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Validation of the Polish Version of the Symptom Checklist-27-plus Questionnaire

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Summary

Aim: The goal of this research is to evaluate the psychometric qualities of the Polish version of the SCL-27-plus questionnaire in terms of its five factor structure, internal consistency and theoretical accuracy.

Method: A total of 1.350 persons of which 62% were males, participated in the study. 651 persons were tested with a paper version, 699 subjects received an electronic version of the questionnaire. 336 (tested with the paper version) were patients with diagnosed psychiatric disorders. Paper version participants also filled out the General Health Questionnaire (GHQ-28).

Results: Confirmatory factor analysis validated the five factor structure of SCL-27-plus when some errors terms within subscales are allowed to correlate (Depending on the sample: $1.64 \leq \chi^2/df \leq 2.46$; $0.05 \leq RMSEA \leq 0.06$; $0.91 \leq CFI \leq 0.95$). Cronbach's Alpha reliability measures for the Global Severity Index was 0.90 to 0.92 and for the particular subscales 0.71 to 0.88. The GSI and symptom subscales for SCL-27-plus correlated with their equivalences in the GHQ-28 moderately to highly ($r = 0.38$ to 0.68). Strong differences occurred between the "clinical" and "non-clinical" groups in the levels of general and specific symptoms (Cohen's d from 0.42 to 1.15).

Conclusions: The Polish version of the SCL-27-plus questionnaire demonstrates good psychometric qualities. It can be used to measure the general intensity of psychopathological impairment as well as the specific subscales.

Key words: symptom questionnaire, factor structure, screening tests The work was partially financed by Heigl-Stiftung in Düsseldorf and Köhler-Stiftu

Introduction

The measurement by questionnaire of psychopathological symptoms is broadly used for the diagnosis of psychological disorders, evaluation of the effectiveness of psychotherapy and in epidemiological research. Among the few original Polish language questionnaires the most frequently used in clinical practice are the Neurotic Symptoms Questionnaire "O" [1-4, see 5 and 6] and, less frequently, abridged versions of Questionnaire "S" known as S-II [7] and S-III [8].

Due to the possibility for intercultural comparison, among other factors, foreign language questionnaires adapted to Polish conditions are increasingly popular. Part of them serve the purpose of allowing in-depth evaluation of narrow and specific aspects of psychopathology. For example, the SAD and FNE questionnaires, constructed by Watson and Friend [9] with a Polish adaptation by Sobanski et al [10], measure the social phobia type of anxiety symptoms. KDC, KMT and SZUTA questionnaires authored by Chambless et al [11, 12; Polish adaptation by Michalowski et al: 13, 14] capture the emotional, cognitive and behavioral dimensions of agoraphobia and panic attacks. Several multidimensional symptom questionnaires used for screening assessment of overall psychological health were also adapted in Poland, for example OQ-45.2 by Lambert et al [15, Polish adaptation 16, 17] and abridged versions of GHQ-60 by Goldberg [18, 19]: GHQ-30 [20], GHQ-28 and GHQ-12 [21]. One of the world's most popular general psychological health questionnaires capturing a wide spectrum of psychopathological symptoms is The Symptom Checklist-90-R (SCL-90-R [22]). At least two translations of SCL-90-R function in Poland as well as an abridged version of the questionnaire known as SCL-27 [23]. Nevertheless, the possibility of using original SCL questionnaires has not so far been legally regulated in Poland or in Germany.

The full version of SCL-90-R questionnaire includes 90 items grouped into clinical symptom scales. A lack of empirical confirmation of the nine dimension structure of the SCL-90-R [e.g. 24] and uneconomical nature of testing with a 90 item tool encouraged various researchers to construct shorter versions. Of those with a low number of items, thw aforementioned SCL-27 had relatively good psychometric qualities (for a review of the shorter versions of SCL-90-R see [25]). The SCL-27 was prepared by Hardt and Gersbeshagen [26]. It has 27 items selected from SCL-90-R based on exploratory factor analysis for their internal consistency within the subscales as well as relatively weaker correlation with all other scales. Items concerning the most serious symptoms of psychiatric and pain disorders were left out of the questionnaire. As a result SCL-27 possesses six subscales (symptoms of depression, symptoms of dysthymia, vegetative symptoms, agoraphobic symptoms, symptoms of social phobia and symptoms of distrust) each of which comprises four to six items.

Despite the fact that SCL-27 is characterized by better psychometric qualities than SCL-90-R and some of the 10 or more short versions, it failed to solve two typical problems of SCL questionnaires. (1) The formulation of certain items in SCL-27 (to SCL-90-R) remained archaic and imprecise (overreliance on conjunctions "or" and

relative clauses). As a result, the SCL-27 subscales are characterized by weak detection of mild psychopathological symptoms (the distribution is clearly skewed to the right). (2) There is low specificity of the subscales, i.e. strong intercorrelations [23].

In order to have a more precise tool for measuring symptoms of psychiatric disorders, one more useful for clinical diagnosis and within legal regulatory limits, a new questionnaire was made: SCL-27-plus [27 and 28]. An initial 76 item pool referred to the same symptom groupings as SCL-27. The formulations were newly generated in order to provide concise wordings, contemporary tone and to match the diagnostic criteria from ICD-10 and DSM-IV. Due to the low clinical usefulness of the "dysthymia symptoms" subscale [see 27] the statements concerning this symptom grouping were left out. Due to the common occurrence of pain syndromes [29] and accompanying problems, for example the overuse of drugs [30], new items concerning "pain symptoms" were added. The SCL-27-plus questionnaire also underwent vital modifications in terms of the scale of answers and instructions and two additional measurements about life time depression and suicidality were added (hence the "plus" in the name of the questionnaire).

In SCL-27 the respondents estimated the impairment of vexation of the symptoms and in SCL-27-plus their frequency of occurrence (the scale ranged from "never" to "very often"). The vital changes in the instructions concerned the time frames. In the SCL questionnaires to date the respondents estimated the intensity of symptoms from the previous week. Due to a relatively stable course of anxiety and somatoform disorders the SCL-27-plus generally doesn't use timeframes. They were only kept for symptoms of depression, however the period was extended to two weeks according to ICD-10 and DSM-IV. (The scale of answers: never=never; rarely=1-2 days; sometimes=3-7 days; often= 8-12 days; very often=13-14 days).The first of the additional measurements concerns the episodic character of depression symptoms. The respondents assessed the occurrence of depression symptoms again but this time for their entire lives ("no"= symptom has never occurred to a significant degree; "yes"= symptom was dominant in a certain two-week period of life). Moreover, the approximate number of lifetime periods with at least one dominant depression symptom must be given. The other additional measurement concerns the risk of suicide. The respondents answer ("no"/"yes") to the following questions: 1) do you currently experience suicidal thoughts; 2) have you experienced suicidal thoughts in the past; 3) have you ever attempted suicide. In the case of a positive answer to the last question the number of suicide attempts is asked for.

The final classification of the items of the symptom subscales in SCL-27-plus was carried out using an exploratory factor analysis of the data gathered from 376 German students [27]. Six subscales of five items were planned. The items from the "distrustfulness symptoms" were removed because they could not be successfully separated from the "symptoms of social phobia" subscale. The main criterion for the selection of items for subscales was to obtain a higher value for each correlation coefficient with its own subscale relative to any foreign subscale. This way, between four and six items of the twenty five selected total were distributed for each subscale: "depres-

sion symptoms", "vegetative symptoms", "symptoms of agoraphobia", "symptoms of social phobia" and "pain symptoms". The assumed criterion was met by almost all the selected items (with the exception of two: "head-aches" and "chest pains" which were more agreeable to the subscale "vegetative" than "pain"). The psychometric parameters of SCL-27-plus turned out to be better than SCL-27. The dimensions of the new questionnaire were characterized by lesser skewedness of the distributions, higher homogeneity and clearer separation [27]. Analogous advantageous results were obtained by Hardt [28] in a sample of 500 different German participants tested with the SCL-27-plus via the internet.

The goal of this research is to test the basic psychometric qualities of the Polish version of the SCL-27-plus. The study focuses particularly on the analysis of the factor structure, internal consistency and diagnostic accuracy of the questionnaire.

Method

A total of 1,350 persons aged 18 to 79 (M = 34.24; SD = 12.48) participated in the study (of which 38% were women). More than half of the participants (N = 699) filled out an electronic version of the questionnaire via the internet, the rest (N = 651) completed a paper version.

The electronic version of the questionnaire was filled out by persons recruited by a commercial company *Linequest* (N =507) and users of social networks, similar to Facebook (N = 191). Participants studied online aged 18 to 79 years old (M = 35.09; SD = 14.00); nearly half (48%) of the sample were women. Given the epidemiological data from 2012 concerning the spread of psychological disorders in Poland (23.4% of the population) [31] it can be assumed that the majority of the internet sample were persons without psychological disorders. Therefore, the sample was labeled "non-clinical."

As indicated above, participants using the paper version can be divided into two groups: "non-clinical" (students from the University of Social Sciences and Humanities and the University of Finance and Management as well as primary and middle school teachers) and "clinical" (patients with at least one psychological disorder diagnosed according to ICD-10 and treated in hospitals and clinics in connection with a neurotic symptom such as neurosis, affective disorder, psychotic disorder or addiction to psychoactive substances). The "non-clinical" group (N = 336) consisted of persons aged 19-58 (M = 29.63; SD = 8.65) 65% of which were women. The "clinical" group (N = 315) consisted of persons aged 18-70 (M = 37.19; SD = 10.88) including 32% women.

The participants recruited by *Linequest* were compensated financially (approx. 20 PLN). The rest were voluntary participants under various research projects carried out by the University of Warsaw and the University of Social Sciences and Humanities. The study was approved by the Research Ethics Commission of the Psychology Department of the University of Warsaw.

All participants in the study filled out a short socio-demographic survey and the CL-27-plus questionnaire- a selection of participants filled out the General Health Questionnaire (GHQ-28) created by Goldberg [19, Polish adaptation 21].

The Polish version of SCL-27-plus was prepared according to translation and back translation (i.e. from German to Polish, and then from Polish to German). The differences between two German versions were discussed by JH and MD and taken into consideration while preparing the final Polish version. The assessment of the accuracy of the re-translated version was done by JH. The differences between the two German versions were discussed and taken into consideration while preparing the final Polish version.

The GHQ-28 questionnaire is a screening tool used to evaluate psychiatric health. It consists of twenty eight questions evenly divided into the following subscales: somatic symptoms (A), anxiety and sleeplessness (B), functioning disorders (personal and social) (C), symptoms of depression (D). Subjects answer questions concerning ailments and psychological condition self-observed during the previous weeks by selecting one of four responses: "not at all" (zero points), "not more than usual" (one point), "slightly more than usual" (two points), and "much more than usual" (three points). The total points are used as a measure of general psychological health and the sum of points within each subscale serves as a measure of each symptom grouping [21].

Results

In order to verify the five dimensional structure of SCL-27-plus, various, confirmatory factor analyses (CFA) were carried out. The five factor model was tested on data from the whole sample, the two "non-clinical" subsamples (studied via electronic and paper versions of SCL-27-plus) and one "clinical" group (studied only via the paper version). The analyses were carried out using STATA 12.0 software. The maximum likelihood with missing values method (MLMV) was used. Factors were selected based on the covariance matrix. They were allowed to correlate. In order to enhance the goodness of fit for the five factor model, six co-variations of the residuals within some subscales were allowed (two co-variations in the vegetative symptoms, social phobia symptoms and pain symptoms subscales each).Three of the most frequently reported goodness of fit indicators were chosen to determine goodness of fit for the model, that is χ^2/df (chi square to degrees of freedom ratio), RMSA (root mean square error) and CFI (comparative fitness index). The values of these parameters for each sample are shown in Table 1.

Table 1. Goodness of fit indicators of the five factor model obtained for the whole sample, non-clinical samples (studied through the electronic and paper versions) and "clinical" sample (studied via the paper version).

Sample	Size	χ^2	df	χ^2 / df	RMSEA	CFI
Whole	N = 1350	1983.44	842	2.36	0.055	0.917
„Non-Clinical – electronic"	n = 699	623.67	254	2.46	0.046	0.951
„Non-Clinical – paper"	n = 336	560.13	254	2.21	0.060	0.908
„Clinical-paper"	n = 315	417.03	254	1.64	0.045	0.945

In general, satisfactory fitness of a model to empirical data is said to be given if χ^2/df < 2 or < 3 [see recommendations 32 and 33]; RMSEA ≤ 0.08 and CFI ≥ 0.90 [33]. In the present analyses, the χ^2/df ratio was lower than 2.5; the value of the RMSEA index did not exceed 0.06 in any of the analyzed samples and CFI was higher than 0.9 in all of them. Taking into account more liberal recommendations to χ^2/df ratio, it can be assumed that the five factor model is characterized by a satisfactory fitness to data regardless of the type of sample. Relatively the best fit factors were obtained in the "non-clinical" group studied via the electronic version of SCL-27-plus and the "clinical" group studied via the paper version.

Table 2 shows the standardized factor loadings for SCL-27-plus items for the whole sample, means and standard deviations (N = 1350).

Table 2. Standardized factor loadings (β), mean (M) and standard deviation (SD) of the SCL-27-plus items and - subscales

Item	Subscale	β	M	SD
	Depressive symptoms		0.96	0.85
21	Melancholy	0.68	1.10	1.01
22	Feeling blank inside	0.83	1.10	1.12
23	Would rather be dead	0.67	0.59	1.01
24	Hopelessness	0.71	0.75	1.01
25	Loss of joy	0.76	1.27	1.08
	Vegetative symptoms		1.20	0.71
8	Dizziness	0.62	1.01	0.92
12	Nausea	0.53	0.95	0.90
13	Heart palpitations	0.68	1.22	1.03
15	Heartpounding	0.68	1.41	1.02
17	Stomachproblems	0.54	1.41	1.02
	Symptoms of agoraphobia		0.59	0.77
5	Fear of leaving the house alone	0.72	0.57	0.93
6	Feeling of fear when you're away from home too long	0.73	0.49	0.86
7	Becoming afraid in crowds	0.82	0.66	0.97
14	Being afraid in public places	0.83	0.66	0.94
	Symptoms of socialphobia		1.13	0.86
9	Fear to saying something embarrassing	0.68	1.25	1.08
10	Feeling others do not like me	0.79	1.24	1.03
18	Feeling inhibited when dealing with others	0.71	1.00	1.01
19	Feeling insecurity when others look at me	0.79	1.04	1.08
20	Feeling of being unwanted	0.75	1.11	1.14

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	Pain symptoms		1.39	0.66
1	Headaches	0.47	1.71	0.99
2	Chest pains	0.59	0.98	0.91
3	Muscle cramps	0.50	1.41	0.96
4	Muscle pains/sore muscles	0.45	1.35	0.97
11	Pain in arms or legs	0.51	1.33	1.06
16	Backaches	0.46	1.53	1.11

All items in each subscale obtained acceptable factor loadings ($\beta \geq 0.45$). The items in the subscales "depressive symptoms" and "anxiety symptoms" i.e. social phobia and agoraphobia had the strongest loadings ($0.68 \leq \beta \geq 0.83$), the items in the "somatic" subscales, vegetative and pain symptoms, had the weakest loadings ($0.45 \leq \beta \geq 0.59$). The "somatic" subscales showed the highest mean ratings of symptoms (M = 1.20 and 1.39), while the subscale for agoraphobia showed the lowest (M = 0.59). The item means within the subscales was largely similar, exceptions were lower means for item 23 "Would rather be dead" (M = 0.59) and item 24 "hopelessness" (M = 0.75) relative to the mean of the symptoms of depression subscale (M = 0.96) as well as a higher mean for item 2 "chest pains" (M = 1.75) relative to the mean of the pain symptom subscale (M = 1.39).

Correlations were calculated over the mean scores of the subscales in the whole sample (N = 1350). The mean correlation value (Spearman's rho) between subscales was 0.47. The strongest correlation was found between the two anxiety subscales: social phobia and agoraphobia (r = 0.60) and the two "somatic subscales": vegetative and pain symptoms (r = 0.60). The weakest correlation was found between the pain symptoms subscale and the two "anxiety subscales": agoraphobia (r = 0.38) and social phobia (r = 0.34).

Table 3 shows the results of the assessment of internal consistency of SCL-27-plus and its subscales including the subscale of a lifetime depressive episode.

Table 3. Reliability coefficients (*Cronbach's α*) of SCL-27-plus and its subscales obtained for the whole sample, non-clinical samples (studied through the electronic and paper versions) and "clinical" sample (studied via the paper version).

SCL-27-plus and its subscales				
	Whole sample	„non-clinical" – electronic	„non-clinical" – paper	„clinical" – paper
Global symptom indicator	0.92	0.91	0.90	0.90
Depressive symptoms	0.87	0.88	0.81	0.77
Lifetime depressive symptoms	0.84	0.85	0.85	0.85
Vegetative symptoms	0.77	0.75	0.79	0.76
Agoraphobia symptoms	0.85	0.80	0.80	0.80

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Social phobia symptoms	0.87	0.86	0.83	0.85
Symptoms of pain	0.75	0.76	0.72	0.71

Lifetime depressive symptoms = an episode of at least two weeks long depressive symptoms

All internal consistency coefficients regardless of the sample type turned out to be satisfactory. High reliability was obtained for the global scales ($\alpha \geq 0.91$) and it was satisfactory for each of the subscales ($\alpha \geq 0.71$). The subscales of symptoms of phobia and depression showed slightly higher internal consistency ($0.77 \leq \alpha \leq 0.88$), and the somatic subscales showed a lower internal consistency ($0.71 \leq \alpha \leq 0.79$). Depending on the type of the sample the differences in reliability coefficients turned out to be relatively small (0.01 for the whole scale and a maximum of 0.11 for particular subscales).

In order to check the theoretical (convergent) accuracy of the questionnaire (paper version) an analysis of correlations between symptom indicators from SCL-27-plus and GHQ-28 was carried out. The results are presented in Table 4.

Table 4. Spearman's rho correlation coefficient between indicators of psychopathological symptoms measured by SCL-27-plus and GHQ-28.

SCL-27-plus	GHQ-28				
	GHQ–global	A–somatic	B–anxiety	C–function	D–depression
Global symptom indicator	0.68***	0.60***	0.62***	0.17***	0.63***
Depressive symptoms	0.64***	0.50***	0.62***	0.17***	0.68***
Lifetime depressive symptoms	0.29***	0.21***	0.34***	0.08	0.29***
Vegetative symptoms	0.53***	0.53***	0.51***	0.09*	0.46***
Agoraphobia symptoms	0.43***	0.36***	0.37***	0.16***	0.41***
Social phobia symptoms	0.50***	0.42***	0.46***	0.15***	0.48***
Symptoms of pain	0.44***	0.47***	0.40***	0.10**	0.34***

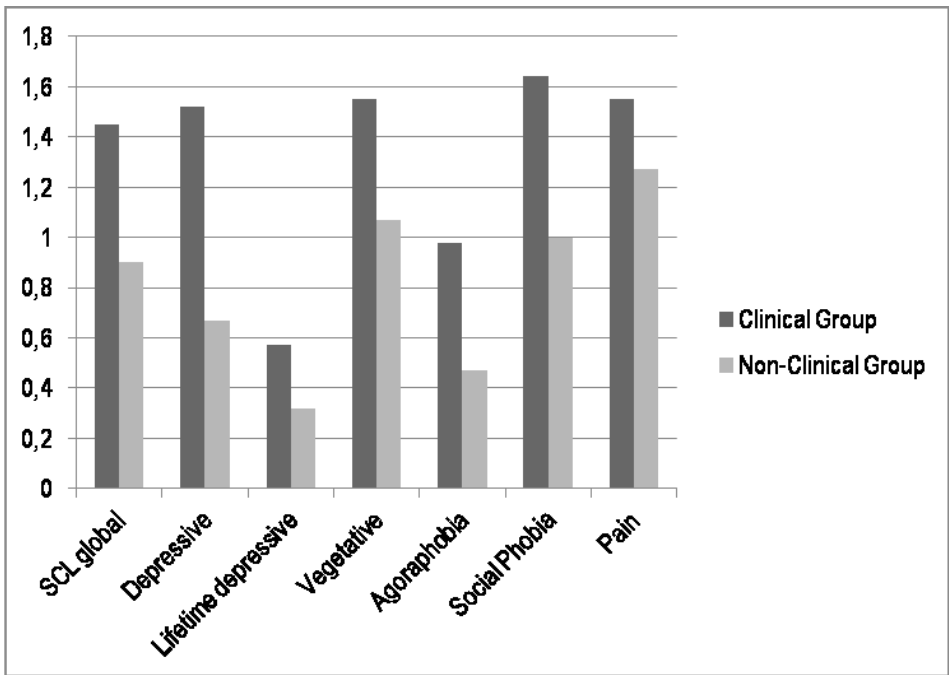
*p< 0.05; **p< 0.01; ***; p< 0.001;

Lifetime depressive symptoms = an episode of at least two weeks long depressive symptoms; GHQ-global = indicator of general symptoms on the GHQ-28; A–somatic = somatic symptoms; B–anxiety = anxiety and sleeplessness; C–function = functionality disorders; D–depression = symptoms of depression. Correlation coefficients between relatively analogous dimensions of SCL-27-plus and GHQ-28 are in bold.

Significant positive associations between all symptom measures in SCL-27-plus and GHQ-28 occurred. Strong associations were obtained between general indicators and depression symptom indicators (each 0.68). The second strongest correlation was obtained between "somatic" subscales (0.53 and 0.47), and following in "anxiety" subscales (0.46 and 0.37). The weakest association between corresponding dimensions of SCL-27-plus and GHQ-28 were obtained between symptoms of agoraphobia and anxiety (0.37) as well as between lifetime depressive symptom episode and its current intensity (0.29).

In addition, the theoretical accuracy of the paper version of SCL-27-plus was checked by comparing the psycho-pathological symptom intensity indicators in the "clinical" group of patients diagnosed with a psychiatric disorder (N = 315) and in the "non-clinical" group (N = 336). Figure 1 shows the results of group comparisons using a t-test.

Figure 1. Comparison between Clinical and Non-Clinical groups in terms of intensity of psychopathological symptoms in SCL-27-plus.



SCL global = general symptoms indicator; Depressive = depressive symptoms; Lifetime Depressive = an episode at least two weeks long of depressive symptoms during lifetime; Vegetative = Vegetative symptoms; Agoraphobia = Agoraphobia symptoms; Social Phobia = Social phobia symptoms; Pain = Pain symptoms. The intensity of symptoms was measured on a 0-4 scale (with the exception of Lifetime depression which was measured on a 0-1 scale).

The clinical group, when compared to the non-clinical group, showed significantly higher intensity of psycho-pathological symptoms on the global scale and in all subscales ($5.16 \leq t \leq 13.86$; $p < 0.001$). Strong differences (d-values) were obtained for the depressive symptom subscale (1.14), the global scale (0.98) and the subscale for social phobia (0.80); moderate differences were obtained for the lifetime depressive symptom subscale (0.69), vegetative symptoms (0.64) and symptoms of agoraphobia (0.62). The pain symptom subscale most weakly differentiated the clinical and non-clinical groups (0.42).

In order to determine the diagnostic value of the question regarding suicidal thoughts, we checked the association between answers and the following: belonging

to the clinical group, global and depressive symptom indicators, lifetime occurrence of depressive symptoms, as well as the past occurrence of suicidal thoughts and past attempts. The analysis was carried out using a Chi square tests on the data from the paper version of SCL-27-plus. 127 persons admitted having had suicidal thoughts at least once in lifetime (18.3% of the 621 persons who answered the question). The continuous variables, i.e. global and depressive symptom indicators, were transformed into binary ones (median-split). Table 5 shows percentage distributions of "yes" and "no" responses to the question regarding suicidal thoughts depending on other psychopathological indicators and the Chi square test.

Table 5. Current occurrence of suicidal thoughts versus selected psychopathological indicators.

Psychopathological variables		Current suicidal thoughts		χ^2
		Yes – n (%)	No – n (%)	
Group	Clinical	35 (11%)	274 (89%)	38.22***
	Non-Clinical	84 (33%)	174 (67%)	
SCL Global	High	50 (16%)	265 (84%)	4.18*
	Low	69 (23%)	233 (77%)	
Depressive	High	48 (18%)	212 (82%)	0.23
	Low	71 (20%)	284 (80%)	
Lifetime Depressive	Yes	49 (19%)	207 (81%)	0.03
	No	56 (18%)	246 (82%)	
Previous suicidal thoughts	Yes	113 (42%)	153 (58%)	164.04***
	No	5 (1%)	344 (99%)	
Previous suicide attempts	Yes	106 (60%)	70 (40%)	264.60***
	No	13 (3%)	427 (97%)	

*p< 0.05; ** p< 0.01; ***p< 0.001;

SCL global = general symptoms indicator; Depressive = Depressive symptoms; Lifetime Depression = at least one two week episode of depressive symptoms during lifetime.

The occurrence of suicidal thoughts was declared more frequently by persons from the non-clinical group [χ^2 (1, N = 567) = 38.22; p < 0.001] and slightly more often by persons with low intensity on the global symptom scale [χ^2 (1, N = 617) = 4.18; p < 0.05]. Declarations regarding suicidal thoughts were not connected with current [χ^2 (1, N = 615) = 0.23; p > 0.05] or lifetime occurrence [χ^2 (1, N = 558) = 0.03; p > 0.05] of depressive symptoms. On the other hand, strong predictors of current suicidal thoughts were previous suicidal thoughts [χ^2 (1, N = 615) = 164.04; p < 0.001] and suicide attempts [χ^2 (1, N = 616) = 264.60; p < 0.001].

Discussion

The key indicators of goodness of fit for the five factor model obtained for the whole sample, "non-clinical" sample studied through the electronic and paper versions as well as the "clinical" sample studied via the paper version obtained acceptable values. Thereby the five dimensional structure of SCL-27-plus was confirmed. Satisfactory values of internal consistency indicators for the whole scale and its five subscales (both in the paper and electronic versions), as well as standardized factor loads of items within the subscales, demonstrate homogeneity for the entire SCL-27-plus and its particular dimensions. The subscale of depressive symptoms and both anxiety related subscales (i.e. agoraphobia and social phobia) are characterized by the highest homogeneity. The lowest relative homogeneity was seen in the subscale of pain symptoms (this was also observed by Hardt [27]). It may be connected to the fact that it groups various locations of pain which don't always coincide.

Clear associations between symptoms indicators in SCL-27-plus and their equivalents in GHQ-28 as well as a decidedly higher intensity of indicators in SCL-27-plus in the clinical group confirm the convergent accuracy of the entire questionnaire presented in the paper version and its five subscales. The additional subscale of lifetime depressive symptom episodes correlated relatively weakly with the current intensity of psychopathology but it clearly differentiated persons from the clinical and non-clinical groups. The lack of an additional measure allowing us to check the differential accuracy of SCL-27-plus should be considered a limitation of the presented research. Another weak aspect of the research is imbalance of age and gender in the studied sample. The "non-clinical" group studied via the paper version was overrepresented by younger people (students) and women, whereas the "clinical" group was over-represented by men.

The diagnostic qualities of the question of suicidal thoughts were also checked. The lack of an association between current suicidal thoughts and the occurrence of depressive symptoms in the last two weeks, or lifetime depressive periods, suggests that symptom indicators in general do not allow for prediction of suicide risk. Moreover, they can be misleading since suicidal thoughts were declared slightly more often by persons from the non-clinical group and lower overall indication of psychopathological symptoms. However, current suicidal thoughts were clearly predicted by past suicide attempts and previous suicidal thoughts (this matches the results by Bertolote et al [34]). The results can be interpreted in several ways. (1) For research purposes it would be suggest that additional questions concerning the risk of suicide are useful because they probe an essential region of psychopathology which is out of reach of other SCL-27-plus subscales. (2) When the SCL-27-plus is used in a clinical context as a screening instrument, such associations should be explored again. It is possible that patients tend to avoid to tell researcher about suicidal thoughts, in order to avoid unwanted clinical activities.

Conclusions

The Polish version of SCL-27-plus is characterized by good psychometric qualities. The questionnaire can be used in scientific research and clinical practice as well. It can be useful for the screening the general occurrence of psychopathological symptoms and in the specific subscales as well. Moreover, SCL-27-plus enables an initial assessment of the episodic nature of depressive states and the risk of suicide. However we would also remind about the limitation of the SCL-27-plus. In therapy studies it may serve well in group analyses as measure for outcome and base values. However, due to it shortness, in individual diagnostics it should only be used as a screening instrument, helping the clinician to explore the symptoms of the patients personally.

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