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Work performance assessment in Thai homeless shelters: An exploratory factor analysis

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ABSTRACT

Background: Institutional sheltering can lead to occupational deprivation and psychosocial disengagement, particularly among adults with mental health-related disabilities. In Thailand, homeless shelters operate under rigid custodial systems that may hinder functional recovery, highlighting the need for culturally adapted assessment tools.

Objectives: To validate an adapted version of the Assessment of Work Performance (AWP) for use in Thai homeless shelters and to identify functional skill patterns and psychosocial barriers that inform allied health service planning.

Materials and methods: A cross-sectional study was conducted with 60 adults with mental health–related disabilities residing in a government-operated destitute shelter. Participants completed a work-based AWP task rated across seven subskills. Exploratory factor analysis (EFA) examined the underlying factor structure, while regression analysis tested the predictive value of extracted factors on occupational performance.

Results: The EFA supported a two-factor solution; 1) task adaptation and relational organization, and 2) communication and expression-accounting for 56.78% of the total variance (KMO=0.696, Bartlett's test significant). Regression analysis showed that task adaptation and relational organization significantly predicted occupational performance, explaining 69.6% of the variance (R^2=0.696).

Conclusion: Task adaptation and environmental structuring are key determinants of occupational engagement in institutional shelter settings. Performance-based assessment, combined with structured observation during task engagement, provides a culturally relevant strategy for allied health professionals to guide individualized rehabilitation for marginalized populations in Thai homeless shelters.

Introduction

Homelessness and institutional sheltering profoundly disrupt daily routines, roles, and identitiescore elements closely tied to disability risk and psychosocial well-being.[1-2] Prolonged displacement from stable living environments often results in impairments in cognitive organization, adaptive functioning, and relational capacities, limiting participation in daily activities, social relationships, and rehabilitation.[1-2] Performance-based assessments, such as the Executive Function Performance Test (EFPT), have shown utility in detecting subtle executive dysfunction among marginalized individuals, even when standard cognitive screenings do not indicate impairments.[3]

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Occupational deprivation, the inability to engage in meaningful activities due to environmental, social, or systemic barriers, further compounds these challenges. It has been linked to declines in executive functioning, emotional regulation, and interpersonal capacity, reducing readiness for community participation and long-term recovery.[1,2] Functional deficits often become entrenched among older or socially excluded adults. Qualitative studies highlighted how boredom, fractured occupational identities, and loss of meaningful roles shape the lived experiences of homelessness, contributing to disengagement and diminished volition.[4-7]

In Thailand, protective shelters provide long-term institutional care for homeless or abandoned adults. However, these environments are often governed by rigid routines and custodial care models that restrict opportunities for autonomy, decision-making, and skill development.[8] Needs assessments have consistently identified three recurring barriers among residents: psychiatric symptoms that disrupt consistency, estranged family relationships that undermine motivation, and disrupted work identity leading to frustration and loss of purpose. These contextual barriers underscore the need for structured tools that can evaluate functional skills relevant to both rehabilitation and reintegration.[4-5,8]

The Assessment of Work Performance (AWP), grounded in the Model of Human Occupation, offers a structured approach to evaluating process, motor, and communication-interaction skills relevant to occupational participation.[9-11] However, its use in Southeast Asian institutional settings remains underexplored, despite systematic reviews highlighting the importance of structured functional assessments for individuals transitioning from homelessness.[12-13] Moreover, psychological factors such as emotional regulation, motivation, and purpose are often overlooked in standard psychiatric or cognitive evaluations, particularly among older or institutionalized populations.[14]

To address these gaps, the AWP was adapted to reflect the domestic and vocational activities typical of Thai shelters, ensuring contextual suitability for this population. This study therefore aimed to explore the underlying structure of the Thai version of AWP using exploratory factor analysis (EFA) among adults living in Thai homeless shelters. Findings provides evidence to guide rehabilitation planning and individualized care for adults with mental health-related disabilities living in institutional shelter environments.[15-16]

Materials and methods

Study design and ethical considerations

This study was conducted as a rehabilitation needs analysis and functional skill profiling investigation, rather than an intervention trial. A cross-sectional observational design was employed to examine functional skill patterns among adults residing in a government-operated protective shelter in Thailand. The study adhered to the STROBE guidelines for observational research. Ethical approval was granted by (removed for anonymity). All participants provided written informed consent prior to enrollment, in accordance with the Declaration of Helsinki.

The sample size was determined based on recommendations for factor analysis, which suggest a minimum of 5-10 participants per item to ensure adequate statistical power.[17] Given that the adapted Assessment of Work Performance (AWP) included six core items, a minimum of 30-60 participants were required. To enhance reliability and meet these methodological guidelines, sixty adults with mental health-related functional disabilities were purposively recruited from the Nonthaburi Home for the Destitute, a government-operated homeless shelter in central Thailand. Participants were long-term institutional residents, categorized as homeless or abandoned. Inclusion criteria were age 18-64 years.

Participants and setting

Sixty adults aged 18-64 years with mental health-related functional disabilities were purposively recruited from a government-operated shelter in central Thailand. Participants were long-term institutional residents, categorized as homeless or abandoned. Inclusion criteria were a documented mental disorder diagnosis verified by psychiatric records from the Nonthaburi Home for the Destitute, absence of acute psychotic symptoms as confirmed by the attending psychiatrist and shelter nursing staff during routine clinical evaluation, fluency in Thai, and the ability to perform basic self-care tasks. Exclusion criteria included diagnosed neurological disorders, sensory impairments interfering with task participation, and significant physical disability. The determination of "absence of acute psychotic symptoms" followed established psychiatric diagnostic criteria, particularly those outlined in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5).[18]

Screening tools included the Rowland Universal Dementia Assessment Scale (RUDAS; score ≥23)[19-20] and the Brief Psychiatric Rating Scale (BPRS; score ≤36).[21-22] Participant eligibility was confirmed by shelter psychologists, social workers, and occupational therapists to ensure capacity for functional work-like activity. The Brief Psychiatric Rating Scale (BPRS) was selected to assess the severity of psychiatric symptoms because it provides a dimensional measure across a broad range of symptom domains, rather than definitive diagnostic cut-off points. Although participants exhibited psychiatric symptomatology, only those without acute psychotic symptoms were included, as verified through psychiatric records and confirmation by clinical staff. This inclusion criterion ensured that participants were clinically stable and able to engage meaningfully in occupational tasks, while still representing the spectrum of chronic psychiatric conditions commonly observed in long-term institutional settings.[23]

Instruments and data collection

The primary assessment tool was the Thai version of the Assessment of Work Performance (AWP), modified to reflect culturally relevant shelter-based tasks such as sweeping, cleaning, plant care, and crafts. This adaptation was necessary because residents in Thai homeless shelters predominantly engage in domestic and vocational activities, which differ from the work-related tasks emphasized in the original AWP. To ensure suitability, the adapted version was reviewed by three occupational therapy experts, yielding a content validity index (CVI) of 1.00. In this study, the adapted tool also demonstrated acceptable internal consistency (Cronbach's α=0.68) and test–retest reliability (intraclass correlation coefficient, ICC=0.77). These psychometric properties support the use of the adapted AWP in this context.

The AWP measures motor, process, and communication-interaction skills on a 4-point ordinal scale. This structured, performance-based approach is increasingly used to understand functional needs among individuals in institutional or homeless settings.[12–13,15] For this study, seven AWP subskills were prioritized based on their applicability and reliability in the shelter context. For interpretation, domain and subskill scores were categorized into three levels based on the percentage of the maximum possible score: high (≥80%), moderate (50-79%), and low (<50%). Each participant completed one structured task observed by trained occupational therapy students, who rated performance and simultaneously recorded qualitative observations of psychosocial behaviors and contextual interactions. Demographic data were also collected.

Statistical analysis

Descriptive statistics for demographics and AWP scores were calculated using IBM SPSS Statistics version 26.0 (IBM Corp., Armonk, NY, USA). To examine the underlying structure of the adapted AWP, an exploratory factor analysis (EFA) with principal component extraction was conducted.[24-26] Sampling adequacy was assessed using the Kaiser-Meyer-Olkin (KMO) measure and Bartlett's test of sphericity, which was statistically significant, indicating suitability of the data for factor analysis. Factor scores from the extracted components were subsequently entered into multiple regression models to predict total occupational performance (AWP_TOTAL). In addition, exploratory correlations were conducted between AWP scores and measures of cognitive functioning (RUDAS) and psychiatric symptom severity (BPRS). Patient and public involvement

Service users and members of the public were not directly involved in the design or reporting of this study due to the vulnerable nature of the population. All participants were institutionalized homeless adults with mental health-related disabilities and lacked community or family living options. However, their perspectives were incorporated through narrative observations and interviews conducted by psychologists and social workers, which informed the qualitative analysis. Occupational therapy instructors and students also contributed to the screening and ethical readiness of participants. Future studies will aim to integrate service user feedback more systematically into design and evaluation phases.

Results

Participant characteristics

A total of 60 participants were included in the study, with ages ranging from 26 to 63 years (mean=44.87, SD=7.81). The majority were male (65%), and 62% had completed primary education or less. Most participants had resided in the shelter for over one year (mean=51.70 months, SD=37.70). Screening results indicated mild cognitive impairment in some individuals, with the RUDAS scores ranging from 20 to 30 (mean=26.77, SD=2.06). The BPRS scores indicated varying psychiatric symptom severity, ranging from 18 to 39 (mean=24.87, SD=5.54).

The BPRS scores indicated mild to moderate psychiatric symptom severity. This distribution confirmed that all participants were clinically stable and capable of engaging in occupational tasks. While some variation was observed, it reflected the heterogeneity typically found in shelter populations and was statistically controlled by including the BPRS scores as a continuous covariate in subsequent analyses. Demographic and clinical characteristics are summarized in Table 1.

Table 1. Demographic and clinical characteristics of participants (service users)(n=60)

Characteristic	Mean (SD) or n (%)
Age (years)	44.87 (7,Λ1) [range 26-63]
Gender	Male = 39 (65%); Female = 21 (35%)
Education	Primary school = 37 (62%) Lower secondary school = 12 (20%) Upper secondary school = 8 (13%) Higher vocational diploma = 2 (3%) Bachelor's degree = 1 (2%)
Length of stay (months)	51.70 (37.70) [range 2-214]
RUDAS score	26.77 (2.06) [range 20-30]

Table 1. Demographic and clinical characteristics of participants (service users)(n=60)(Continue)

Characteristic	Mean (SD) or n (%)
BPRS score	24.87 (5.54) [range 18-39]
Psychiatric diagnosis	Schizophrenia spectrum = 1 (1.67%) Comorbid psychiatric and NCDs = 11 (24.32%) Unspecified psychiatric disorders = 10 (10.67%) Cerebral palsy = 1 (1.67%) NCDs = 9 (15%) None = 28 (46.67%)

Note: Data collected via structured demographic checklist and standardized screening tools (RUDAS = Rowland Universal Dementia Assessment Scale; BPRS = Brief Psychiatric Rating Scale).

Descriptive occupational performance

Total scores on the adapted AWP indicated substantial variation in occupational performance (mean=32.4, SD=5.8). Participants generally demonstrated higher scores in motor domains, while process and communication-interaction skills were comparatively lower. This pattern reflects functional heterogeneity in this institutionalized population. Domain and subskill scores are detailed in Table 2. Total scores on the adapted AWP demonstrated substantial variation across participants. Based on the established cut-off values, 35% of participants achieved high performance (≥80%), 50% showed moderate performance (50-79%), and 15% scored in the low performance range (<50%).

Table 2. AWP domain and subskill scores (n = 60)

AWP Domain	Subskill	Mean± SD	Range	Classification (n, %)
Motor	Total subskill score	19.58±0.83	16-20	High = 60 (100%)
	Posture	3.93±0.31		Moderate = 0
	Mobility	3.88±0.32		Low = 0
	Coordination	3.98±0.13		
	Strength	3.93±0.25		
	Physical Energy	3.85±0.36		
Process	Total subskill score	18.57±2.16	9-20	High = 57 (95.00%)
	Mental Energy	3.87±0.47		Moderate = 1 (1.67%)
	Knowledge	3.52±0.72		Low = 2 (3.33%)
	Temporal Organization	3.60±0.67		
	Organizations of Space & Objects	3.75±0.51		
	Adaptation	3.83±0.53		
Communication	Total subskill score	14.50±1.68	9-16	High = 50 (83.33%)
-Interaction	Physicality	3.70±0.53		Moderate = 10 (16.67%)
	Language	3.67±0.48		Low = 0
	Relations	3.38±0.83		
	Informations & Exchange	3.75±0.54		
Total AWP domian score		52.65±3.50	39-56	High = 58 (96.67%)
				Moderate = 2 (3.33%)
				Low = 0

Note: AWP = Assessment of Work Performance. Subskills grouped under each domain as evaluated in this sample.

Exploratory factor analysis (EFA) was conducted to identify the underlying structure of AWP subskills. The analysis supported a two-factor solution comprising: 1) task adaptation and relational organization, and 2) communication and expression. Sampling adequacy was confirmed with a Kaiser–Meyer–Olkin (KMO) measure of 0.696, exceeding the recommended threshold of 0.50, and Bartlett's test of sphericity was significant (χ^2=179.629, df = 36, p<0.001), indicating suitability of the data for factor analysis. The two extracted factors explained 56.78% of the total variance (Component 1 =38.01%, Component 2=18.77%). Standardized factor loadings for each item are presented in Table 3.

Table 3. Factor loadings of AWP subskills from exploratory factor analysis (n=60)

Subskill	Component 1	Component 2
Adaptation	.830	
Relations	.787	
Task organization	.694	
Organizations of space & objects	.689	
Knowledge	.668	
Mental energy	.630	
Informations & exchange		.758
Language		.745
Physicality		.389

Note: Extraction Method: Principal Component Analysis with two components extracted.

Predictive associations with overall performance

Regression analysis showed that task adaptation (β=0.394, p<0.001) and relational organization (β=0.531, p<0.001) were significant predictors of total occupational performance scores. Together, these factors explained 69.6% of the variance (R^2=0.696). Additional correlation analyses revealed a significant negative association between psychiatric symptom severity (BPRS) and AWP scores (r=-0.323, p=0.012), indicating that higher psychiatric symptoms were associated with poorer task engagement. In contrast, cognitive function (RUDAS) showed only a small, non-significant positive association with AWP performance (r=0.093, p=0.480), suggesting that both psychiatric and cognitive factors may contribute to task engagement.

Discussion

This rehabilitation needs analysis highlights how functional skill clusters and psychosocial contexts influence occupational engagement among adults with mental health-related disabilities residing in Thai homeless shelters. Using exploratory factor analysis (EFA) of the adapted Assessment of Work Performance (AWP) alongside thematic analysis of narrative data, the study identified both functional skill domains and lived experiences shaping rehabilitation needs. Together, the findings demonstrate that adaptive and organizational skills are central to functional performance, while psychosocial and cultural contexts critically influence how those skills are enacted in institutional environments.

The EFA revealed two latent domains-task adaptation with spatial organization, and communication-expression. Only the former significantly predicted occupational performance, highlighting the role of task structuring, environmental planning, and adaptive behavior in facilitating engagement. This supports existing research emphasizing the importance of executive functioning and task organization for successful participation among marginalized groups.[20-21] Prior work with the Executive Function Performance Test (EFPT) also demonstrated that planning and sequencing skills are critical to independent functioning following shelter placement.[3] These findings are consistent with rehabilitation literature that positions functional organization as a core determinant of engagement in vulnerable populations.[12,16,27]

The limited predictive value of communication-expression may reflect the passive, compliance-driven nature of institutional tasks, where social demands are minimal. Many participants demonstrated quietness and behavioral withdrawal, potentially shaped by institutional routines that suppress communicative expression. This observation aligns with qualitative studies that describe disengagement, loss of roles, and diminished volition among individuals living in shelters.[5,27-31] Differences in occupational engagement were also observed between participants whose activities incorporated task adaptation and environmental structuring and those without such modifications. Adapted and structured tasks (e.g., simplified steps, visual cues, reduced distractions) were associated with more sustained engagement, greater task completion, and fewer withdrawals. In contrast, participants performing unmodified activities in non-structured environments often demonstrated shorter engagement

spans and greater variability in performance. These findings highlight the mediating role of task adaptation and environmental supports in facilitating occupational engagement within institutional contexts.

The results support the use of structured, performance-based assessments to identify actionable skill domains relevant to psychosocial functioning. These findings align with previous validation of the AWP as a tool for differentiating client profiles in vocational rehabilitation[9] and reinforce its potential for culturally grounded application in shelter-based care.[1-2,4] They also echo broader calls for structured interventions to support individuals transitioning from homelessness.[12,13] the study identified functional patterns that reflect real-world rehabilitation challenges in institutional environments.

Cognitive function and psychiatric symptom severity showed modest but significant associations with occupational performance, supporting previous findings that better cognitive status and fewer psychiatric symptoms correlate with improved functioning.[21,27] Similar patterns have been observed among women with schizophrenia and histories of homelessness.[16] These results reinforce rehabilitation frameworks such as the Canadian Model of Occupational Performance and Engagement (CMOP-E), which advocate for restoring executive function, rebuilding roles, and enabling participation through holistic support.[32-35] Our findings contribute to this framework by confirming that adaptive task behaviors and organizational capacity are key to engagement in institutional settings.

These findings carry implications for allied health teams working in shelter-based or institutional contexts. Interventions that promote task adaptation, environmental structuring, and relational supports may improve functional outcomes and psychosocial well-being. Combining structured, performance-based assessments with real-time observational inquiry can support personalized, recovery-oriented care by enabling providers to understand not only what service users can do, but also the contextual factors that contribute to their difficulties. At the systems level, sustained investment in mental health workforce training, supervision, and collaborative care models will be essential for improving service delivery to socially marginalized populations.

Limitations

Limitations include a sample size restricted to similar institutional populations, which may limit the generalizability of the findings to other settings or community-dwelling populations. Potential observer bias may also have influenced performance ratings, as assessment of only three tasks could have been affected by situational factors such as mood or environmental conditions. Nevertheless, the integration of qualitative data helped triangulate and contextualize the findings, enhancing their credibility. Future studies should employ larger and more diverse samples, extend task assessments, and include longitudinal follow-up to evaluation the stability of functional skills and rehabilitation outcomes over time.

Conclusion

This study demonstrates that performance-based assessment provides a culturally responsive approach to identifying rehabilitation needs among adults with mental health–related disabilities in Thai homeless shelters. The findings highlight that task adaptation and environmental structuring are central to functional engagement, with practical implications for individualized rehabilitation and allied health practice in institutional care. Advancing psychosocial recovery and reintegration will require continued investment in workforce capacity, interdisciplinary coordination, and the use of locally relevant assessment tools.

Ethical approval

This study was approved by the Mahidol University Central Institutional Review Board (MU-CIRB No. 2023/186.2212). All participants provided written informed consent prior to enrollment, in accordance with the Declaration of Helsinki.

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Conflict of interest

The authors declare no conflict of interest.

CRediT authorship contribution statement

Uthaikan Thanapet: methodology, formal analysis, investigation, writing-review & editing,project administration, and funding acquisition; **Watthanaree Ammawat:** conceptualization, methodology, formal analysis, investigation, and writing-review & editing; **Maliwan Rueankam:** conceptualization, methodology, investigation, data curation, writing-review & editing, and supervision; **Winai Chatthong:** methodology, investigation, writing-review & editing; **Supalak Khemthong:** conceptualization, methodology, writing-original draft, review & editing.

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