

Comparison of Patient Expectations and Motivation Across Physiotherapy Settings in Malang City

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Abstract

Background: Patient expectations and motivation are important psychological factors associated with engagement in physiotherapy. Differences in healthcare settings may influence these factors because private physiotherapy clinics and hospitals differ in service organization, therapist-patient interaction, and care delivery.

Objective: To compare patient expectations and motivation between patients receiving physiotherapy at a private physiotherapy clinic and a hospital in Malang City.

Methods: A comparative cross-sectional study was conducted among 60 adult outpatients, including 30 patients from a private physiotherapy clinic and 30 from a hospital. Participants were recruited using total sampling. Expectations were assessed using the Credibility/Expectancy Questionnaire (CEQ), whereas motivation was measured using the Treatment Self-Regulation Questionnaire (TSRQ). The Shapiro-Wilk test assessed data normality. Expectation scores were analyzed using the Mann-Whitney U test, whereas motivation scores were compared using the independent samples *t* test.

Results: Patients treated at the private physiotherapy clinic demonstrated significantly higher credibility ($U = 220.0$; $Z = -3.467$; $p = 0.001$; $r = 0.45$) and expectancy scores ($U = 197.5$; $Z = -3.795$; $p < 0.001$; $r = 0.49$) than hospital patients. Motivation scores were also higher in the private physiotherapy clinic, but the difference was not statistically significant ($t(58) = 1.940$; $p = 0.057$; mean difference = 0.467; 95% confidence interval = -0.015 to 0.949; Cohen's $d = 0.50$).

Conclusion: Patients receiving physiotherapy in a private physiotherapy clinic reported higher treatment expectations than hospital patients, whereas motivation did not differ significantly between settings.

Keywords

Physical Therapy Modalities; Rehabilitation; Motivation; Patient Expectations; Patient Satisfaction

Introduction

Patient expectations and motivation are important psychological factors that influence participation, adherence, and rehabilitation outcomes in physiotherapy. Expectations refer to patients' beliefs regarding the credibility of treatment and the likelihood of achieving favorable outcomes, whereas motivation reflects the internal and external processes that encourage individuals to actively engage in rehabilitation. Patients with positive and realistic expectations are generally more willing to participate in treatment, adhere to prescribed exercise programs, and maintain long term rehabilitation behaviors. Conversely, unmet expectations may reduce treatment adherence, weaken therapeutic engagement, and negatively affect patient satisfaction and functional recovery. Therefore, understanding these psychological constructs is essential for delivering patient centered physiotherapy services and optimizing rehabilitation outcomes.¹⁻⁶

Evidence suggests that patient expectations and motivation are shaped not only by individual characteristics but also by healthcare delivery systems. Previous studies have shown that therapeutic communication, patient education, shared decision making, and continuity of care significantly influence patients' perceptions of treatment and their willingness to participate in rehabilitation.^{3,7,8} Healthcare settings may therefore play an important role in shaping these psychological responses because organizational characteristics determine the quality of therapist patient interaction, consultation time, accessibility of services, and opportunities for individualized care.^{6,9-12} Patients who perceive that healthcare professionals provide sufficient information, involve them in treatment decisions, and establish trusting therapeutic relationships generally report higher treatment expectations and greater satisfaction with physiotherapy services.^{7,8,13}

In Indonesia, research examining patient expectations and motivation in physiotherapy remains limited. Existing studies have primarily focused on patient satisfaction, treatment adherence, or rehabilitation outcomes within a single healthcare setting.^{5,14,15} Family support, health literacy, treatment costs, and accessibility have been identified as factors associated with adherence to physiotherapy among patients with chronic conditions and stroke rehabilitation.^{6,14,15} However, few studies have investigated whether different physiotherapy service settings are associated with variations in patients' expectations and motivation despite differences in organizational structures and models of care. This gap is particularly relevant because hospital based physiotherapy and private physiotherapy clinics differ substantially in service delivery, consultation patterns, therapist workload, scheduling flexibility, and continuity of care, all of which may influence patients' rehabilitation experiences.^{6,9,12,16}

From a theoretical perspective, patient expectations and motivation are related but distinct constructs. Expectations are commonly conceptualized through the Credibility/Expectancy Questionnaire (CEQ), which evaluates patients' cognitive beliefs regarding treatment credibility and their emotional expectations of therapeutic success.¹⁷ In contrast, motivation is explained by Self Determination Theory (SDT) and is commonly assessed using the Treatment Self-Regulation Questionnaire (TSRQ), which measures the degree to which treatment participation is driven by autonomous or controlled motivation.^{4,9,12} Although both constructs are recognized as important determinants of rehabilitation adherence, they are influenced through different psychological

mechanisms. Expectations are largely shaped by perceptions of treatment quality, communication, and previous healthcare experiences, whereas motivation depends on autonomy, competence, relatedness, self-efficacy, family support, and personal rehabilitation goals.^{2,4,6,18} Consequently, differences in healthcare settings may influence patient expectations more directly than patient motivation, although comparative evidence remains limited.^{3,19}

Previous studies have several methodological limitations. Previous studies have examined expectations or motivation separately, recruited participants from only one type of healthcare facility, focused on specific diagnostic groups, or employed qualitative designs that limit direct quantitative comparisons between healthcare settings.^{1,2,20,21} Consequently, current evidence does not adequately explain whether patient expectations and motivation differ simultaneously between private physiotherapy clinics and hospitals when measured using standardized psychometric instruments. Furthermore, comparative evidence from Indonesian physiotherapy services remains scarce despite the rapid expansion of private physiotherapy practice and increasing emphasis on patient centered rehabilitation.¹¹ This study therefore provides additional evidence by simultaneously comparing both psychological constructs across two different physiotherapy service settings using validated outcome measures.^{9,12}

Therefore, this study aimed to compare patient expectations and motivation toward physiotherapy between patients receiving treatment at a private physiotherapy clinic and a hospital in Malang City using the Credibility/Expectancy Questionnaire (CEQ) and the Treatment Self-Regulation Questionnaire (TSRQ). It was hypothesized that patients receiving physiotherapy in a private physiotherapy clinic would demonstrate higher expectation and motivation scores than patients treated in the hospital. The findings are expected to improve understanding of the association between healthcare settings and patients' psychological responses during rehabilitation and provide evidence to support the development of more patient centered physiotherapy services.

Methods

This study employed a quantitative observational design using a comparative cross sectional approach to compare patient expectations and motivation between patients receiving physiotherapy at a private physiotherapy clinic and a hospital in Malang City. The study was conducted from March to May 2026 at Kedota Private Physiotherapy Clinic and the University of Muhammadiyah Malang Hospital. The study design and reporting were developed in accordance with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) Statement to improve the transparency and completeness of reporting.^{22,23}

The target population comprised adult outpatients undergoing physiotherapy at the participating healthcare facilities during the study period. Participants were recruited using a total sampling technique because the accessible population was limited and all eligible patients attending the two facilities during data collection were invited to participate. A total of 60 participants were included in the study, consisting of 30 patients from the private physiotherapy clinic and 30 patients from the hospital. A formal a priori sample size calculation was not performed because recruitment was based on the total number of eligible patients available during the predefined study period. Therefore, total sampling was considered the most appropriate strategy to maximize participant inclusion, although the relatively small sample size should be considered when interpreting statistical precision and external validity.²⁴

Participants were eligible if they were between 18 and 59 years of age, were receiving outpatient physiotherapy for their current condition, were able to read and understand Indonesian, completed the questionnaires independently, and provided written informed consent before participation. Patients with cognitive impairment that prevented questionnaire completion or questionnaires containing substantial missing responses were excluded. During the recruitment period, all newly registered patients attending either physiotherapy facility were screened consecutively according to the eligibility criteria. Eligible patients received verbal and written explanations regarding the study objectives, procedures, confidentiality, potential risks, and voluntary participation before signing the informed consent form. All participants completed the study questionnaires, resulting in complete datasets for statistical analysis without missing outcome data. The participant recruitment and selection process is presented in Figure 1.

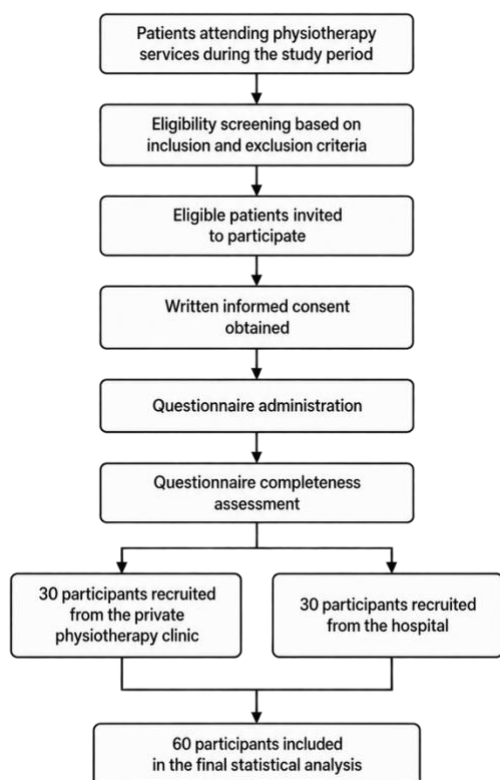


Figure 1. Participant Recruitment and Selection Flowchart

Patient expectations were measured using the Credibility/Expectancy Questionnaire (CEQ) developed by Devilly and Borkovec.⁹ The CEQ consists of two domains: credibility, which evaluates patients' cognitive beliefs regarding treatment credibility, and expectancy, which measures emotional expectations concerning treatment success. Higher scores indicate stronger treatment expectations. Patient motivation was assessed using the Treatment Self Regulation Questionnaire (TSRQ), a standardized instrument developed within the framework of Self Determination Theory (SDT) to evaluate autonomous and controlled motivation for health related behaviors.¹² Higher scores indicate greater autonomous motivation toward physiotherapy participation. Both instruments were administered in Indonesian. The questionnaires underwent linguistic translation and cultural adaptation before implementation to ensure conceptual equivalence with the original versions. Because internationally published Indonesian psychometric validation studies for these instruments remain limited, the present study adopted the translated versions used during data collection. Additional psychometric evaluation, including internal consistency and construct validation, is recommended for future investigations.²⁵

After providing informed consent, participants completed a structured questionnaire consisting of demographic characteristics, the CEQ, and the TSRQ during their first physiotherapy visit. Questionnaires were completed independently in the waiting area or treatment room and required approximately five to ten minutes. Researchers were available to clarify questionnaire instructions without influencing participants' responses. Completed questionnaires were reviewed immediately to ensure completeness before coding and data entry. Data processing consisted of editing, coding, double entry verification, and tabulation prior to statistical analysis.

Statistical analyses were performed using IBM SPSS Statistics version 26.0, with statistical significance established at $p < 0.05$. Descriptive statistics were presented as frequencies, percentages, means, standard deviations, minimum and maximum values, and 95% confidence intervals where appropriate. Data normality was evaluated using the Shapiro–Wilk test because each comparison group consisted of fewer than 50 participants. Variables that violated the assumption of normality were analyzed using the Mann–Whitney U test, whereas normally distributed variables were compared using the independent samples t test. Prior to the independent samples t test, homogeneity of variance was evaluated using Levene's test, which indicated no significant violation of variance equality ($F = 0.315$; $p = 0.577$). Inferential analyses were reported using the corresponding test statistics, p values, mean differences, and 95% confidence intervals where applicable. Effect sizes were also reported to facilitate interpretation of the magnitude of observed differences, using rank biserial correlation (r) for the Mann–Whitney U test and Cohen's d for the independent samples t test. Because the study employed an observational comparative design without matching or multivariable adjustment, potential confounding variables, including age, sex, occupation, disease severity, previous healthcare experiences, and family support, were not statistically controlled and should therefore be considered when interpreting the findings.

Ethical approval for this study was obtained from the Health Research Ethics Committee of the Faculty of Health Sciences, University of Muhammadiyah Malang (Approval No. E.4.d/060/KEPK/FIKES-UMM/III/2026). Written informed consent was obtained from all participants before data collection. Participant confidentiality and anonymity were maintained throughout the study, and respondents were informed that participation was voluntary and that they could withdraw from the study at any time without affecting the physiotherapy services they received.

Results

A total of 60 participants completed the study, consisting of 30 patients receiving physiotherapy at a private physiotherapy clinic and 30 patients receiving physiotherapy at the hospital. All participants met the eligibility criteria, completed the study questionnaires, and were included in the final statistical analysis. Consequently, no missing outcome data occurred, and complete case analysis was performed. Before comparing patient expectations and motivation between healthcare settings, participant characteristics were examined to describe the study population and provide context for interpreting the findings.

Table 1. Demographic Characteristics of Participants

Characteristic	Hospital (n = 30)	Private Physiotherapy Clinic (n = 30)
Sex		
Male	3 (10.0%)	10 (33.3%)
Female	27 (90.0%)	20 (66.7%)
Age		
18–49 years	10 (33.3%)	24 (80.0%)
50–59 years	20 (66.7%)	6 (20.0%)
Occupation		
Homemaker	21 (70.0%)	7 (23.3%)
Civil servant	5 (16.7%)	3 (10.0%)
Private employee	2 (6.7%)	12 (40.0%)
College student	1 (3.3%)	5 (16.7%)
School student	1 (3.3%)	0 (0.0%)
Self employed	0 (0.0%)	2 (6.7%)
Retired	0 (0.0%)	1 (3.3%)

Table 1 shows that female participants predominated in both healthcare settings, although their proportion was higher in the hospital group (90.0%) than in the private physiotherapy clinic (66.7%). Participants attending the hospital were predominantly aged 50–59 years, whereas those receiving treatment at the private physiotherapy clinic were mostly aged 18–49 years. Occupational characteristics also differed between groups, with homemakers representing the largest proportion in the hospital and private employees predominating in the private physiotherapy clinic. These baseline differences should be considered when interpreting between-group comparisons because no multivariable adjustment was performed.

To describe the distribution of the study outcomes prior to inferential analysis, descriptive statistics for credibility, expectancy, and motivation are presented in Table 2.

Table 2. Descriptive Statistics of Study Outcomes

Variable	Group	Mean $\pm$ SD	Minimum–Maximum	95% CI
Credibility	Hospital	7.73 $\pm$ 0.77	6.30–9.00	7.44–8.01
	Private Physiotherapy Clinic	8.42 $\pm$ 0.57	7.00–9.00	8.22–8.64
Expectancy	Hospital	7.61 $\pm$ 0.85	5.80–9.00	7.29–7.93
	Private Physiotherapy Clinic	8.44 $\pm$ 0.68	6.80–9.00	8.19–8.69
Motivation	Hospital	1.69 $\pm$ 0.94	0.50–3.83	1.35–2.05
	Private Physiotherapy Clinic	2.16 $\pm$ 0.92	0.17–4.33	1.82–2.51

As presented in Table 2, participants receiving physiotherapy at the private physiotherapy clinic consistently demonstrated higher mean scores for credibility, expectancy, and motivation than those treated at the hospital. The largest difference was observed for expectancy, followed by credibility, whereas the difference in motivation appeared relatively modest.

Based on the Shapiro–Wilk normality test, credibility and expectancy scores were analyzed using the Mann–Whitney U test because the assumption of normality was not fulfilled. In contrast, motivation scores were normally distributed and therefore analyzed using the independent samples *t* test. Before performing the *t* test, homogeneity of variance was confirmed using Levene's test ($F = 0.315$, $p = 0.577$), indicating that the assumption of equal variances was satisfied.

The primary comparison of patient expectations and motivation between healthcare settings is presented in Table 3.

Table 3. Comparison of Patient Expectations and Motivation Between Healthcare Settings

Outcome	Statistical Test	Test Statistic	p-value	Effect Size
Credibility	Mann–Whitney U	$U = 220.0$; $Z = -3.467$	0.001	$r = 0.45$
Expectancy	Mann–Whitney U	$U = 197.5$; $Z = -3.795$	<0.001	$r = 0.49$
Motivation	Independent samples <i>t</i> test	$t(58) = 1.940$	0.057	Cohen's $d = 0.50$

The inferential analysis demonstrated statistically significant differences in both dimensions of patient expectations. Participants attending the private physiotherapy clinic reported significantly higher credibility than hospital patients ($U = 220.0$, $Z = -3.467$, $p = 0.001$), with a moderate effect size ($r = 0.45$). Similarly, expectancy scores were significantly higher among patients treated at the private physiotherapy clinic ($U = 197.5$, $Z = -3.795$, $p < 0.001$), corresponding to a moderate effect size ($r = 0.49$). These findings indicate that patients receiving physiotherapy in the private setting expressed greater confidence in treatment credibility and stronger expectations regarding therapeutic success.

In contrast, motivation scores did not differ significantly between healthcare settings. Although the mean motivation score was higher in the private physiotherapy clinic (2.16) than in the hospital (1.69), the independent samples *t* test demonstrated no statistically significant difference ($t(58) = 1.940$, $p = 0.057$). The estimated mean difference was 0.467 (95% confidence interval: -0.015 to 0.949), with a moderate standardized effect size (Cohen's $d = 0.50$). However, because the confidence interval included zero and the probability value exceeded the predefined significance level, the observed difference should not be interpreted as statistically significant.

Overall, the findings demonstrate that patients receiving physiotherapy at the private physiotherapy clinic reported significantly higher treatment expectations than those treated at the hospital, whereas patient motivation remained statistically comparable between the two healthcare settings.

Discussion

This study compared patient expectations and motivation between individuals receiving physiotherapy at a private physiotherapy clinic and a hospital in Malang City. The findings demonstrated that patients treated in the private physiotherapy clinic reported significantly higher credibility and expectancy scores than those receiving physiotherapy in the hospital, whereas motivation did not differ significantly between the two healthcare settings. These findings indicate that the physiotherapy service setting was associated with patients' treatment expectations but was not associated with differences in motivation. Because the present study employed a comparative cross-sectional design, these findings should be interpreted as associations rather than evidence of causal relationships.

The higher expectation scores observed among patients attending the private physiotherapy clinic are consistent with previous evidence suggesting that patients' expectations are influenced by healthcare experiences, therapeutic communication, perceived service quality, and continuity of care.^{1,3,7,17} Expectations develop through patients' perceptions of treatment credibility, confidence in healthcare professionals, and anticipated therapeutic outcomes. Consequently, healthcare environments that facilitate individualized communication and patient involvement may contribute to more favorable treatment expectations. Similar findings have been reported in musculoskeletal physiotherapy, where patients receiving individualized education and participating in shared decision making expressed greater confidence in treatment and higher satisfaction with rehabilitation services.¹⁷ Likewise, qualitative studies have demonstrated that patients' expectations evolve throughout rehabilitation as trust in physiotherapists increases and treatment benefits become more apparent.^{11,12}

The observed differences may also reflect organizational characteristics that distinguish private physiotherapy clinics from hospital-based services. Private physiotherapy clinics generally provide longer consultation times, greater scheduling flexibility, closer therapist patient interaction, and improved continuity of care compared with hospital settings, where larger patient volumes and standardized clinical pathways may limit opportunities for individualized communication.^{26,27} These organizational differences may strengthen patients' confidence in treatment and increase their expectations regarding rehabilitation outcomes. Nevertheless, because organizational characteristics were not measured directly in the present study, this explanation should be interpreted cautiously and regarded as a plausible hypothesis requiring further investigation.²⁸

The findings can also be interpreted using the theoretical framework underlying the Credibility/Expectancy Questionnaire (CEQ). The credibility dimension reflects patients' cognitive beliefs regarding the scientific rationale and trustworthiness of treatment, whereas expectancy represents emotional beliefs concerning the likelihood of therapeutic success.¹⁷ Both dimensions were significantly higher among participants attending the private physiotherapy clinic, indicating that differences between healthcare settings were evident in both cognitive and emotional aspects of treatment expectations. This observation emphasizes the importance of patient education, effective therapeutic communication, and collaborative goal setting in establishing realistic expectations before rehabilitation begins.^{7,17}

In contrast, motivation did not differ significantly between the two healthcare settings despite the higher mean score observed among patients receiving physiotherapy at the private physiotherapy clinic. Although the calculated Cohen's d indicated a

moderate standardized difference, statistical significance was not achieved because the confidence interval included the null value. This finding suggests that the observed difference may reflect random variation within the study sample rather than a consistent difference between healthcare settings. The relatively small sample size may also have reduced statistical precision and limited the ability to detect modest between group differences.

The absence of a statistically significant difference in motivation is consistent with Self Determination Theory (SDT), which proposes that motivation arises from interactions among autonomy, competence, and relatedness rather than from healthcare environments alone.⁴ Patients may therefore maintain similar levels of treatment motivation across different healthcare settings provided that these basic psychological needs are adequately supported. Previous studies have likewise demonstrated that self-efficacy, family support, perceived health status, rehabilitation goals, and autonomy supportive communication are important determinants of rehabilitation adherence and sustained motivation.^{2,15,18} Consequently, healthcare setting alone may not sufficiently explain variations in patient motivation because individual psychological and social factors also contribute substantially to treatment engagement.²⁹

Differences in participant characteristics should also be considered when interpreting the findings. Participants attending the private physiotherapy clinic were generally younger and more frequently employed in the private sector, whereas hospital participants were predominantly older adults and homemakers. Previous research has suggested that age, educational attainment, socioeconomic status, health literacy, and previous healthcare experiences may influence healthcare seeking behavior and perceptions of treatment.^{30–32} These variables were not statistically controlled in the present study because multivariable analyses were beyond the scope of the study design and sample size. Therefore, residual confounding cannot be excluded and should be considered when interpreting the observed associations.

The present findings have several clinical implications for physiotherapy practice. Physiotherapists should prioritize interventions that strengthen realistic treatment expectations regardless of healthcare setting. Comprehensive patient education, effective therapeutic communication, collaborative goal setting, and shared decision making should become integral components of routine physiotherapy services because these approaches may enhance patients' confidence in treatment and improve engagement throughout rehabilitation.^{7,9,10} At the same time, strategies to improve patient motivation should extend beyond organizational changes by supporting patient autonomy, self-efficacy, and family involvement, which have consistently been identified as important determinants of rehabilitation adherence.^{2,4,6,18}

Several limitations should be acknowledged. First, the comparative cross-sectional design does not permit causal inference because exposure and outcomes were measured simultaneously. Second, the study included participants from only one private physiotherapy clinic and one hospital, thereby limiting external validity and the generalizability of the findings. Third, the relatively small sample size may have reduced statistical power, particularly for motivation, which approached but did not reach statistical significance. Fourth, potential confounding variables, including diagnosis, disease severity, educational level, socioeconomic status, previous physiotherapy experience, self-efficacy, and family support, were not controlled statistically. Finally, although internationally recognized instruments were used, additional psychometric evaluation of the Indonesian versions of the CEQ and TSRQ, including internal consistency and construct validity, is recommended in future studies to further strengthen measurement quality.³³ Overall, this study provides evidence that patient expectations differed between physiotherapy service settings, whereas motivation remained comparable between the two groups. These findings contribute to the growing evidence supporting patient centered physiotherapy by demonstrating that organizational characteristics may be associated with treatment expectations, while motivation appears to depend on broader psychological and contextual factors beyond the healthcare setting alone.

Conclusion

This study demonstrated that patients receiving physiotherapy at a private physiotherapy clinic reported significantly higher treatment expectations than those treated in a hospital, as reflected by both credibility and expectancy scores. In contrast, patient motivation did not differ significantly between the two healthcare settings. These findings suggest that physiotherapy service settings are associated with patients' treatment expectations, whereas motivation appears to depend on broader individual psychological and contextual factors beyond the type of healthcare facility.

Study Limitations

Several limitations should be considered when interpreting the findings of this study. First, the comparative cross-sectional design precludes causal inference because exposure and outcomes were measured simultaneously. Second, the study was conducted at only one private physiotherapy clinic and one hospital in Malang City, which may limit the generalizability of the findings to other healthcare settings or populations. Third, the relatively small sample size resulting from total sampling may have reduced statistical power, particularly for motivation, which approached but did not reach statistical significance. Fourth, potential confounding variables, including diagnosis, disease severity, educational level, socioeconomic status, previous physiotherapy experience, self-efficacy, and family support, were not controlled statistically. Finally, although internationally recognized instruments were used, further psychometric evaluation of the Indonesian versions of the Credibility/Expectancy Questionnaire (CEQ) and the Treatment Self-Regulation Questionnaire (TSRQ), including internal consistency, construct validity, and responsiveness, is recommended in future studies.

Clinical Implications

The present findings highlight the importance of strengthening patient centered physiotherapy regardless of healthcare setting. Physiotherapists should emphasize effective therapeutic communication, comprehensive patient education, collaborative goal setting, and shared decision making to establish realistic treatment expectations before rehabilitation begins. Because motivation appears to be influenced by broader psychological and contextual factors, interventions should also promote patient autonomy, self-efficacy, and family involvement throughout the rehabilitation process. Implementing these approaches may improve patient engagement and support more effective physiotherapy services.

Future studies should recruit larger and more representative samples from multiple healthcare facilities, perform formal sample size estimation before data collection, evaluate the psychometric properties of the Indonesian versions of the CEQ and TSRQ, and apply multivariable analytical approaches to control for potential confounding factors. Longitudinal studies are also recommended to investigate changes in patient expectations and motivation throughout the rehabilitation process and their association with long term physiotherapy outcomes.

Author Contribution

Resty Leisya Dewi: Conceptualization, Methodology, Investigation, Data Curation, Formal Analysis, Writing Original Draft, Visualization.

Zidni Imanurrohamah Lubis: Conceptualization, Methodology, Supervision, Validation, Writing Review and Editing.

Bayu Prastowo: Methodology, Validation, Supervision, Writing Review and Editing.

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Conflict of Interest Statement

The authors declare that there are no conflicts of interest regarding the publication of this study.

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Ethics Statement

This study was approved by the Health Research Ethics Committee, Faculty of Health Sciences, Universitas Muhammadiyah Malang (Approval No. E.4.d/060/KEPK/FIKES-UMM/III/2026). Written informed consent was obtained from all participants before enrollment. All procedures were conducted in accordance with the ethical principles of the Declaration of Helsinki and institutional regulations governing research involving human participants.

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