physical therapy on self-esteem levels in the intervention group.

Table 4: Post-Intervention Self-Esteem Classification

Self-Esteem Level	PMP Group (n=20)	Control Group (n=20)
Low (≤ 15)	1	6
Moderate (16–25)	8	12
High (> 25)	11	2

In terms of categorical outcomes, 55% of the PMP group achieved high self-esteem scores, compared to only 10% in the control group.

Only 5% in the PMP group remained in the low self-esteem category, compared to 30% in the control group.

This further reinforces the positive psychosocial impact of the intervention [5, 6].

Figure 2: Mean score changes between groups

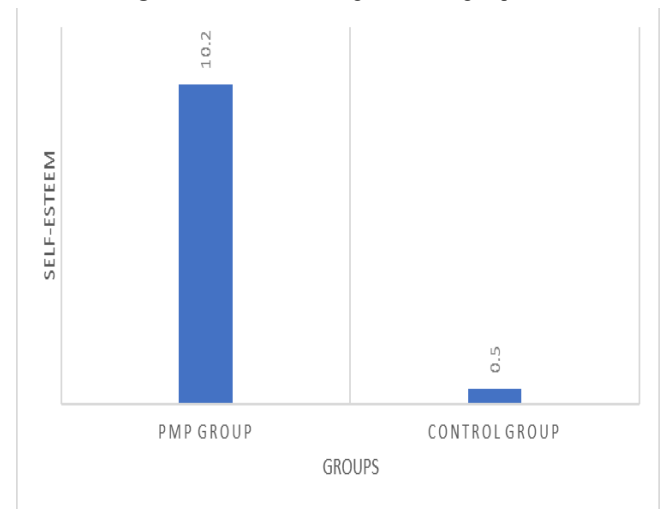
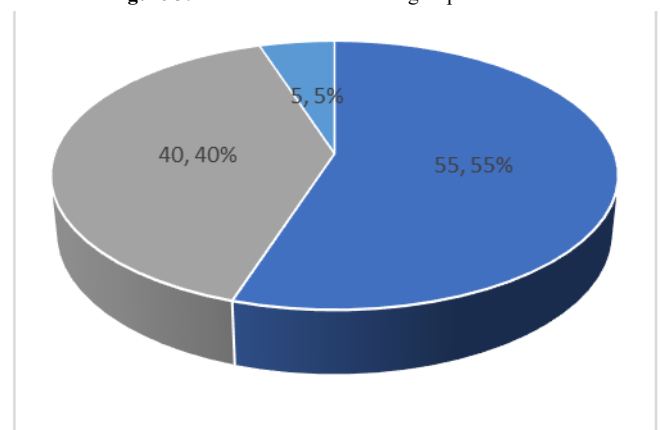


Figure 3: Self-esteem levels-PMP group



DISCUSSION

This randomized controlled trial explored the effectiveness of psycho-motor physical therapy (PMP) in enhancing self-esteem among individuals with loco-motor disabilities living in the community. The results of the study show a statistically significant improvement in self-esteem scores in the PMP intervention group compared to the control group over six months. These findings highlight the potential for integrating mind-body approaches within the rehabilitation paradigm for individuals with physical disabilities.

The intervention group demonstrated a mean increase of 10.2 points on the Rosenberg Self-Esteem Scale, in contrast to the control group's minimal gain of 0.5 points. The between-group mean difference of 9.7 points ($p < 0.001$) is both statistically and clinically significant, supporting the hypothesis that PMP positively influences psychosocial functioning in people with chronic locomotor disabilities. Post-intervention categorization further

emphasized this improvement, as 55% of PMP participants reached a high self-esteem level, compared to only 10% in the control group. These improvements in self-esteem suggest that beyond physical recovery, PMP interventions facilitate a deeper reconnection between body image, self-perception, and self-worth, which are often disrupted following a disabling condition.

Psycho-motor physical therapy draws from the biopsychosocial model of health (Engel, 1977), which recognizes the interplay between biological, psychological, and social dimensions of disability. Unlike conventional physiotherapy, which focuses on musculoskeletal and functional outcomes, PMP emphasizes body awareness, breathing, emotional expression, and posture as pathways to psychological change. According to Kvåle and Ljunggren (2007), individuals with chronic physical disabilities often carry subconscious bodily tensions rooted in past emotional experiences or social trauma. PMP helps release these tensions through reflective movement, therapeutic touch, and body-mind awareness, allowing for a new, integrated experience of the self.

From a neuroscientific perspective, this process may be linked to: Improved interoceptive awareness via activation of the insula cortex, which is involved in self-perception and emotional regulation. Down-regulation of the autonomic nervous system, leading to decreased sympathetic arousal and stress. Enhanced proprioceptive feedback and sensorimotor integration improve confidence in bodily movement and reduce perceived vulnerability. This body-mind reorganization likely contributes to an individual's improved self-efficacy, reduced shame, and increased personal agency—critical components of self-esteem.

Previous studies have often neglected the psychological dimension of disability rehabilitation, focusing instead on metrics like muscle strength, gait, or range of motion. However, emotional constructs such as self-esteem, body image, and self-concept are crucial for long-term recovery and reintegration into society. A study by Martinsen et al. (2007) on body awareness therapy for chronic pain patients demonstrated similar improvements in self-esteem and psychological functioning. Rosenberg's self-esteem theory (1965) posits that self-esteem arises from the gap between the "ideal self" and the "perceived self." PMP seems to help narrow this gap by facilitating emotional reconciliation with one's altered body, especially in cases of amputation or paralysis. In a review by Dorner et al. (2013), psychosocial interventions showed significantly better outcomes for quality of life and mental well-being than physical rehabilitation alone. Therefore, our findings align with the growing body of research advocating for integrated, biopsychosocial care models in rehabilitation settings [7].

Clinical significance and applications

This study holds several practical implications: Self-esteem is a crucial determinant of recovery: Higher self-esteem correlates with better coping mechanisms, increased therapy

adherence, and willingness to engage in social or occupational activities.

Physiotherapists should be trained in psychosomatic approaches: Incorporating PMP or similar therapies may lead to more holistic and sustained improvements in patient well-being. Policy-level recommendations:

Rehabilitation programs, especially in community settings, should embed psychosocial modules like PMP, particularly for individuals with long-term disabilities who may be socially withdrawn or emotionally vulnerable.

Limitations of the study

Sample Size: With only 40 participants, the generalizability is limited. Larger sample sizes are needed to strengthen external validity.

Lack of blinding: Both participants and physiotherapists were aware of group allocations, which may have introduced performance or expectation bias.

Short follow-up period: The sustainability of the observed gains in self-esteem over time remains unknown

Exclusion of other psychological outcomes: Variables such as depression, anxiety, or quality of life were not measured, which could provide a more comprehensive understanding of PMP's impact.

Future scope of the Study

Conduct longitudinal studies to assess the durability of PMP effects.

Explore the dose-response relationship and determine the optimal frequency and duration of therapy.

Compare PMP with other psychosocial interventions like cognitive behavioral therapy (CBT), mindfulness, or group counselling.

Investigate outcomes in diverse populations—including older adults, pediatric groups, or institutionalized patients [8, 9].

CONCLUSION

This study reinforces the therapeutic value of psychomotor physical therapy as a holistic intervention that not only improves body function, environmental, spiritual, and social aspects, but also significantly enhances self-esteem among individuals with locomotor disabilities. By integrating movement, reflection, and body awareness, PMP helps restore personal identity and psychological resilience. These findings challenge the traditionally narrow focus of rehabilitation and advocate for multidimensional care models that address both physical and emotional healing in disability management.

Conflict of interest

Authors declare no conflict of interest.

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