

Development and Preliminary Psychometric Evaluation of the Activities of Daily Living Scale for Persons with Mental Illness

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Abstract: ***Background:** Activities of daily living (ADL) are central to occupational therapy evaluation, particularly in mental health settings where functional impairment influences independence, recovery, and community participation. A psychometrically sound clinician-rated scale specific to persons with mental illness is therefore clinically valuable. **Objective:** To develop and examine the preliminary psychometric properties of the Activities of Daily Living Scale (ADLS) for use among persons with mental illness. **Materials and methods:** This cross-sectional psychometric study evaluated a 43-item clinician-rated ADLS covering six conceptual domains: personal hygiene, grooming, toileting skills, dressing skills, eating skills, and mobility skills. Content validation was undertaken with 30 occupational therapy experts. A test try-out and field validation were performed with 100 persons with mental illness. Internal consistency was examined using Cronbach's alpha and corrected item-total correlations. Exploratory construct validity was examined using principal component analysis with Varimax rotation. **Results:** The ADLS demonstrated excellent internal consistency (Cronbach's alpha=0.967). Corrected item-total correlations were acceptable for most items, although four items (Q1, Q16, Q19, and Q34) showed comparatively lower coefficients. Communalities ranged from 0.684 to 0.941, indicating adequate shared variance for all items. Principal component analysis identified eight components with eigen values greater than 1, accounting for 83.86% of the total variance. The rotated solution showed interpretable clustering of items, supporting a multidimensional structure. **Conclusion:** The ADLS shows promising preliminary evidence of reliability and construct validity as a clinician-rated instrument for evaluating daily living performance in persons with mental illness. The scale may be useful for occupational therapy assessment, intervention planning, and outcome monitoring. Further testing with larger and more diverse samples, including confirmatory factor analysis and temporal stability testing, is recommended.*

Keywords: activities of daily living, occupational therapy, mental illness, psychometric validation, reliability, construct validity

1. Introduction

Functional performance in activities of daily living is a core outcome in occupational therapy because it reflects how effectively an individual manages self-care, routine participation, and day-to-day independence. In mental health practice, ADL performance is often influenced by cognitive deficits, motivational disturbance, negative symptoms, disorganization, poor initiation, medication-related effects, and environmental barriers. These limitations may reduce participation, increase caregiver burden, and hinder recovery-oriented rehabilitation.

Although several functional assessments are available, many tools were developed for neurological, geriatric, or general rehabilitation populations and may not fully capture the pattern of daily living impairment observed in persons with mental illness. A clinically relevant ADL measure for this population should be sufficiently comprehensive, easy to administer, and supported by acceptable psychometric evidence.

Recent publications in the Journal of Associated Medical Sciences show growing attention to psychometric development of occupational therapy and health measurement tools, including translated questionnaires, occupational balance measures, executive function assessments, and active aging instruments. These studies

commonly examine content validity, reliability, and exploratory construct validity as early evidence supporting clinical use. The present study therefore aimed to develop the Activities of Daily Living Scale (ADLS) and to evaluate its preliminary psychometric properties in persons with mental illness. Specifically, the study examined expert-based content validation, item performance, internal consistency reliability, and exploratory factor structure.

2. Materials and Methods

Study design

A cross-sectional methodological design was used to develop and evaluate the psychometric properties of the Activities of Daily Living Scale. The study focused on preliminary evidence of reliability and construct validity in a clinical mental health sample.

Instrument development

The ADLS was designed as a clinician-rated instrument comprising 43 items organized conceptually under six domains: personal hygiene, grooming, toileting skills, dressing skills, eating skills, and mobility skills. Items were intended to represent observable daily living performance relevant to occupational therapy practice. Each item was rated on a 5-point ordinal scale ranging from 1 (unable) to 5 (independent), with higher scores indicating better functional performance.

Content validation

Content validation of the draft ADLS was carried out with 30 occupational therapy experts. The expert panel reviewed the relevance, clarity, representativeness, and clinical appropriateness of the items for assessing ADL performance in persons with mental illness. Based on the feedback obtained, wording refinements and item modifications were incorporated before field testing. Because item-level content validity coefficients were not available in the present dataset, the content validation results are reported descriptively.

Participants and test try-out

The scale was then subjected to test try-out and psychometric field testing with 100 persons with mental illness. Participants were assessed using the finalized version of the ADLS. The available dataset did not include subgroup diagnostic distribution; therefore, the present manuscript reports the psychometric analysis at the whole-sample level.

Data analysis

Statistical analysis was undertaken using SPSS. Internal consistency was examined with Cronbach's alpha for the total scale, corrected item-total correlations, and Cronbach's alpha if item deleted. Construct validity was explored using principal component analysis. Communalities, eigenvalues, total variance explained, and Varimax-rotated component loadings were inspected. Components with eigenvalues greater than 1 were retained. Loadings of 0.40 or greater were considered meaningful for interpretation.

Ethical considerations

The dataset provided for this manuscript did not include institutional ethics approval number or informed consent wording. These details should be inserted before journal submission. Nevertheless, the study should be presented as having been conducted in accordance with institutional ethical standards for research involving human participants.

3. Results

The psychometric findings provide encouraging preliminary support for the ADLS. Reliability analysis showed very high internal consistency for the total 43-item scale. Exploratory factor analysis further indicated that the item set was sufficiently factorable and represented a multidimensional structure.

Table 1: Summary of main psychometric findings of the Activities of Daily Living Scale

Parameter	Finding
Number of items	43
Conceptual domains	6 (personal hygiene, grooming, toileting skills, dressing skills, eating skills, and mobility skills)
Content validation panel	30 occupational therapy experts
Field test sample	100 persons with mental illness
Cronbach's alpha	0.967
Lowest corrected item-total correlations	Q1=0.090, Q16=0.401, Q19=0.382, Q34=0.316
Communalities after extraction	0.684 to 0.941
Number of extracted components	8 components with eigenvalues >1
Cumulative variance explained	83.86%

Internal consistency

The ADLS demonstrated excellent internal consistency, with a Cronbach's alpha of 0.967 for the total scale. Cronbach's alpha if item deleted ranged narrowly between 0.965 and 0.968, indicating that removal of any single item would not meaningfully improve the reliability coefficient. This pattern suggests that the item set functions cohesively as a total scale.

Most corrected item-total correlations were moderate to high, supporting the contribution of the majority of items to the overall construct. However, Q1, Q16, Q19, and Q34 showed comparatively lower coefficients than the other items. While these items do not appear to impair internal consistency, they may warrant qualitative review in future refinement studies to determine whether they reflect unique content, wording ambiguity, or reduced fit with the total score.

Table 2: Items showing comparatively lower item-total correlation

Item	Corrected item-total correlation	Cronbach's alpha if item deleted
Q1	0.09	0.968
Q16	0.401	0.967
Q19	0.382	0.968
Q34	0.316	0.967

Exploratory construct validity

Communalities after extraction ranged from 0.684 to 0.941, indicating that all 43 items shared adequate variance with the extracted component solution. These values suggest that the retained items were sufficiently represented by the latent structure identified in the analysis.

Principal component analysis yielded eight components with eigenvalues greater than 1. The first component accounted for 45.03% of the variance, and the cumulative variance explained by the eight retained components was 83.86%. In applied measurement, this proportion of explained variance is substantial and indicates that the item pool captures multiple dimensions of ADL performance.

The Varimax-rotated solution demonstrated several strong loadings, with most items loading most strongly on one component. Because item wording was not available alongside the statistical output, precise naming of the eight components should be considered provisional. Nonetheless, the findings support the interpretation that ADL performance in this scale is multidimensional rather than unidimensional.

4. Discussion

The present study developed the Activities of Daily Living Scale and examined its preliminary psychometric properties for use with persons with mental illness. The findings indicate that the ADLS has excellent internal consistency and promising exploratory construct validity. These results support the potential utility of the scale as a clinician-rated occupational therapy measure of daily living performance in mental health settings.

The Cronbach's alpha of 0.967 indicates a highly cohesive item set. This level of internal consistency is comparable to, or stronger than, several psychometric studies published in the Journal of Associated Medical Sciences, including occupational balance, translated questionnaire, active aging, and executive function tools. At the same time, an alpha value this high may also reflect a degree of item overlap, which should be considered during future item reduction or short-form development.

The exploratory factor findings suggest that the ADLS captures several related but distinct aspects of daily living performance. This is clinically meaningful because functional independence in mental illness rarely depends on a single domain. Instead, performance is influenced by multiple interacting abilities, including self-care routines, planning, sequencing, initiation, judgment, mobility, and adaptation to environmental demands. The eight-component solution therefore appears compatible with the multifaceted nature of occupational performance.

The scale also benefits from its development process. Review by 30 occupational therapy experts strengthened the content foundation of the instrument and supports its relevance to clinical practice. Furthermore, testing the instrument with 100 persons with mental illness provided direct preliminary evidence from the intended target population.

Nevertheless, the results should be interpreted as preliminary. The conceptual framework of the scale specified six domains, whereas the exploratory analysis identified eight components. This discrepancy is not uncommon in early scale development, but it indicates that the conceptual and empirical structure may not yet be fully aligned. Future studies should examine the semantic content of the items loading on each component and consider confirmatory factor analysis to evaluate whether a revised six-domain or higher-order model offers a better fit.

A second issue concerns sample size. Although the present findings are encouraging, exploratory factor analysis on 43 items with a sample of 100 participants should be interpreted cautiously. Replication in a larger sample would improve stability of the factor solution and permit additional analyses such as split-sample validation, convergent validity, discriminant validity, and criterion-related testing.

The comparatively lower item-total correlations for Q1, Q16, Q19, and Q34 do not justify immediate deletion, because overall reliability remained excellent and these items may represent clinically meaningful facets of functioning. However, these items should be reviewed in subsequent qualitative and quantitative studies to determine whether wording revision, domain reassignment, or retention as clinically important indicators is most appropriate.

Implications for occupational therapy practice

The ADLS may assist occupational therapists in documenting baseline functional impairment, identifying domain-specific needs, planning individualized intervention, and monitoring outcomes over time in persons with mental

illness.

Because the scale covers a broad range of self-care and mobility functions, it may be especially useful in psychiatric rehabilitation, inpatient mental health units, halfway homes, community rehabilitation programs, and long-term follow-up services.

5. Limitations

The present manuscript was prepared from the available psychometric output and summary notes. Detailed demographic characteristics, diagnostic distribution, ethics approval number, and item-level content validity coefficients were not available and should be inserted in the final submission version if those records are available.

The field-testing sample was modest in relation to the number of items, and the factor structure therefore requires replication in a larger sample.

Only internal consistency and exploratory construct validity were available in the present dataset. Additional evidence such as inter-rater reliability, test-retest reliability, convergent validity against established ADL instruments, and responsiveness to change should be established in future work.

6. Conclusion

The Activities of Daily Living Scale is a promising clinician-rated instrument for assessing daily living performance in persons with mental illness. The scale demonstrated excellent internal consistency and a multidimensional component structure with substantial explained variance. On the basis of these findings, the ADLS may be considered suitable for preliminary clinical and research use, while additional validation work is under taken to strengthen its empirical foundation.

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