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The Specific Level of Functioning Scale: Construct validity, internal consistency and factor structure in a large Italian sample of people with schizophrenia living in the community

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Abstract

Background

The study aimed to assess the construct validity, internal consistency and factor structure of the Specific Levels of Functioning Scale (SLOF), a multidimensional instrument assessing real life functioning.

Methods

The study was carried out in 895 Italian people with schizophrenia, all living in the community and attending the outpatient units of 26 university psychiatric clinics and/or community mental health departments. The construct validity of the SLOF was analyzed by means of the multitrait–multimethod approach, using the Personal and Social Performance (PSP) Scale as the gold standard. The factor structure of the SLOF was examined using both an exploratory principal component analysis and a confirmatory factor analysis.

Results

The six factors identified using exploratory principal component analysis explained 57.1% of the item variance. The examination of the multitrait–multimethod matrix revealed that the SLOF factors had high correlations with PSP factors measuring the same constructs and low correlations with PSP factors measuring different constructs. The confirmatory factor analysis (CFA) corroborated the 6-factor structure reported in the original validation study. Loadings were all significant and ranged from a minimum of 0.299 to a maximum of 0.803. The CFA model was adequately powered and had satisfactory goodness of fit indices (comparative fit index = 0.927, Tucker–Lewis index = 0.920 and root mean square error of approximation = 0.047, 95% CI 0.045–0.049).

Conclusion

The present study confirms, in a large sample of Italian people with schizophrenia living in the community, that the SLOF is a reliable and valid instrument for the assessment of social functioning. It has good construct validity and internal consistency, and a well-defined factor structure.

1. Introduction

Individuals with schizophrenia are often impaired in their performance of everyday functional skills, including the ability to initiate and maintain social relationships, enter and remain in paid jobs, live independently in the community, and manage their own basic self- and health-care.

It is increasingly acknowledged that the alleviation of schizophrenia symptoms obtained with available treatments is not accompanied by a parallel improvement of patients' functional impairments (e.g., San et al., 2007 and Lambert et al., 2010). The relationship between symptoms and functioning is modest: individuals with relatively severe symptoms may function moderately well, while patients with mild symptoms may not function adequately in their daily activities (Bromley and Brekke, 2010). As a matter of fact, from 30% to 70% of people with schizophrenia do achieve symptom remission, but the percentage of patients showing adequate functioning in real life is remarkably lower, even in early stages of the illness (San et al., 2007, Bodén et al., 2009 and Henry et al., 2010), suggesting that symptomatic remission contributes to improved functioning in real life, but is not sufficient to attain it. As a consequence, the goal of schizophrenia treatment has gradually shifted from symptom reduction and relapse prevention to improving real life functioning.

Evidence has been provided that some degree of recovery of normal functioning in real life is possible for people with schizophrenia, despite the presence of residual symptoms. With appropriate care and support, people with schizophrenia may recover and live fulfilled lives in the community, with up to 50% of individuals potentially having a good outcome (Lieberman et al., 2008, Warner, 2009, Zipursky et al., 2013 and Fleischhacker et al., 2014). The movement that emphasizes the importance of recovery as the aim of schizophrenia treatment is increasingly influential and has led to widespread acceptance that recovery involves a process of personal growth focusing on attainment of a fulfilled and valued life, rather than on

elimination of symptoms alone (Roe et al., 2007, Bromley and Brekke, 2010, Remington et al., 2010, Shrivastava et al., 2010 and Slade et al., 2014).

In this context, the assessment of real life functioning as a relevant indicator of treatment outcome, independent of psychopathology, has become an urgent need to be met and has stimulated the development of instruments to be used in both research and clinical settings.

Functioning in real life is a complex construct, difficult to define and to measure (Harvey and Strassnig, 2012). The ability of currently available functional outcome assessment instruments to reflect patients' real life performance is still unclear (Bromley and Brekke, 2010). A wide variety of instruments is actually available: they are either generic or disease specific; they cover few or several areas of functioning; and they are either self-rated or rated by caregivers. As a matter of fact, the choice of the source of information and the domains to be investigated, as well as the degree of complexity of the instrument, which has to provide a comprehensive assessment while being acceptable in clinical contexts, represents highly controversial issues.

As to the source of information, self-reports are influenced by the patient's psychopathological conditions (e.g., lack of insight, disorganized thinking, cognitive deficits or depression), and show poor convergence with case manager reports, even for objective outcomes such as living situation and time spent working in the past week (Bowie et al., 2007 and Leifker et al., 2011). Clinician-rated instruments may show poor correlation with patients' functioning in real life. Instruments rated by relatives might be influenced by different behavioral standards and/or hindered by the lack of a key reliable relative (Harvey et al., 2011 and Sabbag et al., 2011).

Nonetheless, this research field is rapidly expanding and studies assessing reliability of various instruments rated by different informants are being carried out (e.g., Klin et al., 2007, Peuskens et al., 2012 and Zaidi et al., 2014). A thorough description of currently available instruments is beyond the scope of this paper, in which we focus on the Specific Levels of Functioning Scale (SLOF, Schneider and Struening, 1983), an instrument measuring social, vocational, and everyday living outcomes, that was endorsed by the panel of experts involved in the Validation of Everyday Real-World Outcomes (VALERO) initiative as a suitable measure to index ability-relevant real life functioning (Harvey et al., 2011 and Leifker et al., 2011).

The SLOF is a 43-item interview-based multidimensional assessment instrument which does not include items relevant to psychiatric symptomatology or cognitive dysfunctions, but measures observable behaviors by focusing on person's skills, assets, and abilities (Schneider and Struening, 1983). It is administered to the caseworker or caregiver of the person with schizophrenia, selected on the basis of his/her familiarity with that person.

In the context of a multicentre study of the Italian Network for Research on Psychoses, we explored the construct validity, internal consistency and factor structure of the Italian version of the SLOF. The Personal and Social Performance Scale (PSP, Morosini et al., 2000), a largely used interview-based measure of patients' functioning developed in Italy, was used as gold standard, as it is validated in Italian, shows good inter-rater and test–retest reliability and has also previously been included into a number of trials in patients with schizophrenia (e.g., Gigantesco et al., 2006, Apiquian et al., 2009, Biancosino et al., 2009, Nicholl et al., 2010 and Lindenmayer et al., 2013).

2. Methods

2.1. Instruments

2.1.1. Specific Level of Functioning Scale (SLOF)

The SLOF includes 43 items (see Appendix 1), grouped into six subscales: Physical functioning; Personal care skills; Interpersonal relationships; Social acceptability; Activities of community living; and Work skills. Each of the questions in the above subscales is rated on a 5-point Likert scale (1 = poorest function, 5 = best function) with anchors describing the frequency of the behavior and/or patient's level of independence. The higher the total score, the better the overall functioning of the subject. According to the original version of the scale, the time frame covered by the survey is the past week. The SLOF also includes an open-ended question asking the informant if there is any other area of functioning not covered by the instrument that may be important in assessing the patient's functioning. The informant is also asked to rank how well she/he knows the patient on a 5-point Likert scale ranging from 'not well at all' to 'very well'.

According to the method proposed by Herdman et al. (1998), the instrument was translated in Italian (two independent translations of the scale were made by two psychiatrists, PR and AM, experienced in this area, fluent in English and able to identify the concept covered by each of the original items) and then back-translated. A formal assessment of semantic equivalence, a debriefing with a conventional sample, and a final review by experts were carried out. The operational equivalence was taken into account, which preserves the original features. For this purpose, we kept the same number of fields, the same statements, and the same option of scoring and qualification.

2.1.2. The Personal and Social Performance (PSP) scale

The PSP (Morosini et al., 2000) is a 0–100 single-item rating scale. The ratings are based on an interview administered to the patient by the clinician to assess functioning in the last month in four main areas: Socially useful activities; Personal and social relationships; Self-care; and Disturbing and aggressive behaviors. Each of the four domains is rated according to six degrees of severity (absent, mild, manifest, marked, severe, very severe). The scale was developed as an enhancement of the Global Assessment of Functioning (GAF) and the Social and Occupational Functioning Assessment Scale (SOFAS), to offer a validated and feasible instrument to describe the course of treatment of patients with schizophrenia in the short, medium and long terms. It has a good inter-rater reliability (Morosini et al., 2000).

2.2. Training

The training involved 29 researchers, one per site (with the exception of two sites for which two and three researchers participated, respectively).

In the PSP training, the scale was read aloud by a researcher expert in its use and discussed by all participants; a case vignette was used as training material; trainees were then invited to give an independent rating of three other case vignettes to assess the inter-rater reliability. An excellent agreement was observed among raters (Cohen's kappa = 0.91; intraclass correlation coefficient, ICC = 0.98).

We also calculated the ICC for each of the four areas of PSP: an excellent agreement among raters was observed for all areas (ICC = 0.92–1.00), except for Personal and social relationships, for which the agreement was good (ICC = 0.66).

In the SLOF training, a researcher expert in the use of the instrument read it aloud and discussed it with all participants. One interview with a patient's relative was used as training material; three other interviews were used for the inter-rater agreement evaluation. Following the procedure reported by Schneider and Struening (1983), ICCs were computed for each item of the SLOF but, for those with a small degree of variation among patients (whose ICC would not be meaningful, since it is based on a ratio of between- and within-patient variation), the percentage of perfect agreement was calculated as an alternative expression of inter-rater reliability. Good to excellent agreement among raters was observed for all items (ICC = 0.55–0.99 or percentage agreement = 70.1–100%). We also calculated the inter-rater reliability for each of the six domains, which revealed a good to excellent agreement among raters (ICC = 0.86–0.99, or percentage agreement = 72.4%).

2.3. Subjects and procedures

The study subjects were recruited from those living in the community and attending the outpatient units of 26 Italian university psychiatric clinics and/or community mental health departments. Inclusion criteria were a clinical diagnosis of schizophrenia according to DSM-IV, confirmed by the Structured Clinical Interview for DSM-IV — Patient version (SCID-I-P), and an age range between 18 and 65 years. Exclusion criteria were: history of head trauma with loss of consciousness; history of moderate to severe mental retardation or neurological diseases; history of alcohol and/or substance abuse in the last six months; current pregnancy or lactation; inability to provide an informed consent; and treatment modifications and/or hospitalization due to symptom re-exacerbation in the last three months. All participants provided a written informed consent for participation after receiving a comprehensive explanation of the nature of the study.

Trained researchers administered the PSP to each recruited patient and the SLOF to her/his key relative. For the present study, the one-month time frame was deemed more adequate to reflect patient's average functioning and to harmonize the SLOF time frame with the one recommended for the PSP.

2.4. Statistical analyses

The demographic and clinical characteristics of study participants were summarized as mean ± SD, median and interquartile range, and percentages where appropriate.

The construct validity of the SLOF was analyzed by means of the multitrait–multimethod approach (Campbell and Fiske, 1959). Using the PSP as the gold standard, we tested the assumption that scores of similar areas of functioning in the SLOF and the PSP should correlate highly (convergent validity) and scores of different areas of functioning should correlate weakly (discriminant/divergent validity).

The factor structure of the SLOF was examined in two ways. An exploratory principal component analysis was carried out, by setting the number of factors to be extracted to six and performing an oblique promax rotation to take into account the possible correlations between factors. The few missing items (30/38,485 =

0.077%) were replaced with the mean of the item across subjects. The Kaiser–Meier–Olkin (KMO) measure of sample adequacy was used. This statistics ranges from 0 to 1. A value close to 1 indicates that the factor analysis should yield distinct and reliable factors. Values between 0.7 and 0.8 are good, those between > 0.8 and 0.9 are very good and those above 0.9 are excellent (Kaiser, 1974). The internal consistency of the SLOF scales was then examined using Cronbach's alpha coefficient and the item–total score correlation, to determine the contribution of each item to the corrected total score of the pertinent subscale, obtained by subtracting the item score from the total score.

A confirmatory factor analysis with a maximum likelihood estimation procedure was used to determine whether the data fit the structure of the English version of the instrument. This analysis is based on the assumption that items are empirical measures of underlying (latent) constructs and the relationship between items and latent constructs is defined a priori. Pearson correlations were used to represent the relationship between the SLOF items. Model fit was evaluated using comparative fit index (CFI; Bentler, 1990), Tucker–Lewis index (TLI; Tucker and Lewis, 1973) and the root mean square error of approximation (RMSEA; Steiger, 1990). TLI and CFI values > 0.90 reflect acceptable fit and values > 0.95 imply very good fit (Hu and Bentler, 1999). RMSEA values < 0.05 indicate close model fit; values up to 0.08 suggest a reasonable error of approximation in the population and values > 0.10 indicate poor fit (Browne and Cudeck, 1993). The fit indices were assessed collectively, such that a single index that fell just outside the acceptable range was not necessarily considered to reflect poor model fit, provided that the other statistics indicated good model fit. Power analysis was carried on using MacCallum et al.'s (1996) criterion to test the hypothesis of RMSEA's not-close fit.

3. Results

The study sample included 895 patients, with a mean age of 40.0 years (SD = 10.6), predominantly male, single, with a mean educational level of 11.6 years (SD = 3.4) and 51.3% employed (**Table 1**).

The KMO index was 0.929, denoting an excellent sample adequacy for exploratory principal component analysis. The six factors identified explained 57.1% of the item variance and were labeled Activities, Interpersonal relationships, Work skills, Personal care skills, Social acceptability, and Physical functioning. The variance explained by each factor was respectively 30.7%, 7.7%, 6.2%, 5.0%, 4.2% and 3.3% (expressed as percentage of the total variance, these figures correspond to 53.8%, 13.5%, 10.8%, 8.7%, 7.3% and 5.8%, respectively). The figures do not total 57.1%, because factors are obtained from oblique rotation and are not independent.

The 6-factor solution proved to be clear-cut, with > 0.40 loadings on each factor and just two items (item 11, 'care of own possessions' and item 12, 'care of own living space') showing a cross-loading between Activities and Personal care skills (**Table 2**). The empirical structure reflected that of the original English version.

Cronbach's alpha was 0.55 for the Physical functioning subscale and ranged from 0.76 to 0.91 for the other subscales (**Table 3**). The small value of Cronbach's coefficient for Physical functioning is due to the fact that this subscale explores impairment related to different systems and organs that are not expected to be correlated.

The examination of the multitrait–multimethod matrix revealed that the SLOF factors had high correlations with PSP factors measuring the same constructs and low correlations with PSP factors measuring different constructs (**Table 4**). Correlations have a minus sign because the two instrument scores have opposite directionality: in the SLOF higher scores denote better function and in the PSP poorer function.

The confirmatory factor analysis confirmed the 6-factor structure hypothesized a priori (**Fig. 1**). Each factor loading proved to be significant at $p < 0.001$. Loadings ranged from a minimum of 0.299 to a maximum of 0.803. Items related to Personal care, Activities, and Working skills factors had loadings > 0.60, while Interpersonal relations had all items but one with loadings > 0.60. The items with the lowest loadings were those in the Physical functioning factor (specifically, 'hearing' and 'sight' items) and in the Social acceptability factor (specifically, 's/he's afraid, cries…' and 'reiterates behaviour' items).

High correlations were found between Activities and Personal care ($r = 0.868$), Activities and Working skills ($r = 0.681$) and Personal care and Working skills ($r = 0.643$). Physical functioning proved to be the factor with the lowest correlation with the other factors, with coefficients ranging from 0.110 to 0.382.

The model fit was satisfactory as shown by the goodness of fit indices (CFI = 0.927; TLI = 0.920; RMSEA = 0.047, 95% CI 0.045–0.049). The model had 823° of freedom and was adequately powered; Hancock and Freeman (2001) showed that, for > 250° of freedom, the power estimated following the criterion of MacCallum et al. (1996) tends asymptotically to 1.

4. Discussion

The need for assessing real life functioning of people with schizophrenia is increasingly recognized (e.g., Remington et al., 2010 and Peuskens et al., 2012), but it is unclear which instrument/s, if any, among those available, should become a standard reference in relevant studies (Figueira and Brissos, 2011 and Fervaha et al., 2014). In fact, several instruments are viewed as moderately useful, but many of them lack critical data regarding reliability and relationships with other elements of the functional outcome construct, such as neurocognition or functional capacity (ability or competence in the performance of everyday living skills), or life milestones (Leifker et al., 2011).

The present study was aimed to assess the construct validity, internal consistency and factor structure of the SLOF in a large population of Italian people with schizophrenia living in the community. The PSP scale, used as the gold standard, provides a global score, collapsing across functional domains. This type of assessment has been criticized, as it may provide an incomplete or even misleading information on subject's functioning in real life (Harvey, 2013). As a matter of fact, evidence is available that global scores on functional outcome scales are poorly correlated with milestone achievements, contrary to individual subscales assessing different functional domains (Harvey et al., 2012). Moreover, the PSP is rated by the clinician based on patient's report, which has the advantage of providing valuable information about subjective functioning, but has the disadvantage of showing poor convergence with other outcome measures, even the most objective ones (Leifker et al., 2009). The SLOF assesses multiple functional domains and provides separate scores for each domain, and can be rated on the basis of an interview with patient's key relative/caregiver, or staff members.

We found high correlations between SLOF and PSP factors measuring the same constructs and low correlations between SLOF and PSP factors measuring different constructs, which confirms the SLOF construct validity. The high correlations between factors measuring the same constructs are worth noticing in the light of different informants involved in the assessment of functioning with the SLOF and the PSP (the key relative and the patient, respectively). The anticipated correlations of the SLOF factors Activities and Work skills, Interpersonal relationships, Personal care, and Social acceptability with the PSP factors Socially useful activities, Personal and social relationships, Self-care, and Disturbing and aggressive behaviors, respectively, were all substantive and significant.

In the SLOF original validation study, the rating was conducted by staff members on four patient samples, three hospitalized and one living in the community. In our study, the key relative was interviewed, as usually this is the individual most frequently and closely in contact with the person with schizophrenia in the Italian context. Another important change to the original version of the instrument was the time interval of the assessment, which was the last week in the original instrument and the past month in our study, based on the needs to harmonize it with the recommended time frame for the PSP and to have an adequate coverage of patient's average functioning.

Subjects were all people living in the community, stabilized on treatment, with no re-exacerbation of symptoms. The size of the sample represents an important strength for the instrument validation process, in particular for the stability of the factorial structure. In spite of the differences, our findings confirm the six-factor structure of the scale originally reported by Schneider and Struening (1983), in a much larger and more homogeneous sample. The total variance explained by the six-factor solution in our study (57.1%) is comparable to the one reported in the original study for the community sample (58%). However, in the original study, the factor extraction method was principal axis factoring and the variance explained by each factor was expressed as a percentage of the total variance (31.5% for Activities of community living, 19.4% for Personal care skills, 19.3% for Interpersonal relationships, 13.5% for Work skills, 8.8% for Social acceptability and 7.4% for Physical functioning). The higher variance explained by the Activities of community living factor in our study, with respect to the original validation study, might be explained by sample differences. Although no detailed information is reported in the original study on the community sample included in the investigation, we might hypothesize that while our subjects live most of their life in the community, this was not the case in the original study sample.

The factor order is also comparable between our study and the original validation one, with Social acceptability and Physical functioning as the last two factors, i.e. the ones explaining the lowest amount of variance. The factor structure, i.e. the item composition of each factor, almost overlaps with the one originally described, with the only exception of item 11, loading exclusively on the factor Personal care in the original study, while showing the highest loading on Activities in the present study. Actually, item 11 ('care of possessions'), as well as item 12 ('care of living space'), loading on the Personal care factor in the original study, showed a cross-loading in the present study, as they loaded on two factors, i.e. Activities and Personal care. This might be due to the conceptual overlap of these two items with items relevant to handling personal finances and household responsibilities included in the Activities factor. As a matter of fact, the two factors Activities and Personal care are also the ones showing the highest correlation in our study.

In conclusion, in agreement with previous papers (Schneider and Struening, 1983 and Harvey et al., 2011), the present study confirms, in a large population of Italian patients with schizophrenia living in the

community, that the SLOF is a reliable and valid instrument for the assessment of social functioning. It has a good construct validity and internal consistency, as well as a stable factor structure. In the light of the good to excellent inter-rater agreement, the instrument is suitable for large multicenter studies and, as it does not include psychopathological and cognitive aspects, it might be considered the most suitable tool for studies investigating the influence of those variables on different domains of patients' functioning in real life. Furthermore, in contexts such as the Italian mental health care system, mainly based on community care, the instrument can provide useful information on the relationships between real life functioning (assessed by interviewing key relatives of patients on different domains of functioning) and other outcome measures, i.e. symptomatic remission, functional capacity, and patient performance on neurocognitive and social cognition tests. Future studies should assess its sensitivity to interventions aimed at improving patients functioning in real life.

Contributors

AM, Paola Rocca, SG, and MM contributed to the conception and design of the study. AM and Paola Rocca translated the SLOF in Italian. PB and EM coordinated and participated in data collection. Paola Rucci and DG analyzed the data. AM, SG, and Paola Rucci drafted the manuscript. All authors participated in the critical revision of the manuscript and provided the final approval of the version to be published.

Conflicts of interest (last two years)

AM received fees from the following companies, for the described activities: Amgen Dompé for being on the advisory board and Janssen-Cilag for her educational activity. Paola Rocca received honoraria from the following companies, for the described activities: Roche for her lectures and Janssen-Cilag for being on the advisory board. SG received honoraria from the following companies, for the described activities: Janssen-Cilag and Eli-Lilly for her lectures; and Amgen-Dompé and Gedeon-Richter for being on the advisory boards. All other authors have declared no conflicts of interest.

As these financial relationships have not influenced the content of this article, all authors have declared that there are no conflicts of interest in relation to the subject of this article.

Table 1.

Characteristics of the study population and SLOF and PSP scale scores (N = 895).

Age (mean ± SD)	40.0 ± 10.6
Gender (n, %)	
Female	268 (29.9%)
Male	627 (70.1%)
Years of education (mean ± SD)	11.6 ± 3.4
Marital status (n, %)	
Single	774 (86.5%)
Other	121 (33.5%)
Working status (n, %)	
No	436 (48.7%)
Yes	459 (51.3%)
Age at first psychotic episode (mean ± SD)	24.0 ± 7.2
SLOF scale scores (mean ± SD, range)	
Physical functioning (range 5–25)	24.2 ± 1.4 (15–25)
Personal care skills (range 7–35)	31.7 ± 4.0 (10–35)
Interpersonal relationships (range 7–35)	22.4 ± 6.1 (7–35)
Social acceptability (range 7–35)	32.5 ± 3.3 (14–35)
Activities (range 11–55)	45.8 ± 8.6 (11–55)
Work skills (6–30)	20.0 ± 6.1 (6–30)
PSP scale scores (mean ± SD, range)	
Socially useful activities (range 0–5)	2.4 ± 1.2 (0–5)
Personal and social relationships (range 0–5)	2.5 ± 1.0 (0–5)
Self-care (range 0–5)	1.0 ± 1.0 (0–5)

Disturbing and aggressive behaviors (range 0–5)	0.6 ± 0.9 (0–5)
Total (range 0–100)	53.6 ± 16.0 (1–95)

SLOF — Specific Level of Functioning Scale and PSP — Personal and Social Performance Scale.

Table 2.

Factor loadings on the six factors identified with exploratory principal component analysis.

	Factor					
	Activities	Interpersonal relationships	Work skills	Personal care skills	Social acceptability	Physical functioning
Item 30	0.866					
Item 31	0.832					
Item 36	0.813					
Item 35	0.801					
Item 32	0.794					
Item 29	0.732					
Item 37	0.722					
Item 34	0.717					
Item 28	0.712					
Item 27	0.509					
Item 33	0.460					
Item 11	0.450			0.349		
Item		0.914				

	Factor					
	Activities	Interpersonal relationships	Work skills	Personal care skills	Social acceptability	Physical functioning
14						
Item 18		0.877				
Item 13		0.823				
Item 17		0.816				
Item 16		0.772				
Item 19		0.601				
Item 15		0.564				
Item 42			0.863			
Item 40			0.853			
Item 39			0.849			
Item 43			0.842			
Item 38			0.793			
Item 41			0.769			
Item 8				0.857		

	Factor					
	Activities	Interpersonal relationships	Work skills	Personal care skills	Social acceptability	Physical functioning
Item 10				0.788		
Item 9				0.772		
Item 7				0.688		
Item 6				0.666		
Item 12	0.380			0.422		
Item 22					0.855	
Item 21					0.801	
Item 20					0.758	
Item 23					0.662	
Item 25					0.574	
Item 24					0.429	
Item 26					0.376	
Item 4						0.696
Item 5						0.671

	Factor					
	Activities	Interpersonal relationships	Work skills	Personal care skills	Social acceptability	Physical functioning
Item 3						0.500
Item 1						0.497
Item 2						0.440

Table 3.

Cronbach's alpha for the six subscales of the SLOF and item-corrected total correlations.

	Alpha	Item-total correlations
Physical functioning (1–5)	0.55	0.25–0.40
Personal care skills (6–12)	0.87	0.57–0.78
Interpersonal relationships (13–19)	0.89	0.50–0.78
Social acceptability (20–26)	0.76	0.40–0.61
Activities (27–37)	0.92	0.60–0.77
Work skills (38–43)	0.90	0.66–0.78

SLOF — Specific Level of Functioning Scale.

Table 4.

Multitrait–multimethod matrix showing the convergent/discriminant validity of the SLOF vs. the PSP.

		SLOF					
		Physical functioning	Personal care skills	Interpersonal relationships	Social acceptability	Activities	Work skills
PSP	Socially useful activities	−0.183**	−0.454**	−0.369**	−0.264**	−0.537**	−0.588**
	Personal and social relationships	−0.131**	−0.360**	−0.543**	−0.208**	−0.429**	−0.383**
	self–care	−0.168**	−0.617**	−0.284**	−0.292**	−0.562**	−0.442**
	Disturbing and aggressive behaviours	0.104**	−0.308**	−0.253**	−0.621**	−0.292**	−0.326**
	Total	0.159**	0.490**	0.478**	0.296**	0.566**	0.525**

SLOF — Specific Level of Functioning Scale and PSP — Personal and Social Performance Scale. *p < 0.05 and **p < 0.01. Legend for correlation coefficients: 0.1–0.3 small, > 0.3–0.5 medium, > 0.5 high, <−0.5 high, − 0.5 to − 0.3 medium, and >− 0.3 to − 0.1 small. Shaded cells denote anticipated correlations between similar domains in the two instruments.
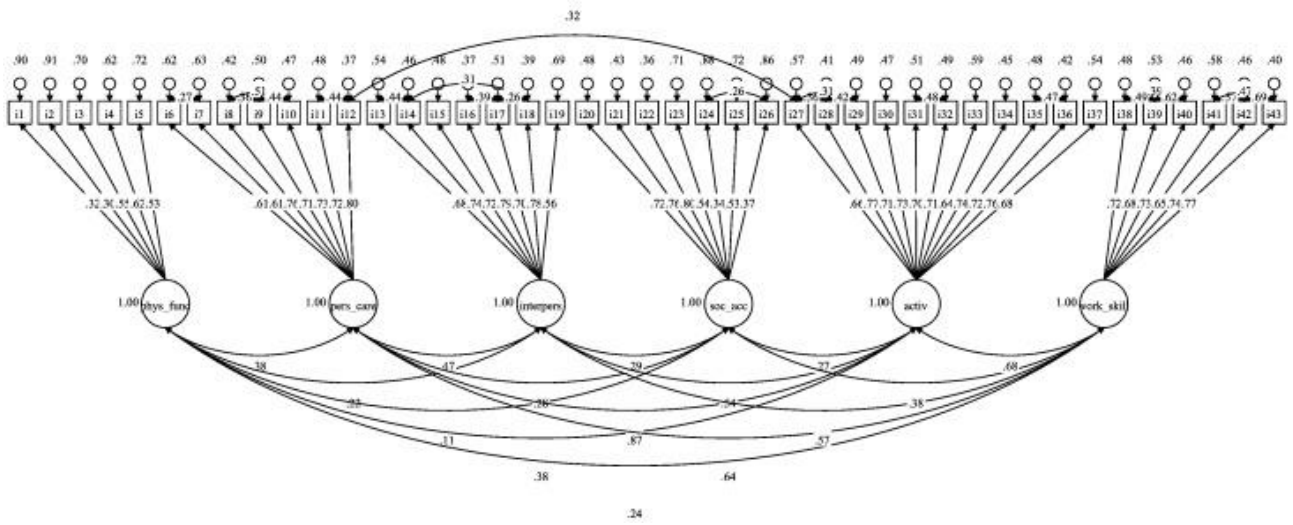
Fig. 1.

Diagram of the confirmatory factor analysis of the Specific Level of Functioning Scale (SLOF). Figure legend: squares: items; circles: latent factors; straight lines from factors to items: factor loadings; curved lines among items: correlations among items; curved lines among factors: correlations among factors; and arrows over the items: residual variances.

Appendix 1. The Specific Level of Functioning Scale (SLOF)

A. Physical functioning

No problem 5; problem, but no effect on general functioning 4; slight effect on general functioning 3; restricts general functioning substantially 2; prevents general functioning 1

 1. Vision

2. Hearing

3. Speech impairment

4. Walking, use of legs

5. Use of hands and arms

B. Personal care skills

Totally self-sufficient 5; needs verbal advice or guidance 4; needs some physical help or assistance 3; needs substantial help 2; totally dependent 1

6. Toileting

7. Eating

8. Personal hygiene

9. Dressing self

10. Grooming

11. Care of own possessions

12. Care of own living space

C. Interpersonal relationships

Highly typical of this person 5; generally typical of this person 4; somewhat typical of this person 3; generally untypical of this person 2; highly untypical of this person 1

13. Accepts contact with others

14. Initiates contact with others

15. Communicates effectively

16. Engages in activities without prompting
17. Participates in groups
18. Forms and maintains friendships
19. Asks for help when needed

D. Social acceptability

Never 5; rarely 4; sometimes 3; frequently 2; always 1

20. Verbally abuses others
21. Physically abuses others
22. Destroys property
23. Physically abuses self
24. Is fearful, crying, clinging
25. Takes property from others without permission
26. Performs repetitive behaviors

E. Activities

Totally self-sufficient 5; needs verbal advice or guidance 4; needs some physical help or assistance 3; needs substantial help 2; totally dependent 1

27. Household responsibilities
28. Shopping
29. Handling personal finances
30. Use of telephone
31. Traveling from residence without getting lost
32. Use of public transportation
33. Use of leisure time
34. Recognizing and avoiding common dangers

35. Self-medication
36. Use of medical and other community services
37. Basic reading, writing and arithmetic
F. Work skills Highly typical of this person 5; generally typical of this person 4; somewhat typical of this person 3; generally untypical of this person 2; highly untypical of this person 1
38. Has employable skills
39. Works with minimal supervision
40. Is able to sustain work efforts
41. Appears at appointments on time
42. Follows verbal instructions accurately
43. Completes assigned tasks

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