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Psychometric properties of the occupational value with pre-defined items in stroke patients

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ABSTRACT

Background: In stroke rehabilitation, instruments assessing the value individuals attribute to everyday activities are vital. The Occupational Value with pre-defined items (OVal-pd) questionnaire was devised for this purpose.

Aim: To evaluate the psychometric properties of the Swedish OVal-pd—floor and ceiling effects, internal consistency, construct validity, responsiveness, long-term stability, and measurement error—in individuals with stroke who maintained independence in activities of daily living and had preserved cognitive abilities.

Methods: Stroke patients ($n = 95$) were included in a secondary analysis of a randomized controlled trial with a 14-month follow-up. Participants completed the OVal-pd and questionnaires addressing quality of life, emotional status, and mental fatigue. Cronbach's α, Pearson's correlation, ROC analysis, intraclass correlations, and smallest detectable change were calculated.

Results: The Swedish OVal-pd showed good psychometric properties concerning construct validity, internal consistency, test-retest stability, with no floor or ceiling effects. However, the low rate of improvement in mental fatigue over the follow-up period limited the ability to evaluate responsiveness using an anchor-based method.

Conclusion: The 18-item Swedish OVal-pd is suitable for use in clinical and research contexts, though further trials are recommended.

Significance: The OVal-pd can facilitate dialogue between individuals with stroke and occupational therapists and be used for cross-sectional comparisons.

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Introduction

After a stroke, life may be affected in many ways. An important aspect is managing everyday life [1], not only in terms of physical abilities and task execution but also in engaging with and finding meaning in daily activities [2]. Those who have experienced a less severe stroke may be able to perform most of their pre-stroke activities but still experience difficulties because of, e.g. fatigue or changes in mood [3,4]. They may also experience a reduced sense of meaning in everyday life and a loss of personally valued occupations [2]. Thus, regardless of the degree of post-stroke physical disability, it is important to include support for finding meaning in daily activities as part of all stroke rehabilitation programmes. To assess patients' needs in this regard and evaluate rehabilitation outcomes, it is vital to have instruments suited for these purposes.

The Occupational Value with pre-defined items (OVal-pd) questionnaire was devised to assess the value and meaning individuals associate with their everyday activities, initially for people with mental illness [5]. Based on the Value and Meaning in Occupations (ValMO) model, which uses the term occupational value [6], to describe the phenomenon under study, the OVal-pd operationalizes occupational value in three dimensions: concrete value, socio-symbolic value and self-rewarding value.

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Concrete value refers to the positive rewards derived from performing tangible occupations, such as the satisfaction of having cleaned the house or the salary earned from a job. Socio-symbolic value is generated by doing things that strengthen one's identity and social connections, such as cooking and sharing a traditional meal. Self-rewarding value denotes the sheer pleasure derived from engaging in joyful, creative, and pleasurable occupations, such as a cherished hobby. The ValMO model assumes that when individuals experience one or more of these three types of occupational value over time, a sense of meaning emerges. The OVal-pd has validated this assumption [7], demonstrating strong psychometric properties across various populations and language versions, including satisfactory levels of construct validity, reliability, and both overall and individual item fit [8–10]. It has been used with a Swedish sample with acquired brain injuries [11]. Although this was not a psychometric study, findings indicated a positive correlation between occupational value and life satisfaction, suggesting preliminary convergent validity. However, it is yet unknown whether the OVal-pd is valid and reliable for individuals who have experienced stroke, which provided the rationale for this study.

The aim of this study was to evaluate the psychometric properties (including floor and ceiling effects, internal consistency, construct validity, responsiveness, long-term stability, and measurement error) of the Swedish OVal-pd when used with patients in the sub-acute and chronic phases after stroke who were independent in personal activities of daily living (ADL) and had preserved cognitive abilities.

Methods

This psychometric study was a secondary analysis of the Nature Stroke Study (NASTRU), adhering to the principles of the Helsinki Declaration and receiving approval from the regional ethics committee in Lund, Sweden (Dnr 2012/352).

NASTRU main study, study design, setting and participants

The NASTRU study was a single-blinded, two-armed, randomized controlled trial (RCT) [12]. All participants provided informed consent before enrolment, after which their sociodemographic and medical history data were collected. The aim was to examine whether nature-based rehabilitation, as an add-on to standard care, could improve post-stroke fatigue, the frequency of perceived value of everyday occupations, function, activity and participation compared to standard care alone. The study was conducted during 2013 and 2014 at the Department of Neurology at Skåne University Hospital. A stroke physician (H.P.-R.) conducted the recruitment and performed the baseline examinations. Participants were randomly allocated to one of two groups: standard care combined with nature-based rehabilitation or standard care only (control group). Blinded evaluations were conducted prior to the intervention and at follow-ups 8 and 14 months after inclusion. The instruments were administered by an experienced occupational therapist at baseline and at both follow-ups.

The inclusion criteria required participants to be community-dwelling individuals within the catchment area of Skåne University Hospital, aged between 50 and 80, independent in personal activities of daily living (ADL), having preserved cognitive abilities, and reporting post-stroke fatigue. Individuals with dementia, severe aphasia, limited fluency in Swedish, and/or severe comorbidities were excluded from the study. In total, 101 individuals with sub-acute ($n=73$) or chronic ($n=28$) stroke were included. Six were later excluded due to incomplete data collection. Among the remaining 95 participants, 90% had experienced ischaemic stroke, while 10% had suffered a haemorrhagic stroke. For 80%, this was their first stroke episode, while for 20%, it was their second.

The distribution of the Modified Rankin Scale (mRS), used to assess the degree of disability in patients who have had a stroke [13] was as follows: 18% mRS 1, 37% mRS 2, 40% mRS 3 and 1% (1 person) mRS 4. The mean score on the Montreal Cognitive Assessment Scale (MoCA) [14] was 26 out of 30. The intervention and the control groups were well-balanced in terms of demographics, stroke characteristics and outcome measures. At 8 and 14 months after inclusion, no statistically significant differences were found between the two groups.

NASTRU, psychometric study

Sample size

Given the nature of a secondary analysis, no a priori sample size calculation was performed for this study. Nevertheless, according to the COSMIN recommendations, the study included a sample of more than 100 participants, with subgroups of at least 30 participants. This sample size is considered adequate for evaluating the psychometric properties reported in this study [15].

Instruments

The OVal-pd. The original Swedish OVal-pd consisted of 26 items, formulated as statements. Nine items targeted concrete value, eight assessed socio-symbolic value, and nine assessed self-rewarding value. It is a self-rating instrument, with each item starting with the phrase 'I feel that I have done things in the last month …', followed by specific statements, such as '… because it was necessary to do those things' (concrete value), '…where I was in touch with other people' (socio-symbolic value) and '…because it was a true pleasure to do them' (self-rewarding value). A four-point scale is used, ranging from 'very rarely or never' (=1) to 'very often' (=4). A higher score indicates more frequent occupational value experiences.

Psychometric testing in various societal contexts has shown that the items originally proposed to form the 26-item instrument may vary in terms of which ones generate the most reliable and valid measure. Further psychometric testing of the Swedish version demonstrated the best properties with fewer items, thus resulting an an updated version with 18 items [10]. The American English version with best psychometric properties consists of 22 items [9], the Turkish version of 21 items [8], and the Arabic of 22 items [16]. All of these versions contained the 18 items from the updated Swedish version, enabling cross-cultural studies. Since the current study was based on a different population (stroke patients) compared to the original psychometric testing of the Swedish version (psychiatric patients), it evaluated the properties of both the original 26-item version and the reduced 18-item version.

Mental fatigue Scale (MFS). The MFS is a 15-item self-report questionnaire designed to evaluate mental fatigue in individuals with neurological conditions, such as stroke and traumatic brain injury [17,18]. It covers various aspects, including general fatigue, sensitivity to stress, sleep problems, concentration difficulties and sensitivity to sensory stimuli (e.g. sound and smell). Each item is rated based on its duration, frequency and intensity, with scores ranging from 0 to 3 (0 indicating normal function and 3 representing the maximum symptom severity). In healthy individuals, the total score typically falls below 5, while a score above 10 suggests the presence of mental fatigue. A cut-off score of ≥ 10.5 is used to identify clinically significant mental fatigue [19].

EuroQoL-5D quality of life questionnaire (EQ-5D-3L). The Swedish version of the EuroQoL-5D quality of life questionnaire (EQ-5D-3L) was used to evaluate participants' quality of life [20]. This tool evaluates five dimensions: mobility, self-care, usual activities, pain/discomfort and anxiety/depression. Each dimension is rated on a three-level scale, ranging from 1 (no problems) to 3 (severe problems), allowing for the calculation of the EQ-5D health score index based on Swedish population reference values [21]. The second part of the questionnaire features a visual analogue scale (VAS), where participants rate their overall health on a scale from 0 (worst imaginable health) to 100 (best imaginable health).

The hospital anxiety and depression Scale (HADS). The Hospital Anxiety and Depression Scale (HADS) was employed to assess levels of anxiety and depression [22]. It is a self-rating questionnaire consisting of 14 items, each rated on a four-point scale ranging from 0 to 3. Higher scores indicate more severe anxiety and depression. While a composite score can be obtained, for the present study, separate scores for the seven anxiety items and seven depression items were calculated, with possible scores ranging from 0 to 21 for each. The scores are grouped into the following categories: no depression or anxiety (0–7); risk of depression or anxiety (8–10); and possible depression or anxiety disorder (≥11).

Statistical analysis

Statistical analysis was performed following the recommendations of Blasco-Abadía et al. for evaluating the psychometric properties of questionnaires with continuous scoring and subdomains [23]. SPSS v.28 software (IBM, Chicago, IL, USA) was used, and statistical significance was accepted at $p < 0.05$. If a participant had more than five missing items (>20%) in the OVal-pd, they were excluded from the analysis. For participants with fewer missing items, the weighted mean value for the total score was imputed.

Quantitative variables showed normal distribution after using the Kolmogorov-Smirnov test and are presented as means with standard deviations (SD). Categorical variables are presented as frequencies and percentages. The criteria for avoiding floor/ceiling effects were set at less than 15% of respondents achieving the lowest or highest scores, respectively [24]. Internal consistency for the total score and domain subscores (i.e. concrete, socio-symbolic and self-rewarding values) of the OVal-pd was evaluated using Cronbach's α, with a value greater than 0.7 considered acceptable [25].

Construct validity was assessed in terms of convergent and divergent validity, as well as known-groups

validity. Convergent and divergent validity were evaluated using Pearson's correlation coefficients (ρ). Convergent validity was explored by examining correlations between the OVal-pd total score and its domain subscores, as they address the same phenomenon; moderate to strong associations were hypothesized. Divergent validity was assessed by investigating the correlations between the OVal-pd variables and the health-related quality of life index from the EQ-5D-3L, a construct different from occupational value; weak associations were hypothesized. Associations were classified as 'very strong' ($\rho \geq 0.90$), 'strong' ($0.70 > \rho < 0.89$), 'moderate' ($0.40 > \rho < 0.69$), 'weak' ($0.10 > \rho < 0.39$) or 'negligible' ($\rho < 0.10$) [26].

For known-groups validity, it was hypothesized that individuals with possible depression or anxiety disorder (≥11 points on one of the subscales), as assessed by the HADS, would demonstrate worse scores on the OVal-pd. Known-groups validity for the total score and domain subscores was assessed using the Student's T-test for independent samples to compare those scoring below, or equal to or above, the cut-off for possible anxiety or depressive disorder. Additionally, Cohen's *d* effect sizes were calculated by dividing the mean difference between groups by the pooled standard deviation. A Cohen's $d > 0.8$ was considered a large effect, $d > 0.5$ was deemed a moderate effect, and $d > 0.2$ was found to be a small effect.

Responsiveness was assessed using an anchor-based method [27] and utilized the fact that fatigue was the primary outcome in the original RCT from which this secondary analysis was derived. Half the standard deviation (SD) of baseline MFS anchor scores was used as the lower threshold for minimal change, while twice this value served as the upper threshold. Participants who reported mental fatigue at baseline (MFS ≥ 10.5 points) were grouped based on their change scores: no change (<0.5 baseline SD), minimal change (≥0.5 baseline SD and ≤1 baseline SD) and large change (>1 baseline SD) [28]. A receiver operating characteristic (ROC) curve was constructed to estimate the minimal clinically important difference (MCID), with the area under the curve (AUC) representing the instrument's ability to distinguish patients experiencing a clinically meaningful change. The Youden index was calculated to identify MCID using the formula: Youden index = sensitivity − (1 − specificity). The cut-off point corresponding to the maximum Youden index was considered the optimal cut-off value on the ROC curve and was designated as the MCID [29].

Long-term test-retest stability for the total score and domain subscores of the OVal-pd at the 8-month and 14-month follow-ups was evaluated for single-measurement absolute agreement, employing a two-way random model and intraclass correlation coefficients ($ICC_{2,1}$). Participants showing no change (<0.5 baseline SD) in the MFS between the 8-month and 14-month follow-ups were included in this sub-analysis. An ICC above 0.90 was considered 'excellent', 0.75–0.90 as 'good', 0.50–0.75 as 'moderate' and less than 0.50 as 'poor' reliability [30]. Measurement error was computed using the standard error of measurement (SEM) and the smallest detectable change (SDC), also referred to as the minimum detectable change, at 90% (SDC_{90}) and 95% (SDC_{95}). The SEM, representing the expected random score variation when no real change has occurred in an individual, was calculated using the formula [31]: $SEM = SDpooled \times \sqrt{(1\text{-}ICC)}$. The SDC, representing the minimal change required to signify a real change rather than a random measurement error in a sample, was calculated using the following formulas [30]: $SDC_{90} = SEM \times \sqrt{2} \times 1.64$; $SDC_{95} = SEM \times \sqrt{2} \times 1.96$. The SDC was calculated at two confidence levels, as the SDC_{95} is deemed suitable for research settings, while the SDC_{90} may be more appropriate for clinical practice [32].

Results

Sociodemographic characteristics and data from the self-assessment tools for the 95 participants with stroke included in this study are presented in Table 1. Six participants were excluded from the initial 101 recruited individuals due to missing values >20% in the OVal-pd at baseline.

Floor and ceiling effects

Analyses of the distribution of frequencies indicated an absence of floor or ceiling effects for the total score and subscales of both the 26-item and 18-item OVal-pd versions. Only one respondent achieved the lowest score for the concrete value in both the 26-item and 18-item versions, and two respondents achieved the lowest score for the socio-symbolic of the 18-item version.

Internal consistency

The internal consistency for both the 26-item and the 18-item versions of the OVal-pd was acceptable for the total scores (26-item: $\alpha = 0.88$; 18-item: $\alpha = 0.86$). Internal consistency for the subscales based on the concrete, socio-symbolic and self-rewarding values of

the OVal-pd 26-item was also acceptable (α > 0.70), while it was at the lower end of the acceptable range for the 18-item version (α > 0.64). The Cronbach's alpha values are presented in Table 2.

Covergent and divergent validity

The total score of the 26-item and 18-item OVal-pd versions showed a very strong correlation between them (ρ > 0.97, $p < 0.001$). All domain subscores had a strong positive correlation with the total score of both versions (ρ > 0.82, $p < 0.001$). There were weak to negligible and non-significant correlations found between the EQ-5D scores and the total scores of both the 26-item and 18-item OVal-pd versions (ρ < 0.16, $p > 0.119$). The coefficients for these correlations are presented in Table 3.

Table 1. Sociodemographic and clinical characteristics.

Female (n, %)	56, 58.9%
Age (years)	66.8 ± 9.5
Education (n, %)	
Primary education	14, 14.7%
Lower secondary education	17, 17.9%
Upper secondary education	35, 36.8%
University studies	29, 30.5%
OVal-pd 26-item (26–104)	66.0 ± 12.2
Concrete value (8–32)	21.0 ± 4.2
Socio-symbolic value (9–36)	22.3 ± 4.8
Self-rewarding value (9–36)	22.8 ± 5.1
OVal-pd 18-item (18–72)	46.9 ± 9.1
Concrete value (6–24)	15.6 ± 3.5
Socio-symbolic value (4–16)	10.6 ± 2.5
Self-rewarding value (8–32)	20.6 ± 4.6
EQ-5D-3L	
Health score index	0.62 ± 0.16
General Health VAS (0/100)	60.0 ± 16.1
HADS	
Depression (0/21)	9.2 ± 1.6
Anxiety (0/21)	9.8 ± 2.5
MFS	12.2 ± 5.1

N = 95. Quantitative data are expressed in Mean ± Standard deviation. MFS: Mental Fatigue Scale; HADS: Hospital Anxiety and Depression Scale; VAS: visual analogue scale.

Table 2. Internal consistency for the OVal-pd 26-item and 18-item versions.

OVal-pd 26-item	Items	α
Overall score	26	0.88
Concrete value	8	0.70
Socio-symbolic value	9	0.74
Self-rewarding value	9	0.79
OVal-pd 18-item	**Items**	**α**
Overall score	18	0.86
Concrete value	6	0.66
Socio-symbolic value	4	0.64
Self-rewarding value	8	0.77

N = 95. α: Cronbach's alpha.

Known-groups validity

For both the 26-item and 18-item OVal-pd versions, the group with possible depression had a lower total score ($p < 0.001$; $d > 0.74$) and subdomains scores ($p < 0.001$; $d > 0.53$) than the group with no depression or at risk of depression. No significant differences were found when comparing subgroups with and without the risk of anxiety symptoms. Descriptive statistics are shown in Table 4.

Responsiveness

Of the 61 participants who presented with problems of mental fatigue at baseline (MFS ≥ 10.5 points), 34 participants exhibited a minimal change in the MFS, while 13 participants demonstrated a large change between baseline and the 8-month follow-up. The ROC analyses for minimal changes showed a poor, non-significant AUC for both the 26-item and 18-item OVal-pd versions (26-item: AUC = 0.548, $p = 0.563$; 18-item: AUC = 0.545, $p = 0.585$). Similar results were found in the ROC analysis for large changes (26-item: AUC = 0.536, $p = 0.714$; 18-item: AUC = 0.516, $p = 0.863$). Due to the low capacity of the OVal-pd to identify clinically relevant improvements in the MFS, the Youden index was not computed to designate a MCID.

Long-Term test-retest stability and measurement error

Out of the 59 participants who completed the follow-up at 14 months, 43 participants exhibited no relevant

Table 3. Table of correlations.

OVal-pd 26-item	Concrete value	Socio-symbolic value	Self-rewarding value	EQ-5D-3L score	EQ-5D VAS
Total score	0.87***	0.86***	0.87***	−0.09	0.15
Concrete value		0.64***	0.65***	−0.04	0.21*
Socio-symbolic value			0.58***	−0.22*	0.08
Self-rewarding value				0.01	0.11
OVal-pd 18-item	**Concrete value**	**Socio-symbolic value**	**Self-rewarding value**	**EQ-5D-3L score**	**EQ-5D VAS**
Total score	0.87***	0.86***	0.87***	−0.06	0.16
Concrete value		0.64***	0.65***	−0.03	0.21*
Socio-symbolic value			0.58***	−0.11	0.10
Self-rewarding value				−0.03	0.11

N = 95. Data are expressed in Pearson correlation coefficient. *$p < 0.05$; ***$p < 0.001$.

changes in the MFS between the 8-month and 14-month follow-up. Test-retest stability was good for the total score of both the 26-item (ICC = 0.75, 95% C.I. 0.53 to 0.87) and the 18-item versions of the OVal-pd (ICC = 0.76, 95% C.I. 0.54 to 0.87); and moderate to excellent for the subdomain scores. Detailed values for ICC, SEM and SDC are provided in Table 5.

Table 4. Comparison of 26-item and 18-item OVal-pd version scores between participants with possible depression/anxiety and those without according to HADS.

OVal-pd 26-item	Possible depression[a] ($n=21$)	No depression[b] ($n=74$)	p value[e]	d[f]
Overall score	59.2 ± 11.8	67.9 ± 11.7	0.003	0.74
Concrete value	18.9 ± 4.1	21.6 ± 4.1	0.011	0.64
Socio-symbolic value	19.7 ± 3.9	23.0 ± 4.8	0.004	0.77
Self-rewarding value	20.7 ± 5.4	23.4 ± 4.8	0.029	0.53
OVal-pd 18-item	**Possible depression[a] ($n=21$)**	**No depression[b] ($n=74$)**	**p value[e]**	**d[f]**
Overall score	41.7 ± 9.2	48.3 ± 8.6	0.003	0.75
Concrete value	14.0 ± 3.4	16.1 ± 3.4	0.017	0.60
Socio-symbolic value	9.1 ± 2.2	11.1 ± 2.4	0.001	0.86
Self-rewarding value	18.6 ± 4.7	21.2 ± 4.4	0.019	0.58
OVal-pd 26-item	**Possible anxiety[c] ($n=40$)**	**No anxiety[d] ($n=55$)**	**p value[e]**	**d[f]**
Overall score	65.7 ± 12.3	66.3 ± 12.2	0.815	0.05
Concrete value	20.8 ± 4.2	21.1 ± 4.3	0.781	0.07
Socio-symbolic value	22.0 ± 4.3	22.5 ± 5.1	0.588	0.10
Self-rewarding value	22.9 ± 5.4	22.7 ± 4.8	0.857	0.04
OVal-pd 18-item	**Possible anxiety[c] ($n=40$)**	**No anxiety[d] ($n=55$)**	**p value[e]**	**d[f]**
Overall score	46.5 ± 9.3	47.1 ± 9.0	0.752	0.07
Concrete value	15.6 ± 3.4	15.7 ± 3.6	0.829	0.03
Socio-symbolic value	10.3 ± 2.4	10.8 ± 2.5	0.320	0.20
Self-rewarding value	20.7 ± 4.9	20.6 ± 4.4	0.943	0.02

Data are expressed in mean ± standard deviation. HADS: Hospital Anxiety and Depression Scale. [a]HADS-depression score ≥ 11: participants with possible depression disorder; [b]HADS-depression score < 11: participants with subclinical or no depression symptoms; [c]HADS-anxiety score ≥ 11: participants with possible anxiety disorder; [d]HADS- anxiety score < 11: participants with subclinical or no anxiety symptoms; [e]P values represent significance level after independent samples T-test; [f]Cohen's *d* effect sizes (large: $d > 0.8$, moderate: $d > 0.5$, small: $d > 0.2$).

Discussion

This first study on the psychometric properties of the Swedish OVal-pd, when used with a stroke sample, indicated an absence of floor and ceiling effects, adequate internal consistency and good retest stability. The hypotheses regarding these properties, as well as convergent, divergent and known-groups validity, were mostly confirmed. Notably, the OVal-pd was able to discern between individuals with and without a risk of or indication of depression, but did not distinguish between those with and without a risk of or indication of anxiety. This finding deserves some attention. The participants in this study were all highly motivated to engage in activity, which played a vital role in their rehabilitation programme, and activity is a key component in valuing everyday occupations. Previous research on activity, depression and anxiety among individuals with stroke often finds that depression and anxiety are influenced by different factors, with depression appearing to be more strongly impacted by activity-related factors than anxiety [33–35]. Thus, it is not unexpected that an activity-related measure such as occupational value would differentiate between groups based on the presence of depression, but not anxiety. Nevertheless, further investigation into the known-groups validity of the OVal-pd seems warranted.

The responsiveness of the OVal-pd was deemed poor, and according to the present findings, it should not be used to quantify changes in individuals or groups with stroke. However, we propose that the strength of the OVal-pd, when applied in a clinical context with stroke patients, lies in its ability to provide an overview of how patients perceive their everyday occupations. It can help identify areas where occupations are less valued, determine what the

Table 5. Test-retest stability and measurement error of the 26-item and 18-item OVal-pd versions in participants showing no clinical change between the 8-month and 14-month follow-ups.

OVal-pd 26-item	$ICC_{(2,1)}$ (95% CI)	SEM	SDC_{95}	SDC_{90}
Overall score	0.73 (0.50–0.85)	6.3	17.6	14.7
Concrete value	0.55 (0.16–0.76)	2.8	7.8	6.5
Socio-symbolic value	0.81 (0.64–0.90)	2.1	5.8	4.9
Self-rewarding value	0.63 (0.30–0.80)	3.1	8.6	7.2
OVal-pd 18-item	**$ICC_{(2,1)}$ (95% CI)**	**SEM**	**SDC_{95}**	**SDC_{90}**
Overall score	0.74 (0.50–0.86)	4.6	12.9	10.8
Concrete value	0.64 (0.33–0.80)	2.1	5.8	4.9
Socio-symbolic value	0.82 (0.65–0.90)	1.1	2.9	2.5
Self-rewarding value	0.54 (0.14–0.76)	3.1	8.6	7.2

$N = 43$. $ICC_{(2,1)}$: intraclass correlation coefficient for a two-way mixed model, single assessment, with absolute agreement; CI: confidence interval; SEM: standard error of measurement; SDC_{95}: smallest detectable change at 95%; SDC_{90}: smallest detectable change at 90%.

patient would like to prioritize, and clarify what type of support is needed. When used in this way during an initial assessment, and in line with person-centred care [36], the OVal-pd facilitates a structured dialogue between the patient and occupational therapist, supporting goal setting in occupational therapy. The poor responsiveness found in this study cautions against relying on the OVal-pd ratings for follow-ups and outcome evaluations in stroke populations. Instead, it can be used in follow-up evaluations in the same way as used in initial assessments, by providing a structure for an evaluation dialogue and summarizing verbal feedback. Moreover, when applied to individuals with conditions other than stroke, the OVal-pd has detected within-group improvements among people receiving nature-based vocational rehabilitation [37] and activity- and recovery-based rehabilitation for people with mental illness [38]. Given the small magnitude of clinical improvement observed over time in this sample, which made it challenging to accurately identify good responders, the responsiveness of the OVal-pd warrants further exploration.

The robust properties identified in the current study, in terms of the absence of floor/ceiling effects, construct validity and test-retest stability, indicate that the OVal-pd provides reliable ratings from a cross-sectional perspective. Besides offering a reliable assessment at the individual level in a clinical context, it can be used in research to characterize groups, compare subgroups and investigate links with various aspects of well-being. When used in this way, researchers have, for example, shown that occupational value is related to life satisfaction among individuals of working age with acquired brain injury [11], to self-mastery and self-esteem among individuals with severe mental illness [39], and to perceived meaningfulness among healthy individuals [7].

The results for both the original 26-item and the 18-item versions, found to be relevant in the Swedish context [10], were similar. This suggests that either version can be used. It was obvious that the full scales, both the 26-item and 18-item versions, exhibited better properties than the dimension subscales, especially with respect to internal consistency. This aligns with previous research [5]. While this is likely an effect of fewer items in the subscales [40], it is still wise to exercise caution when using subscales and to assess internal consistency for each new sample.

Methodological considerations

The sample size of 95 participants for evaluating the psychometric properties of the Swedish OVal-pd was considered adequate according to COSMIN guidelines, being very close to the optimal number of 100. However, the sample size of 21 participants used to explore known-groups validity is limited, as the depression subgroup consisted of fewer than 30 participants. Nevertheless, the inclusion of effect size, rather than relying solely on p-values, strengthens the analysis, as effect size is less dependent on sample size and better highlights meaningful clinical differences [41]. Additionally, only 13 out of the 95 participants (<14%) showed large improvements in the MFS during the follow-up, making it difficult to determine a clear value for the MCID and raising uncertainty about whether the OVal-pd truly lacks responsiveness.

The study participants constituted a rather selected group of individuals with stroke, all of whom were largely independent in activities of daily living and had preserved cognitive abilities. Additionally, they were interested in nature-based rehabilitation. Therefore, the findings of this study may not be applicable to individuals with more severe strokes or those with different occupational interests or social contexts. This limits the generalisability of the results.

Moreover, construct validity is a multi-faceted property [40] and was addressed in the current study through convergent, divergent and known-groups validity. Although this approach may be sufficient for a single study, the convergent validity aspect was based solely on the OVal-pd itself, correlating the dimension scores with the total score. Consequently, the total score was not tested in relation to another instrument targeting occupational value or a similar phenomenon. Although this was not possible in the current study, it is a vital step for further psychometric testing of the OVal-pd.

Finally, another consideration of the present study is that short-term test–retest reliability (e.g. 1–2 weeks) could not be assessed, as the study used data from a secondary analysis of an RCT. Short-term reliability has previously been evaluated for the American English version of the OVal-pd, showing good stability over two weeks [9]. Instead, we assessed long-term stability over a 6-month interval in participants who were clinically stable. While this interval may underestimate short-term reliability, it provides valuable information for researchers and clinicians interested in using the OVal-pd for long-term follow-up. Similarly, SEM and SDC were calculated only for the long-term stability assessment. Future studies should assess short-term reliability and measurement error in a Swedish population to complement these findings.

Conclusion

The findings indicate that the Swedish OVal-pd is a reliable and valid instrument when used with a stroke population. Since the 18-item version performed similarly to the 26- item version, the shorter version is recommended to save time and effort for participants. It is suggested that the 18-item OVal-pd be further tested in its current form, with other target groups and repeated testing of psychometric properties, particularly focusing on construct validity in terms of known-groups and convergent validity. Another strand warranting further research would be qualitative research on the clinical use of the OVal-pd as a framework for assessment and goal setting in occupational therapy.

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