PHYSIOTHERAPY MANAGEMENT OF CALCANEAL FRACTURE IN A PATIENT WITH SCHIZOPHRENIA: A CASE REPORT FROM A PSYCHIATRIC HOSPITAL IN INDONESIA

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ABSTRACT

Physiotherapy is essential in addressing physical health issues and supporting recovery in patients with mental illness. This case report presents a physiotherapy intervention for a 32-year-old woman diagnosed with schizophrenia, who sustained calcaneal and lumbar vertebral fractures. She presented with left ankle edema, localized pain, and restricted joint mobility, resulting in reduced functional mobility and limitations in daily activities. While functional and clinical outcomes showed minimal improvement, pain levels decreased following the intervention.

Keywords: Physiotherapy, Mental Illness, Schizophrenia, Ankle, Pain.

BACKGROUND

According to the 2018 Basic Health Research survey conducted by the Indonesian Ministry of Health, approximately 9.8%, or around 26 million of the country's 267 million population were found to be experiencing "emotional mental disorders," also referred to as mental health disorders (Kemenkes RI, 2018). This represents a significant increase compared to the 2013 Basic Health Research data, which reported a 6% prevalence of emotional mental disorders characterized by symptoms of depression and anxiety among individuals aged 15 years and older, equivalent to approximately 16 million people (Kemenkes, 2013). Meanwhile, the prevalence of severe mental disorders, such as schizophrenia, was recorded at 1.7 per 1,000 individuals, indicating that about 1 to 2 in every 1,000 Indonesians experienced a serious mental illness in that year (Radiani, 2019).

Recent estimates indicate that approximately 20% of Indonesia's population, equivalent to around 50 million individuals, may experience some form of mental health disorder. Despite this, access to mental health services remains limited, especially at the provincial level. This suggests that a substantial proportion of individuals with mental health issues are not receiving the medical attention they require (Komnas Perempuan, 2023). A concerning increase in suicide rates has also been observed in Indonesia, with a reported 36.4% rise compared to the same period in

2021, during which 486 cases were documented. Provinces with the highest suicide rates include Central Java (253 cases), East Java (128 cases), Bali (61 cases), and West Java (39 cases). This upward trend is widely believed to be associated with worsening mental health conditions (Komnas Perempuan, 2023).

Mental illness represents a complex public health challenge that requires a comprehensive and integrated approach (Hannigan, 2011). Globally, there is growing recognition of the need for physiotherapeutic interventions in the treatment of individuals with mental health conditions (Hodgson et al., 2025; Stubbs et al., 2014; Vera-Garcia et al., 2015). Physiotherapy is a health service provided by physiotherapists aimed at enhancing an individual's quality of life, with a focus on physical, psychological, emotional, and social well-being. Physiotherapists play a critical role in health promotion, prevention, treatment/intervention, and rehabilitation (World Physiotherapy). They apply their expertise across diverse settings and populations, including individuals with mental health disorders (Probst, 2017).

People with mental illness often face physical challenges that further diminish their quality of life. Mental disorders such as depression and anxiety have also been associated with a heightened risk of developing physical illnesses, including heart disease, diabetes, and sleep disturbances (De Hert et al., 2012). Physiotherapy interventions, therefore, have the potential to improve both physical and mental well-being and to support a holistic recovery process (Czosnek et al., 2019).

Despite the clear benefits, physiotherapy is still underutilized in the treatment of mental health disorders in Indonesia. The International Organization of Physical Therapists in Mental Health (IOPTMH) has emphasized the critical role of physiotherapists in supporting individuals with mental health challenges (IOPTMH, 2025). Recognizing physiotherapy as a vital component of holistic mental health care is therefore essential. However, studies exploring the role of physiotherapy in mental health settings, particularly in Indonesia remain extremely limited. Given this context, the present study aims to evaluate the effectiveness of physiotherapy interventions for individuals presenting with physical complaints in conjunction with mental disorders in a psychiatric hospital setting in Indonesia.

LITERATURE REVIEW

There is no health without mental health (WHO, 2025). Neuropsychiatric disorders contribute to nearly 14% of the global disease burden, largely due to the persistent and disabling effects of conditions such as depression, psychosis, and alcohol or substance use disorders. This substantial impact highlights the urgent need to prioritize mental health within global public health efforts (Prince et al., 2007).

According to the Indonesian National Health Survey, 6.7 per 1,000 households have at least one family member diagnosed with schizophrenia, and around 14% of these individuals are subjected to confinement. In total, an estimated 0.31% of Indonesia's population is affected by schizophrenia, a prevalence rate that exceeds the regional average reported by the World Health Organization (WHO) for Southeast Asia (Susanti et al., 2024).

Schizophrenia is defined as a complex, chronic psychiatric disorder that affects how a person thinks, feels, and behaves. It is characterized by distortions in perception and reality, most commonly manifesting as hallucinations, delusions, and disorganized thinking. Beyond psychotic symptoms, individuals often experience negative symptoms such as diminished emotional expression, reduced motivation, social withdrawal, and impaired cognitive functioning. The condition typically emerges in late adolescence or early adulthood, follows a variable course, and is frequently associated with substantial functional disability and reduced quality of life (NIH, 2025).

Adults with schizophrenia are at significantly higher risk of bone fragility and fractures. A recent meta-analysis revealed that individuals with schizophrenia have notably lower bone mineral density (particularly at the hip and lumbar spine) and poorer bone quality compared to those without schizophrenia. Their odds of experiencing a fracture are approximately 1.4 times higher, regardless of sex (Azimi Manavi et al., 2024). Additionally, people with schizophrenia experience around 11.65 fractures per 1,000 person-years, a notable incidence related to falls and physical trauma (Stubbs et al., 2018).

Physiotherapy provides a comprehensive approach to care in schizophrenia, supporting bone health, mobility, and functional recovery while addressing medication side-effects. By integrating physiotherapy into holistic treatment pathways, overall health outcomes can be optimized and morbidity reduced. For example, structured aerobic and resistance exercise programs have been shown to improve physical fitness, alleviate negative symptoms, and enhance quality of life. Evidence from randomized controlled trials further supports the effectiveness of physiotherapy as an adjunctive treatment in this population (Vera-Garcia et al., 2015).

Based on the literature review above, this study aims to examine physiotherapy management in cases of calcaneus fracture among patients with mental disorders. The research questions are as follows:

1) How is the process of physiotherapy management implemented for calcaneal fractures in patients with mental disorders?
2) To what extent is physiotherapy intervention effective in the treatment of calcaneal fractures in patients with mental disorders?

METHODS

This study is a case report involving a single subject. All assessments and interventions were conducted by qualified healthcare professionals, including licensed physiotherapists. Ethical approval for this study was granted by the Research Ethics Committee of Universitas Pembangunan Nasional Veteran Jakarta (Approval No. 418/XI/2024/KEP).

RESULTS

Case report

A 32-year-old female was first diagnosed with schizophrenia in 2013 and commenced psychiatric treatment at a general hospital while simultaneously pursuing university studies in the same city. After discontinuing her academic activities, she was referred to Psychiatric Hospital X for continued mental health care. In April 2023,

the client reportedly jumped from the second floor of her residence during a period of impaired consciousness, resulting in multiple injuries, including a calcaneal fracture and lumbar vertebral fracture. Following the incident, she was admitted to Psychiatric Hospital X, where she resumed psychiatric treatment and underwent physiotherapy assessment prior to April 2024. Regular physiotherapy sessions were initiated as part of a multidisciplinary rehabilitation program.

Physical assessment

On general inspection, the client appeared to be in satisfactory overall condition. Postural assessment revealed asymmetry in body alignment. From the posterior view, a visible deformity was noted in the left ankle. During the dynamic assessment, the client was able to ambulate independently and was accompanied by their mother, indicating a degree of functional mobility despite the presenting complaints. On palpation, there was localized edema over the left ankle. Tenderness was elicited upon palpation of both the lumbar region and the left ankle, suggesting possible soft tissue or musculoskeletal involvement. The client presents with pain in both ankles, with a Visual Analog Scale (VAS) score of 3. Edema is observed in the left ankle, accompanied by a limitation in the range of motion. Muscle strength is graded at 4. The Barthel Index assessment indicates the patient is independent in performing activities of daily living, and the Mini-Mental State Examination (MMSE) shows normal result.

The International Classification of Functioning, Disability and Health (ICF)

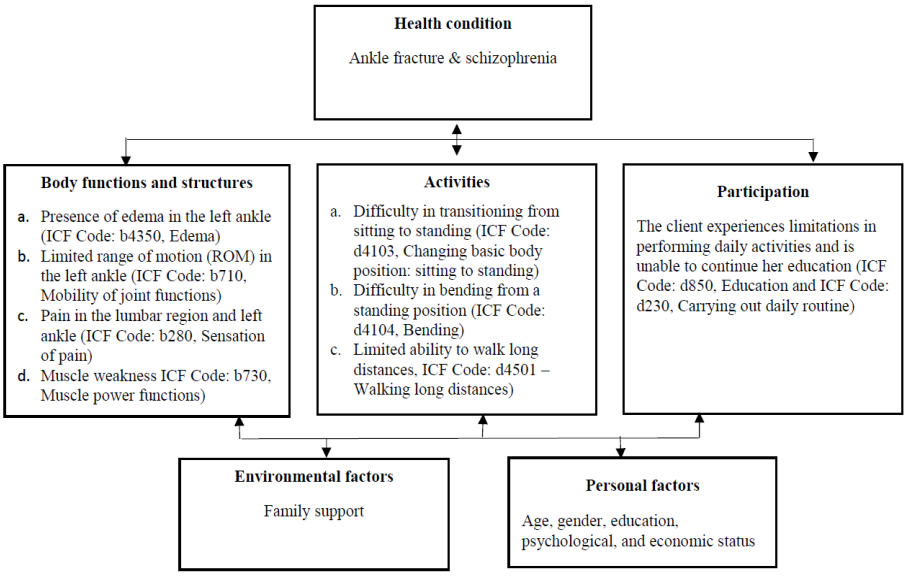

Figure 1. Assessment of Patient's Condition According to the ICF Framework

Diagnose

The client demonstrates limitations in transitioning movements and walking long distances due to left ankle edema, pain in the ankle and lumbar region, and reduced ankle joint mobility. As a result, the client experiences participation restrictions in daily

activities and has discontinued formal education. These challenges are further influenced by the underlying medical condition of schizophrenia, which may affect motivation, social interaction, and adherence to therapy.

Physiotherapy Intervention Plan

1. Short-Term Goals
   a. To reduce edema in the left ankle
   b. To improve the range of motion (ROM) of the left ankle joint
   c. To decrease pain in the lumbar and ankle regions
   d. To enhance muscle strength
2. Long-Term Goal
   The client will be able to perform daily activities independently and without limitations.

Physiotherapy Interventions

Problems / Purpose	Intervention	Dose
Promote blood circulation	Microwave Diathermy (MWD)	Frequency (F): 2 sessions per week Intensity (I): 100 watts (adjust based on tissue depth and patient comfort) Time (T): 15 minutes per session Type of Modality (T): continuous (deep heating)
Ankle pain	TENS (Transcutaneous Electrical Nerve Stimulation)	**Frequency (F):** 2 times per week **Intensity (I):** 35 Hz **Duration (T):** 15 minutes per session **Electrode Placement (T):** longitudinal (along the muscle or nerve path)
Ankle Joint Stiffness	Active assisted exercise	Frequency (F): 2 sessions per week Intensity (I): 8 repetitions per set, with 3 counts of rest between repetitions Time (T): duration adjusted based on client tolerance and condition Type (T): static (no dynamic movement; controlled and held positions) Repetitions (R): 4 sets per session
Muscle weakness	Strengthening exercise	Frequency (F): 2 times per week

		Intensity (I): 8 counts per repetition, with 3 counts of rest between repetitions Time (T): adjusted based on client's tolerance and response Type (T): static exercise (isometric hold or maintained assisted position) Repetitions (R): 4 repetitions per session
Functional activity limitations	Bridging Exercise	Frequency (F): 2 times per week Intensity (I): hold for 8 counts per repetition, followed by 3 counts of rest Time (T): duration adjusted based on the client's physical condition and tolerance Type (T): static (isometric hold at the top of the bridge position) Repetitions (R): 4 repetitions per session

Evaluations

There was a reduction in ankle pain. However, no other functional or clinical improvements were identified.

DISCUSSION

This study investigates the effectiveness of physiotherapy interventions for individuals experiencing physical health problems in the context of comorbid mental health conditions. Assessment findings indicate that the client experienced difficulties with transitional movements and walking long distances, primarily due to left ankle edema, localized pain in the ankle and lumbar spine, and restricted ankle joint mobility. These impairments resulted in limitations in daily functioning. While the intervention did not yield significant improvements in overall functional or clinical outcomes, participants reported a reduction in pain.

Schizophrenia is a common, severe mental disorder that most clinicians will encounter regularly during their practice. It is a multifaceted disorder with diverse underlying causes. Patients often seek clinical attention due to positive symptoms like hallucinations and delusions. However, the condition also includes negative symptoms such as reduced motivation and social isolation, as well as cognitive difficulties, including impairments in working memory, executive functioning, and processing speed (McCutcheon et al., 2020). According to previous studies, individuals with schizophrenia were found to have a 50%–100% higher risk of fractures compared to those without mental

illness (Stubbs et al., 2015). This increased risk is particularly concerning, as it is associated with higher mortality rates, prolonged hospital stays, and a greater incidence of adverse events following major fractures.

The patient in this case study, diagnosed with schizophrenia and a calcaneal fracture, exhibited multiple physical impairments, including restricted ankle joint range of motion, pain during movement and palpation, edema, and ankle deformity. To address these issues, the physiotherapy intervention included microwave diathermy, active-assisted range of motion (ROM) exercises, ankle strengthening exercises, and bridging exercises. Previous studies have demonstrated the benefits of physiotherapy interventions, particularly exercise-based programs in enhancing the physical and functional outcomes of patients with ankle fractures (Alkhowildi, 2017).

Furthermore, physiotherapists are integral members of the multidisciplinary team (MDT), with a specific focus on addressing the physical health needs of individuals diagnosed with schizophrenia (Vancampfort et al., 2012). Emerging scientific evidence indicates that physiotherapy interventions can positively impact both physical and mental health outcomes in this population (Guo et al., 2024; Szortyka et al., 2021; Vera-Garcia et al., 2015). The growing body of high-quality research supports the safety and effectiveness of these approaches, underscoring the important role of physiotherapists in promoting the overall health and well-being of people with schizophrenia.

This study has several limitations. First, it involved only a single patient, which restricts the generalizability of the findings to broader populations. Second, the use of a case report design limits the ability to establish causal relationships or draw definitive conclusions about the effectiveness of the intervention. Third, the short duration of the physiotherapy intervention may not have been sufficient to observe long-term outcomes. Lastly, the study focused primarily on physical health outcomes, providing limited insight into the psychological and mental health dimensions in patients with schizophrenia. Future research should investigate the impact of physiotherapy not only on the physical health of individuals with mental health conditions, but also on their psychological and mental well-being, particularly within the Indonesian context.

CONCLUSION

In conclusion, this case report highlights the potential benefits of physiotherapy for individuals with mental health conditions, particularly schizophrenia. While no significant improvements were observed in functional or clinical measures, a reduction in pain was noted.

The findings point to the value of integrating physiotherapy into multidisciplinary approaches to the care of individuals with schizophrenia, as their involvement may contribute to improved patient outcomes and overall well-being.

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