



The Satisfaction with Life Domains Scale as an instrument for assessing quality – a psychometric evaluation

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Abstract

Purpose: Basic indices of reliability, validity, and feasibility of the Polish language version of the Satisfaction with Life Domains Scale (SLDS) were assessed – this is one of the self-assessment measures of the subjective quality of life.

Methods: The combined database included 1,246 people from previous studies on stigma ($n = 316$) and recovery ($n = 110$), and individuals seeking psycho-social support ($n = 820$). Apart from SLDS, other measures of life functioning, experiences of stigma and discrimination, factors of personal recovery, and self-rated and clinician-rated psychopathology were used.

Results: The SLDS results were characterized by a good item performance and high internal consistency ($\alpha = 0.92$). Significant improvement in life satisfaction was noted, while maintaining some correlational stability in the re-test. Satisfaction with life did not depend on gender, education and age, but on diagnostic qualification (mental problems < somatic diseases) and methodological qualification (patients > persons seeking support). The direction and strength of the correlation of SLDS scores with a number of social, personal and clinical variables supports its theoretical validity, as does the principal components analysis indicating both the value of a one- and three-dimensional solution (satisfaction with social conditions, living conditions and interpersonal relationships). The feasibility of SLDS is also indicated by the low frequency (< 2.8%) of no responses in the surveyed population.

Conclusions: The basic psychometric indicators of the Polish language version of the SLDS confirm its satisfactory reliability and validity as well as a sufficient level of feasibility for various clinical and research aims.

Key words: psychometric evaluation, subjective quality of life, Satisfaction with Life Domains Scale.

INTRODUCTION

The need to assess the “quality of life” was noticed and recognized in psychiatry as a necessity when it turned out that the mere assessment of the worsening and subsiding of symptoms is not sufficient to perform clinically satisfactory evaluations of the effectiveness of the support provided to patients. Indeed, it was found that the use of such an indicator of the effectiveness of psychiatric support was particularly necessary when various forms of social support were included in it. This includes attempts to balance the effects of standard or innovative pharmacological therapy with the existential benefits of the provision of social support and expansion of the space of life experiences available to patients [1-3], especially, but not limited to, those experiencing chronic, persistent, or recurrent mental health crises.

The last decades of the 20th century brought an abundance of concepts and tools for assessing the quality of life, which turned out to be quite problematic as it limited the comparability of the studies undertaken and increased the number of controversies regarding the value of the conceptualizations proposed [4-7]. Speaking of these, four conceptualizations of the quality of life were most frequently mentioned: as (a) a subjective assessment of the life domains that are important for the respondents, (b) assessments (indicators) or self-assessments (feelings) relating living conditions to some more or less ideologically driven construct of “well-being”, (c) an assessment of social functioning, reflecting the degree of fulfilment declared by the subjects of the social expectations (roles) they assumed, and (d) the material availability of external resources – housing, financial, professional, interpersonal,

health-related – allowing them to meet their needs [8-10]. Without going into the details of these methodological choices and their content-related (clinical, social) and ethical consequences [4], it should be noted that only the first of the enumerated possibilities gives insight into the real subjective assessment of patients' quality of life. Others assess only the distance between the life of the ill and the socially desirable or imposed pattern of "well-being" or functioning. The risk of such an assessment lies in the possibility that evaluating the lives of individuals, groups and societies will be done in terms of their not meeting external standards (for example, they may be defined as weaker, limited, reprehensible, requiring intervention), without taking into account the subjective assessments and preferences of those concerned.

The Satisfaction with Life Domains Scale (SLDS) was proposed by Baker and Intagliata [1, 11, 12] as a tool useful for evaluating the effectiveness of environmental systems of social support organized in New York State for patients discharged from large psychiatric state hospitals under the so-called deinstitutionalization programme. The selection of the included domains of life and the graphic form of the scale resulted from the experience of earlier, initial, representative studies of the quality of life (social indicators of subjective well-being) in the American population [13]. In the original version, the scale included 15 items, the last of which referred directly to the satisfaction of the former charges of the hospital with their current living conditions (outside the hospital walls). A special and encouraging feature of the SLDS was the scaling of the subjects' answers in the form of face icons – from fully smiling (satisfied, happy, ☺) to fully sad (dissatisfied, unhappy, ☹).

In later years the scale was modified (in terms of the number and selection of assessed life domains) and adapted to the specificity of other long-term health problems, including oncology [14-17]. Apart from the original English version [1], a French version with 16 or 20 items [18, 19] and a 15-item Spanish version [20, 21] have also been used.

Estimations of the psychometric value of the SLDS as used in various studies indicated its sufficient reliability assessed mainly as cohesiveness for the entire scale ($0.84 < \text{Cronbach's } \alpha < 0.93$) [1, 18-20], its components ($0.61 < \alpha < 0.87$) [18, 19], its repeatability (test-retest) in the short term [17, 20] stability in the long term [22, 23], and sensitivity to change under the influence of supportive, therapeutic interventions [11, 12, 14-16, 24]. Researchers demonstrated the content validity [1, 7, 13, 14, 18, 23] and criterion validity of subjective and objective measures of quality of life or clinical condition and differentiated between the results obtained in different populations [1, 14, 15, 22-26]. Moreover, construct validity was also assessed on the basis of the analysis of correlations with theoretically significant social, clinical and personal variables [11, 16, 22, 23-28] and on the basis of factor

structure analyses [16-20]. Depending on the number of assessed life domains and the type of population, 3 to 5 different but similarly interpreted dimensions were revealed (life as a whole, social relations, personal/intimate relations, social everyday life, autonomy, housing/neighbourhood, spare time activities, daily activities, material conditions). Finally, its practical feasibility in various conditions was pointed out, mainly via its use of a graphic scale and the simple form of questions previously probed in detail in population studies [13].

The SLDS was introduced into the Polish psychiatric literature on the initiative of the team of Prof. Joanna Meder on the basis of the version used in Canada [18, 22, 25-28], slightly modified in relation to the original [1]. Instead of using a question that compared current living conditions with those in a state mental hospital, one about life in general was introduced and extended by several (up to 20 in total) items relating to personal life domains of self-actualisation, such as an individual's love life, the degree of freedom they feel they have, the things for which they take responsibility, their self-confidence, and what others think of them. Using the encouraging psychometric evaluation of the English and French versions, the Polish version of the SLDS was used as a self-reported measure of quality of life in several studies [29-36]. However, it has not as yet been the subject of a more thorough psychometric assessment. Therefore, we decided to collect and combine available databases from studies using the Polish version of the SLDS and determine its basic psychometric properties.

OBJECTIVE

The aim of this study is to analyse and evaluate the basic psychometric properties of the Polish version of the SLDS – its reliability, validity and feasibility, based on a secondary analysis of anonymous data from studies in which it has been used.

METHODS

Subjects

Sets of data from three studies [32-36] were combined in one database covering a total of 1,246 people. In none of these studies was subjective quality of life the primary element of the design, though it was present as a correlate of other variables.

Social stigma study (STG subsample)

The combined database of two studies on experienced stigma in psychosis [32¹] and other diseases [33²] covered

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a total of 316 people, including: 153 patients with psychotic disorders, 31 with recurrent depression, 69 people addicted to alcohol (39) or other substances (30), and 63 people suffering from severe cardiovascular diseases (32) or haematological malignancies (31). In addition to the SLDS, all the subjects completed the Polish version of the Consumer Experiences of Stigma Questionnaire (CESQ). Furthermore, among the group with psychotic disorders [30], general level of functioning and more specifically mental state were assessed using two self-assessment questionnaires and two clinical assessment questionnaires.

Components and stages of recovery study (CSR subsample)

The study of the factors involved in shaping the recovery process [35] covered 110 patients with psychotic disorders. In addition to quality of life, assessed with the use of SLDS, the variables explaining the process of psychological/personal recovery [37, 38] included: self-esteem, self-efficacy, loneliness, empowerment, resilience, social support, hope and internalized stigma (self-stigma).

Social support seekers study (SSS subsample)

The basis was the data collected in the Deinstitutionalization in Mokotów (DIMO³) project, covering residents of the Mokotów district in Warsaw ($n = 820$) who sought help in the period 2020-2022 in institutions offering psychosocial support (from a coordination team and mobile social support team) available in the Mokotowski Centrum Zdrowia Psychicznego (Mokotów Community Mental Health Centre, MCMHC). This database does not contain information about the clinical profile of the subjects. Participants of the project completed the SLDS and case managers assessed the level of participation and activity limitations revealed by the subjects.

In total, women predominated in the study group (63.2%). The age ranged from 18 to 88 years, with average values: mean 42.7 years ($SD = 14.44$, $SE = 0.42$), median 42 years. People with higher (43.2%) and secondary (42.5%) education clearly outnumbered people with elementary education – 14.4%. Psychotic spectrum disorders were diagnosed in 21.1% of the subjects, other mental disorders in 7.6% (including recurrent depressive disorders in 2.5%); 5.1% of disorders were related to the abuse of alcohol or other psychoactive substances, well 5.1% were linked with chronic, severe somatic diseases (cardiac – 2.5% or haematological – 2.4%) and in 65.8% of subjects

³Project (No. POWR.04.01.00-00-D216/17) “Comprehensive support for people with mental disorders and diseases in the Mokotów district” implemented under Measure 4.1 Social innovations at the Ministry of Development Funds and Regional Policy.

there were undefined⁴ mental problems leading to their seeking the support of the MCMHC.

Tools

Subjective quality of life was assessed using the SLDS in the extended, 20-item Polish language version [29]. As already mentioned, in comparison to the original 15-item version developed by Baker and Intagliata [1] one item was modified and five additional life domains [18] were included (see above and Table 7).

The subjects used a 7-interval scale, with each item being ascribed an emoticon from full dissatisfaction (☹, 1) to full satisfaction (☺, 7). Data on the SLDS came from our original studies, which applied the scale simultaneously with several other rating and self-rating instruments. Details of their characteristics and references (especially about the Polish language versions of self-rating tools) are to be found in these study reports [32-36]. These instruments may be divided into following four groups.

Functioning in life

Two clinician-rated instruments were used. In the STG subsample [30] patients' best functioning in the past year was measured by the Global Assessment of Functioning (GAF), a DSM-IV instrument [39] which assesses the overall level of psychological, social, and occupational functioning on one scale ranging from 1 to 100. In the SSS subsample the Polish adaptation [40] of the Mini-ICF-APP [41] was applied; this is a concise 13-item questionnaire measuring limitations on activity and restrictions on participation according to the International Classification of Functioning, Disability and Health (ICF) developed and recommended by the World Health Organisation.

Experiences of stigma and discrimination

In the STG subsample the Polish language adaptation of the Consumer Experiences of Stigma Questionnaire (CESQ) was used [42]. CESQ, developed in close cooperation with the American National Alliance on Mental Illness, is recommended for measuring the experiences of stigma suffered by people with mental illnesses. The stigma section includes nine items concerning general stigma experiences in daily life. The discrimination section contains twelve statements regarding discrimination experienced in important areas of life.

Factors of personal/psychological recovery

In the CSR subsample [35] several instruments were applied to assess potential impacts on the recovery process. The Empowerment Scale (ES) is a 28-item tool

⁴Qualification for the DIMO project did not require a diagnosis of a mental disorder.

which refers such qualities as patients' ability to self-govern their life, achieve goals, and achieve a satisfactory level of self-esteem and self-efficacy [43]. The Self-Esteem Scale (SES) is a simple 10-item questionnaire reflecting the general level of a subject's self-esteem [44]. The General Self-Efficacy Scale (GSES) is a 10-item questionnaire measuring the level of an individual's capacity to deal with various new or stressful situations efficiently [45]. The Loneliness Scale is designed to evaluate the social and emotional aspect of loneliness [46]. The Resilience Scale for Adults (RSA) was used in an abbreviated form of the 20-item Polish adaptation, referring to the personal sense of power, social competence and structured activity [47]. The Berlin Social Support Scale (BSSS) consisted of 17 items referring to various aspects of available social support [48]. The Integrative Hope Scale (HIS) is a 23-item, originally German language scale combining three earlier tools for evaluating hope [49]. The Internalised Stigma of Mental Illness scale (ISMI) consisted of 29 items evaluating such internalized aspects of stigma as alienation, stereotype endorsement, experience of discrimination, social withdrawal and stigma resistance [50].

Self-ratings and ratings of clinical state

Among psychotic patients in the STG subsample [32] two instruments were used to assess their self-rated symptoms: a shortened 7-item Polish version of the originally German language Frankfurter Befindlichkeits-Skala (FBS) as a measure of basic feelings of psychotic disorganisation rated on 4-point scales [51], and the abbreviated 12-item Polish language version of the German Paranoid-Depresivitäts-Skala (PD-S) rating two-dimensional internal structure with depressive and paranoid components [52]. Clinician-rated severity of psychopathological symptoms was evaluated by the Clinical Assessment of Schizophrenic Syndromes (KOSS, CASS), which assessed 31 symptoms on 7-point scales [53]. The total score of KOSS is correlated highly (Spearman's $\rho > 0.89$) with the Positive and Negative Syndrome Scale (PANSS) as an international standard [54] but differs from them in some important psychopathological details.

Statistical analysis

The IBM SPSS Statistics v. 21 package was used for the statistical calculations. In order to describe the SLDS items, simple methods of statistical description were used. To compare the means depending on the distribution of variables, the *t*-test and the single-factor analysis of variance (Anova) were used, if necessary, with post hoc comparisons as according to Bonferroni or appropriate non-parametric tests. Cronbach's α coefficient and the Spearman-Brown split-half coefficient were used to assess the reliability as the internal consistency of the SLDS. In the correlation analysis, we used Spear-

man's rank correlation (ρ). A relatively simple method with minimal of necessary assumptions was implemented for exploratory analyses of the SLDS dimensions: Principal Component Analysis (PCA), eigenvalue > 1 as the component extraction criterion, and Kaiser's Varimax as a primary method of rotation. In assessing the feasibility of SLDS, apart from the opinions of the researchers an analysis of the frequency of missing data was used, assuming that it reflects to some extent the difficulties that SLDS poses to the subjects. When interpreting the significance of the results, we used the $p < 0.05$ criterion.

RESULTS

Reliability and performance of the items

Scale cohesiveness

Reliability assessed as the internal consistency of SLDS is illustrated by the high Cronbach coefficient, which for the entire scale was $\alpha = 0.92$, for the first half of the scale (items 1-10) $\alpha = 0.84$, and for the second half (items 11-20) $\alpha = 0.87$. The correlation between the scale halves was $r = 0.74$, and the Spearman-Brown split-half reliability coefficient was 0.85. The total coefficients of consistency in all subsamples (STG, CSR, SSS) exceeded the value of $\alpha = 0.91$.

Item performance (Table 1)

The average values of the SLDS items ranged between 3.57 ± 1.76 ('your finances') and 5.07 ± 1.39 ('your clothes') and its total value was 86.19 ± 20.52 . Despite the general skewness in the negative direction (SKE = -0.140 , SE = 0.70), the dispersion of the assessed life domains did not reveal a definite "ceiling" or "floor" effect, but it was varied. The domains rated relatively worse (< 4.00) included: *your health, love life, activities, finances, self-confidence, what others think and life in general*, whereas those rated relatively better (> 4.90) included: *your clothes, food, area, services and facilities in area, place of living, people you live with, and friends*. Exclusion of individual items did not cause significant changes in the total value of the scale (81.88-83.38), scale correlation of the mean for items with the scale mean (0.488-0.733), or Cronbach's α (0.91-0.92).

Stability and sensitivity to change

The available data did not allow for a test-retest reliability study. An approximation of such an assessment may be an analysis of the stability of assessments undertaken in the largest subgroup (SSS subsample) for two moments (the beginning and ending of participation in the project) separated by activities of the intervention taking place at that time (various types of social support). This analysis, apart from the convergence of evaluation,

Table 1. SLDS items performance – items and scale mean ± standard deviation scores; % of responses; scale scores if item deleted: mean, corrected item-scale correlation, and Cronbach’s α if item deleted ($N = 1246$)

Satisfaction of Life Domains Scale items: <i>How do you feel about...</i>	Mean ± SD	Responses (%)							Scale mean if item deleted	Item/scale correlation if item deleted	Cronbach’s α if item deleted
		1 ☹	2	3	4 ☺	5	6	7 ☺			
<i>the place you live?</i>	4.94 ± 1.68	5	5	10	13	25	22	20	82.01	0.525	0.915
<i>the area?</i>	4.97 ± 1.55	4	5	8	27	25	23	18	81.98	0.488	0.916
<i>your food?</i>	4.99 ± 1.46	3	4	7	16	30	24	15	81.96	0.533	0.915
<i>your clothes?</i>	5.01 ± 1.39	2	3	9	18	31	23	14	81.95	0.556	0.915
<i>your health?</i>	3.58 ± 1.67	14	15	21	19	17	10	4	83.37	0.501	0.916
<i>people you live with?</i>	4.99 ± 1.71	5	6	7	19	20	19	24	81.96	0.499	0.916
<i>your friends?</i>	4.98 ± 1.62	5	4	7	17	25	22	19	81.98	0.529	0.915
<i>your love life?</i>	3.93 ± 1.94	16	12	14	19	15	13	11	83.02	0.564	0.915
<i>relationship with family?</i>	4.25 ± 1.80	10	11	13	18	21	17	11	82.70	0.539	0.915
<i>the way you get along with others?</i>	4.38 ± 1.49	5	8	14	24	27	15	7	82.57	0.665	0.912
<i>your activities?</i>	3.95 ± 1.70	10	13	16	21	21	11	8	83.01	0.631	0.913
<i>way you use your leisure time?</i>	4.12 ± 1.66	8	11	18	20	22	13	8	82.83	0.661	0.912
<i>what you do outside for leisure?</i>	4.12 ± 1.72	9	11	16	20	24	12	10	82.83	0.625	0.913
<i>services/facilities of your area?</i>	5.07 ± 1.39	2	3	7	19	31	23	16	81.88	0.466	0.916
<i>your finances?</i>	3.57 ± 1.76	18	14	15	20	20	9	5	83.38	0.513	0.916
<i>your life in general?</i>	3.94 ± 1.62	9	13	16	23	23	10	6	83.01	0.733	0.911
<i>your self-confidence?</i>	3.59 ± 1.72	14	16	21	19	16	9	6	83.36	0.634	0.913
<i>what others think about you?</i>	3.97 ± 1.46	7	10	14	36	19	9	7	82.98	0.610	0.913
<i>your freedom?</i>	4.52 ± 1.76	8	8	11	18	24	16	15	82.43	0.616	0.913
<i>your responsibility?</i>	4.09 ± 1.65	9	9	15	26	21	12	8	82.86	0.614	0.913
SLDS sum score	86.19 ± 20.52	8	9	13	21	23	16	12	–	–	–

also includes an assessment of sensitivity to change occurring under the influence of support.

During the DIMO project, 308 people completed the social support cycle offered by the case managers or mobile support team, which lasted an average of 115 days, and correctly completed the SLDS twice. The correlation of Spearman’s ranks between the SLDS scores obtained at starting and finishing point of this period was high ($\rho = 0.73$; $p = 0.01$), but the increase in mean values of satisfaction with life domains (from 84.23 ± 19.47 to 92.82 ± 19.73) met the criterion of a statistically significant change ($t_{(308)} = 10.834$; $p = 0.000$; Cohen’s $d = 0.44$). For 163 people who correctly completed the SLDS after an average of 32 days of using the help of the mobile support team, the analogous correlation was $\rho = 0.79$ ($p < 0.01$) and the total increase in satisfaction with the life domains (on average from 81.95 ± 19.75 to 91.11 ± 18.54); it also turned out to be statistically significant ($t_{(162)} = 9.403$; $p = 0.000$, Cohen’s $d = 0.48$). Thus, the use of SLDS revealed both a significant stability (correlation) of satisfaction with life domains after a shorter (about a month) or longer (about 4 months) period of time, as well as a sig-

nificant sensitivity to change occurring during this period – probably due to the social support provided.

Comparability

Typical rating comparability analysis (inter-rater reliability) does not apply to self-assessment tools. In the case of the SLDS, a certain approximation may be the results obtained in groups with similar or different characteristics in terms of properties important for satisfaction rating with life domains. In our study, we compared the role of gender, age, education, clinical diagnosis and sample type. The result of the SLDS assessment practically did not correlate with education ($\rho = 0.06$; $p = 0.016$). The single-factor analysis of variance indicated that gender ($F_{(1,1215)} = 0.572$; $p = 0.45$) and education ($F_{(1,1215)} = 1.191$; $p = 0.304$) did not differentiate the results of the SLDS assessment. On the other hand, the SLDS mean score significantly differed ($F_{(3,1213)} = 18.663$; $p = 0.000$) in the following groups: with mental disorders (87.98 ± 21.85), addictions (83.61 ± 19.46), somatic diseases (103.65 ± 15.35) and a diagnostically unspecified group of people seeking social support (84.37 ± 1.01). Bonferroni’s post hoc analyses indicated that the significantly higher satisfaction

scores of people with somatic diseases compared to all other groups ($p < 0.000$) were of key importance. The results of the comparison of other pairs did not differ significantly. The analysis also showed a statistically significant difference ($F_{(2,1214)} = 9.085$; $p = 0.000$) in the mean values of declared satisfaction between the subgroups from various subsamples: the STG subgroup from the stigma study (89.17 ± 20.95), the CSR subgroup from the recovery study (90.80 ± 22.95) and a subgroup of SSS seeking support (84.37 ± 20.23). Post hoc analysis revealed that the source of differentiation was significantly ($p < 0.01$) lower satisfaction in the subgroup of those seeking support (SSS) compared to both subgroups of patients (STG, CSR), which did not differ significantly.

Validity

Content validity

The Polish language version of the SLDS reproduces the range of life domains included in the satisfaction

assessment in the English, French and Spanish language versions. The usefulness of this content has been tested many times in various studies cited in the introduction, especially in the American [13] and Canadian [18, 25, 28] population studies. In our study, we did not analyse it directly. An indirect indication of the legitimacy of selected life domains may be the results of the theoretical validity of SLDS presented below.

Criterion validity

In this study, we undertook a secondary analysis of already collected data. Therefore, it was not possible to introduce measures into the plan that would be a valid criterion for assessing satisfaction with life domains. Indirectly, the concurrent validity of SLDS may be indicated by its correlations with indicators of functioning and clinical condition (presented below), and the predictive validity by the already mentioned results of the assessment of stability and sensitivity to change.

Table 2. Principal Component Analysis of the SLDS items – one and three component solutions. Components, weighted means scores and Cronbach's α coefficients ($N = 1246$)

Satisfaction of Life Domains Scale items: <i>How do you feel about...</i>	One component solution	Three components solution ¹		
		Social conditions	Living conditions	Relationships
<i>what you do outside for leisure?</i>	0.69	0.76		
<i>way you use your leisure time?</i>	0.71	0.75		
<i>your life in general?</i>	0.78	0.69		
<i>your self-confidence?</i>	0.69	0.69		
<i>your activities?</i>	0.69	0.67		
<i>your responsibility?</i>	0.67	0.64		
<i>what others think about you?</i>	0.67	0.60		
<i>your health?</i>	0.56	0.53		
<i>your freedom?</i>	0.67	0.52		
<i>your finances?</i>	0.57	0.42		
<i>the area?</i>	0.53		0.70	
<i>the place you live?</i>	0.57		0.69	
<i>your food?</i>	0.58		0.65	
<i>your clothes?</i>	0.60		0.63	
<i>services/facilities of your area?</i>	0.52		0.51	
<i>relationship with family?</i>	0.58			0.74
<i>your love life?</i>	0.62			0.65
<i>people you live with?</i>	0.54		0.41	0.63
<i>way you get along with others?</i>	0.71	0.51		0.54
<i>your friends?</i>	0.58			0.49
% of common variance	39.76	21.72	15.87	15.16
Components weighted mean scores ² \pm SD	4.32 \pm 1.03	3.94 \pm 1.18	4.99 \pm 1.07	4.50 \pm 1.25
Cronbach's α for the components	0.92	0.89	0.76	0.76

Determinant = 0.000; Kaiser-Meyer-Olkin Measure of Sampling Adequacy = 0.930; Bartlett's test of sphericity $p = 0.000$

¹Extraction criterium: eigenvalue > 1 ; Varimax rotation; omitted all loadings below 0.40.

²All differences between the components are significant (paired samples t -test, $p = 0.000$).

Construct validity

We used two approaches to assess this kind of validity. Firstly, by examining the internal structure of SLDS as a measure of subjective quality of life using PCA, and then by analysing the correlation between SLDS scores and a number of explanatory variables.

PCA results are presented in Table 2. A one-component solution incorporating nearly 40% of the common variance of the result revealed high (> 0.5) factor loadings for all analysed items. A three-component solution, extracted after applying the Kaiser criterion (eigenvalue > 1), incorporated a total of 52.7% of the common variance, and after rotation (with the Varimax method) it allows the obtained components to be interpreted as three dimensions of life satisfaction measured by SLDS. The first of them combined 10 life domains characterizing the subjects' satisfaction with their social conditions (leisure time, pastime, life in general, self-confidence, activities, what people think of them, responsibility, freedom, health, and finances). The second one consisted of 5 domains describing their living conditions (neighbourhood, place you live, food, clothes, facilities/services), and the third one with 5 domains characterizing their social relationships (family, love life, people you live with, friends, others). The weighted means indicate that in the studied population, living conditions were assessed as better than social relationships, whereas social conditions were assessed as the worst of all components, but the differences between all pairs of components were statistically significant (paired samples test, $t > 15.51$; $p = 0.000$). The measures of internal consistency of all components were satisfactory (Cronbach's $\alpha > 0.76$).

Spearman's rank correlation matrix (Table 3) reveals that total satisfaction with life correlated more strongly with satisfaction with one's social conditions than with satisfaction with relationships, and especially with living conditions. Social conditions were related to relationships and living conditions to a similar extent, and the weakest correlation was between living conditions and social relationships.

In the subgroup of the SSS subsample, it was possible to compare the total and dimensional results of the SLDS at the starting and finishing points of the support obtained in the DIMO project. After the supportive intervention, a significant increase in satisfaction was noted in all dimensions (Table 4), the highest in terms of satisfaction with social conditions, smaller in terms of satisfaction with relationships and living conditions. Differentiation of improvement depending on the dimensions of satisfaction with life domains reached the level of statistical significance (paired samples Wilcoxon's test, $p < 0.01$)

Despite these differences, the total and component values of the SLDS before and after the intervention were quite highly correlated (Table 5). Satisfaction with living conditions turned out to be a more stable dimension among participants of the DIMO project ($\rho = 0.81$) than satisfaction with relationships ($\rho = 0.71$) and social conditions ($\rho = 0.69$).

Correlations of the SLDS results with the explanatory variables available in previous studies (Table 6) revealed that satisfaction with life domains was positively correlated with the overall level of functioning, self-esteem, self-efficacy, resilience, hope and experienced support. In contrast, negative correlations associated life satisfaction

Table 3. SLDS and its components – Spearman's rank (ρ) intercorrelation matrix

Satisfaction with Life Domains (ρ)	All domains	Social condition	Living condition	Relationships
All	1.00	0.93**	0.77**	0.82**
Social condition		1.00	0.60**	0.65**
Living condition			1.00	0.57**
Relations				1.00

**Significant at the 0.01 level (2-tailed).

Table 4. Differences between the SLDS component scores between the starting and finishing point of the supportive intervention in the DIMO project (t -test for paired samples)

Satisfaction with Life Domains	Increase of satisfaction between finishing and starting point in DIMO project								
	Weighted means		Differences				Test		
	End point	Start point	Mean \pm SD	SE	95% CI		t	df	p
					Lower	Upper			
All domains	4.64	4.21	0.43 \pm 0.70	0.04	0.35	0.51	10.83	308	0.000
Social condition	4.33	3.81	0.52 \pm 0.87	0.05	0.42	0.62	10.49	302	0.000
Living condition	5.21	4.97	0.24 \pm 0.53	0.03	0.18	0.30	8.01	303	0.000
Relationships	4.68	4.31	0.37 \pm 0.88	0.05	0.28	0.48	7.34	295	0.000

SD – standard deviation, SE – standard error, 95% CI – 95% interval of confidence

Table 5. Spearman's rank correlations (ρ) between the SLDS components at the starting and finishing point of the supportive intervention in the DIMO project

Satisfaction with Life Domain (ρ)	Final assessment			
	All domains	Social condition	Living condition	Relationships
Initial assessment				
All domains	0.73**	0.68**	0.70**	0.64**
Social condition	0.65**	0.69**	0.54**	0.52**
Living condition	0.62**	0.51**	0.84**	0.48**
Relationships	0.63**	0.53**	0.52**	0.71**

**Significant at the 0.01 level (2-tailed). Boldfaced are indices of stability.

Table 6. Spearman's rank correlations (ρ) between the SLDS and its components and other personal, social and clinical explanatory variables

Explanatory variables	Assessment instrument	n	Satisfaction of life domains			
			All domains	Social condition	Living condition	Relations
Life functioning						
DSM-IV global assessment	GAF	259	0.184**	0.104	0.186**	0.154*
ICF activity/participation limitations	MINI-ICF-APP	791	-0.322**	-0.297**	-0.235**	-0.275**
...on proficient functioning	MINI-ICF-APP	775	-0.285**	-0.260**	-0.208**	-0.243**
...on relational functioning	MINI-ICF-APP	772	-0.311**	-0.282**	-0.218**	-0.282**
Sense and consequences of stigmatisation						
Stigma experiences	CESQ	315	-0.403**	-0.358**	-0.302**	-0.471**
Discrimination experiences	CESQ	315	-0.237**	-0.176**	-0.164**	-0.394**
Personal/psychological recovery factors						
Self-esteem	SES	110	0.552**	0.557**	0.309**	0.437**
Self-efficacy	GSES	110	0.492**	0.482**	0.283**	0.469**
Loneliness	LS	110	-0.506**	-0.442**	-0.368**	-0.462**
Resilience	RSA	110	0.347**	0.357**	0.247*	0.329**
Hope	IHS	110	0.418**	0.419**	0.217*	0.491**
Social support	BSSS	110	0.390**	0.315**	0.350**	0.438**
Internalised stigma (self-stigma)	ISMI	110	-0.378**	-0.368**	-0.212*	-0.347**
First- (self-rated) and third-person (clinician-rated) psychopathology						
Disorganising self-feeling	FBS	152	-0.562**	-0.600**	-0.370**	-0.433**
Self-rated paranoid-depressiveness	PD-S	152	-0.463**	-0.477**	-0.342**	-0.358**
...depressive symptoms	PD-S	149	-0.465**	-0.529**	-0.246**	-0.343**
...paranoid symptoms	PD-S	151	-0.348**	-0.296**	-0.332**	-0.301**
Clinician-rated psychotic symptoms	PANSS	152	-0.341**	-0.297**	-0.293**	-0.346**
Clinician-rated psychotic symptoms	KOSS	152	-0.294**	-0.238**	-0.299**	-0.297**

**Significant at the 0.01 level (2-tailed).

*Significant at the 0.05 level (2-tailed).

with activity and participation limitations, experiences of stigma and discrimination, feelings of loneliness and internalised stigma of mental illness (self-stigma), as well as all measures of psychopathological symptoms. The direction of these correlations was the same for the total assessment and all dimensions of life satisfaction. Stronger positive associations ($\rho > 0.4$) associated life satisfaction with self-esteem, self-efficacy, and maintaining hope, whereas

stronger negative associations ($\rho < -0.4$) were associated with the experience of stigmatization, loneliness, and such components of self-esteem such as feelings of mental disorganization (FBS) and depressive experiences (P-DS). Relatively stronger correlations were generally associated with the social conditions of the subjects, and more weakly with living conditions, while the correlations of social relationships usually reached intermediate values.

Table 7. SLDS mean scores in various studies (only comparable items included)

SLDS items	Baker, Intagliata (1)*, n = 118	Calsyn <i>et al.</i> (23), n = 178	Massoubre <i>et al.</i> (19), n = 139	Mercier <i>et al.</i> (28), n = 92	Tempier <i>et al.</i> (22), n = 97	Our study n = 1246
Place you live	5.51	4.98	4.8	6.0	5.7	4.94
Area	5.38	4.66	4.9	5.8	5.7	4.97
Food	5.37	5.20	5.3	5.4	5.4	4.99
Clothes	5.17	5.01	5.3	5.9	5.8	5.01
Health	4.75	4.98	4.6	5.2	5.1	3.58
People you live with	5.59	4.93	4.9	5.5	5.9	4.99
Friends	5.65	5.39	5.0	5.6	5.6	4.98
Family	5.16	4.30	5.0	5.4	5.2	4.25
Other people	5.46	5.45	4.9	5.6	5.5	4.38
Activities	5.27	5.01	4.5	5.2	5.2	3.95
Leisure time	5.10	4.98	4.6	5.3	5.1	4.12
Pastime	4.82	4.85	4.6	5.8	5.8	4.12
Services and facilities	5.25	4.91	4.9	5.9	6.1	5.07
Finances	4.56	3.97	4.4	4.5	4.6	3.57
Life in general	(6.39 [®])		4.5	5.4	5.3	3.94
Love life				4.9	4.8	3.93
P with our study	0.59*	0.26	0.83**	0.76**	0.83**	-

[®]In calculations the original 15th question (actual place of living as compared with mental state hospital) was omitted.

* Correlation significant at the 0.05 level (2-tailed).

**Significant at the 0.01 level (2-tailed).

Feasibility

Information on the how the subjects coping with the SLDS while filling it in was not collected systematically. A certain assessment of feasibility of the tool may be obtained in this situation by analysing the lack of answers to some of the questions of the questionnaire. In the whole group, in relation to all answers, an average of 2.3% was missing, slightly more often among men (2.6%) than women (2.2%), more often among people with higher education (3.4%) than elementary (2.8%) and secondary (1.1%), and in the SSS (3.6%) subgroup of people with undefined mental health problems more often than in the CSR (1.6%) and STG (1.3%) subgroups gathering patients with mental disorders (1.7%), addictions (0.7%) and somatic diseases (0.6%). Among the individual life domains, a particularly high percentage of missing answers was noted for questions about “people you live with” – in all groups and subgroups of participants (3.6-9.8%; mean = 6.3%), except for somatic patients (0%).

DISCUSSION

The results of the analysis presented here suggest that the assessed tool for rating satisfaction with life domains may be reliable, valid, and feasible enough to be used in clinical and research practice in populations of people

seeking or using support in connection with various mental health problems.

In terms of reliability, SLDS is characterized by a high degree of internal consistency of the total and half score of the scale as well as the components identified as a result of the PCA. High consistency is also characteristic when it comes to the subsamples (STG, CSR, SSS) analysed in the studies included here in the analysis. The analysis of the performance of the SLDS items also proves the diversification of satisfaction achieved in the assessed life domains and the avoidance of the tendency to generalize negative (floor effect) and positive (ceiling effect) assessments. Omitting any of the included domains of life does not clearly reduce internal consistency, which justifies the use of the 20-item version previously used in studies undertaken in Poland [30-36], as well as in France [19] and Canada [18, 25].

The method of assessment (self-assessment) appropriate for SLDS, as well as the secondary analysis of the already-collected data, as undertaken in our study, made it impossible to plan and perform a direct assessment of reliability as repeatability (test-retest) and comparability (inter-rater) of results in the usual way. However, the analysis indicates indirect arguments suggesting the reliability of the SLDS also in this perspective.

First of all, the stability of the SLDS results over a less precisely defined time period (on average, after about a month or four months) is not inconsistent with the results

of repeatability studies which better meet such expectations, for example, after 24-48 hours [20], after a month [18], 7 months [28], 9 months [11, 12], after 3, 6, 9 and 12 months [23] or even after 7 years [22]. Despite confirming the correlation stability, we also showed the statistical significance of the changes recorded at that time, which is an interesting argument in favour of assigning SLDS the feature of sensitivity to change, as also noted by the authors mentioned above. In our analyses, these changes could be related to the psychosocial support provided at that time, although the influence of other, uncontrollable factors cannot be excluded. It seems that both the stability of SLDS results and their sensitivity to change are expected properties of this tool.

Secondly, as an indirect argument for the comparability (inter-rater) of SLDS results, their comparisons in groups differing in demographic, social and clinical characteristics can be treated. In the case of socio-demographic variables, similarly to other authors [1, 27] we found no significant differences depending on gender and education, nor correlations in the age of the respondents. In the case of clinical variables, the differences concerned subpopulations that were significantly different diagnostically (mental problems – somatic patients) or methodologically (patients – people seeking support), which was also indicated by other authors when comparing groups of people with different living conditions [11], the availability and adequacy of community support [12], social integration [22], homelessness status [23], or subpopulations of the mentally ill, recipients of social assistance and people from the general population [25] or subpopulations of two distant regions [28]. Methodologically, the self-assessment of satisfaction with the life domains differs from the typical comparability study of inter-raters by several prepared diagnosticians. It is an assessment made by numerous self-raters with a more or less similar preparation for rating. The convergence or divergence of the obtained results may be interpreted in two ways. On the one hand, it indirectly indicates the comparability (reliability) of self-assessment in groups differing in features which were less significant for the assessment result (gender, age, education). On the other hand, it indirectly documents the content and criterion validity of the self-assessment reflecting in the SLDS results a significant difference between the compared subpopulations, depending on the clinical or methodological selection.

The secondary nature of the data analyzed here prevented a direct study of criterion validity. The trials of such research presented in the literature generally confirm it moderately, but not without doubts. For example, the Polish language version of the SLDS correlated moderately with the SF-36 scale ($r = 0.427-0.508$) [30], but the SF-36 was not originally intended for use in the population of people with mental health problems. Similar conclusions can be drawn, and doubts raised about

the comparisons of the SLDS with other measures relating to the assessment of the quality of life [7, 11, 20, 23, 24]. An impediment to the analysis of this type of research is the lack of a recognized “gold standard” for assessing the quality of life – numerous scales differ significantly in theoretical and construction assumptions addressed to different populations and challenges of mental health protection [2, 5, 6]. It seems that the assessment of criterion validity requires in the future a comparison of SLDS results with several other tools with different assumptions in one study. This would make it possible to draw conclusions about many dimensions of the concept of quality of life and about the differences between tools relating it to, for example, subjective satisfaction, objective functioning, postulated well-being, or availability of life resources. This postulate seems to be noticed, but poorly implemented [4].

The theoretical validity of the SLDS is confirmed in our study both by the results of the analysis regarding the direction of correlation with many variables that are personal (self-esteem, effectiveness, empowerment, resilience, hope, and availability of support), social (general functioning, activity and participation limitations, intensification of self-stigma, stigmatization and discrimination) and clinical (self-assessment and assessment of the severity of experiences and psychopathological symptoms). The value of these correlations ranges from moderate to high, but it is worth emphasizing the relatively higher ($\rho > 0.4$) positive significance of self-esteem, self-efficacy and hope expressed in them, and the relatively higher, negative significance of an individual's own experiences signalling mental disorganization and depressive mood, as well as loneliness and stigmatization. It seems that these are important indicators determining the level of perceived satisfaction with life domains. The topic of correlations between life satisfaction and psychoticism, depression and various types of maladjustment or social dysfunction has appeared in many publications by other authors [1, 11, 18, 20, 22, 23, 25, 30, 31], most often as a premise for the use of SLDS in a research plan, but rarely in a more complete and detailed way. It seems that the scope of the correlation analysis presented here extends and completes the value of the SLDS score as an accurate measure of satisfaction with life domains, a component of the subjective quality of life.

An attempt to reconstruct the internal structure of the SLDS by means of the PCA raises two issues. The first is the legitimacy of using the SLDS total score as a measure of satisfaction with life domains. The obtained result (high loadings of all domains in the single-component solution, as well as a relatively small increase in the explained common variance after applying the three-component solution) suggests that it is justified. A similar argument was used by Massoubre *et al.* [19], who obtained a similar distribution of loadings and a simi-

lar proportion of the explained common variance. Moreover, the use of the total SLDS score is common in research. Secondly, the dimensional solutions seem only to specify the result obtained in the satisfaction assessment, revealing the sources of this satisfaction that are fundamental for the participants, which, in the light of the results obtained by us, lie in the assessment of their social conditions (life in general, activities, important values, indicators of autonomy), living conditions (housing/ neighbourhood, food, clothes, local services) and social relationships (relations with family, friends, less or more distant others, love life). Similar solutions, although differing in number and composition, were presented by Caron *et al.* [18, 25], who, as a result of a 16-item SLDS analysis, isolated 4 components for a sample ($n = 245$) from the clinical population interpreted in terms of the following: activities, social relationships, living milieu, material conditions), and for the sample ($n = 266$) from the general population 5 components described as activities, social relationships, living milieu, material conditions, intimate relationships. However, regarding the 20-item SLDS used in the sample ($n = 226$) from the general population, they isolated 5 other components defined as: daily life/ social relationships, autonomy, spare time activities, life milieu, and personal intimate relationships. The number and composition of components extracted due to PCA is probably related to local cultural, social and health conditions, but also to the size of the sample and the number of domains included in the scale. For this reason, we assume that the number of components obtained in our study and their clear interpretation have the value of a larger and more accurate generalization, which results from the size ($N = 1246$) and complexity of the sample combining people with a defined and undefined health condition, and the inclusion of all 20 life domains. The components obtained were characterized by good internal consistency ($\alpha > 0.76$), moderate inter-correlation ($0.65 > \rho > 0.57$) with a high correlation with the total score ($0.93 > \rho > 0.77$), and differentiation of mean values ($t > 7.34$; $p = 0.000$) while maintaining relative stability between two tests ($\rho > 0.69$).

The source studies [32-36] did not report major obstacles to the use of the SLDS, but they were not observed in a systematic way. Other authors do not mention them. The thorough work of Andrews and Whithey [13] devoted, among other things, to the feasibility of questions and the selection of domains useful for assessing life satisfaction, was used by Baker and Intagliata [1] while developing the SLDS. The analysis of missing responses presented here suggests that difficulties in using the Polish language version of the SLDS

appeared in a small percentage of cases (average 2.8%) and that they depended to some extent on other characteristics of the sample, though they did not exceed 4% of responses. Against this background, only a higher percentage of a lack of responses was obtained regarding the domain defined as “people you live with”, which may not have been described clearly enough and therefore requires clarification or modification.

Table 7 compares the mean values of 14-16 comparable items in sample studies using different language versions of the SLDS. Despite the differences, the distribution of mean values of satisfaction with particular life domains obtained by means of the Polish version shows significant correlations with the distribution observed in other studies, with the exception of that carried out by Calsyn *et al.* [23], who studied a particular group of mentally ill people who were also marked by homelessness.

Ultimately, it seems that the Polish version of the SLDS can be considered as a psychometrically sufficient tool for self-assessment of satisfaction with life domains as a component of the subjective quality of life. The basic limitation of the presented study is that it is based on a secondary analysis of data collected earlier and for other purposes related mainly to the population of people with mental health problems. It could be complemented by a study designed to directly measure all psychometric indicators, using always the full sample size and taking into account the appropriate participation of people representing the general population.

CONCLUSIONS

1. The analysis of the psychometric properties of the Polish language version of the SLDS promises its satisfactory reliability (internal consistency), content and theoretical validity, and sufficient feasibility.
2. The stability of the results over time, their sensitivity to change and differentiation in different groups indirectly support the psychometric assessment of reliability (repeatability, comparability) and concurrent criterion validity of the SLDS as a measure of self-assessment of satisfaction with life domains.
3. As a convenient measure of satisfaction the following may be used: the total score of all twenty life domains included in the SLDS and/or the results of its three main components: satisfaction with social conditions, living conditions and social relationships⁵.

⁵ The Polish language version of the Satisfaction with Life Domains Scale is accessible on request.

Conflict of interest

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