Polish adaptation of the Young Schema Questionnaire 3 Short Form (YSQ-S3-PL)

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Summary

Aim. The aim of the study was to prepare the Polish adaptation of the Young Schema Questionnaire S3-PL. The scale is a self-assessment tool designed to measure 18 early maladaptive schemas.

Method. The sample consists of 1,529 adults (927 women and 585 men), aged 18–85 years (mean age was 32 years), from non-clinical groups.

Results. After language validation the internal consistency was assessed. The Cronbach's alpha ranged from 0.62 (Entitlement/grandiosity) to 0.81 (Failure), and it was 0.96 for total score. The best solution obtained in exploratory factor analysis was an eight-factor model, instead of the assumed 18-factor structure. Confirmatory factor analysis also did not fully supported Young's theoretical model. From all the tested models, bi-factor model (i.e., one generic factor and correlated specific factors – schemas) fitted the data best. In accordance with this model schema variance is explained concurrently by generic and specific factors; generic factor explains most of the Defectiveness variance, while only slightly – Self-sacrifice variance. Convergent validity analysis confirms positive medium correlations with scales measuring psychopathology. Similarly, negative correlations with self-efficacy and optimism indicate good divergent validity.

Conclusions. The psychometric characteristics of the Polish adaptation of the YSQ-S3-PL is similar to those reported for other language versions. The results allow to recommend the method for scientific research. However, using it in therapeutic practice needs caution – especially in the case of clinical diagnosis. Further analyses are necessary to assess criterion validity and discriminative power in clinical settings.

Key words: Early maladaptive schemas, Young Schema Questionnaire YSQ-S3-PL, Polish adaptation

Introduction

Early Maladaptive Schemas (EMS), according to Jeffrey Young et al. [1] are described as the patterns formed most frequently during childhood and developed throughout a person's whole life, and consisting of memories, emotions, beliefs and bodily sensations. These patterns, relating to individuals and their relationships with others, determine the way in which a person perceives and interprets their own behavior and the world around them. They may be the result of traumatic experiences and unsatisfied basic needs in the early stages of development. They are self-reinforcing and resistant to change. The authors list five emotional needs, deprivation of which can lead to forming dysfunctional schemas: secure attachment, autonomy, freedom of expressing needs and emotions, spontaneity and play, rational boundaries and self-control. Which of the schemas will form in a particular person depends also on their temperamental features and the characteristics of the environment in which they grow up, as well as the interactions between them.

Young et al. [1] distinguished the most common dysfunctional schemas, and for their study the Young Schema Questionnaire was created. The questionnaire, formulated on the basis of therapeutic practice, was being developed gradually (versions 1, 2, 3; L – Long and S – Short forms). Version 1 diagnosed 15 schemas grouped into three domains, in the second version – 16 schemas were grouped into 5 domains. The current version is version 3, which in both L and S form diagnose 18 schemas and five domains [2, 3]. In the YSQ-S3 version, the statements for each schema are scattered throughout the questionnaire rather than grouped together as in previous versions. This should increase the reliability of the measurement.

Numerous studies confirm to a varying degree the theoretical structure of the questionnaire [e.g., 2, 4, 5], moreover the factor structure of the tool has been debatable, particularly with respect to the number of domains [5–8]. Especially in newer psychometric studies this issue is taking up more and more space [7, 8]. The adequacy in terms of the diagnosis and understanding of various disorders, especially personality disorders [9, 10] or axis I disorders [11–13] is considered as acceptable.

The questionnaire, and in particular its shortened version, YSQ-S3, has been translated into many languages and has been adapted in many countries, such as Canada (French-language version), Germany, Spain, Denmark, Finland, Greece, South Korea, Turkey, Iran and Thailand [2, 4, 5, 8, 14–19]. In Poland, the questionnaire has not been developed psychometrically, which may be surprising given the great popularity of Young's schemas. A few preliminary studies confirm its diagnostic accuracy, as it appears that the dominant schemas are consistent with the understanding of a particular disorder, from both axes I and II. In these studies the reliability coefficients of the Alpha Cronbach method proved to be satisfactory [20, 21]. Thus, the evaluation of the schemas could be useful not only in therapeutic work, but also as a tool to support clinical diagnosis, as well as for research.

In conclusion, the purpose of the article is to present the psychometric properties of the Polish adaptation of the questionnaire, based on own research.

Material and method

The validated version was the short version of the Young Schema Questionnaire YSQ-S3-PL. The method examines the intensity of each of the 18 schemas based on the self-description of a patient, who is asked to assess the distinguished statements. This allows to define a pattern of schemas that are specific to a particular person. The method consists of 90 items, 5 for each of the schemas. Answers are given on a Likert six-point scale from 1 – completely untrue of me, to 6 – describes me perfectly. The results for each schema are in the range of 5–30 points. There is also an arithmetic mean calculated for each schema, as well as the total for all the schemas [3].

In the validation studies the following questionnaires were also applied:

– The Symptom Checklist-27-plus (SCL-27-plus) by Hardt in Polish adaptation by Kuncewicz et al. [22]. The method examines the intensity of depressive symptoms (current and during a person's lifetime), vegetative, agoraphobic, and sociophobic symptoms and pain;
– Beck Depression Inventory (BDI) in Polish adaptation by Parnowski and Jernajczyk [23];
– State-Trait Anxiety Inventory (STAI) by Spielberger et al. in Polish adaptation by Wrześniewski et al. [24]; only the scale measuring trait anxiety was used in the study;
– Life Orientation Test (LOT) by Carver and Scheier in Polish adaptation by Poprawa and Juczyński [25];
– Generalized Self-Efficacy Scale (GSES) by Schwarzer et al. in Polish adaptation by Juczyński [25].

The reliability and validity of Polish adaptations of the applied methods entitled them to be used in the research [22–25].

Study partcipants

The study involved 1,529 people aged 18 to 85 years ($M = 32.46$; $SD = 13.49$) – 927 women (60.6% of the total) and 585 men (38.2% of the total); 17 people did not select their gender in the survey. The group included 263 (17% of the total) university students (but not psychology students) – 133 women and 130 men.

Results

Translation and language validation

The language validation procedure was performed in accordance with the guidelines described in the literature [26, 27], after obtaining the official written consent of the author of the original version. The questionnaire was then translated into Polish by three independent translators. The resulting language versions have been reviewed and corrected by an expert who is fluent in English and has knowledge of Young's concepts of schemas. The result of this work was the basis for the initial language version of the questionnaire, which was subjected to the back-translation procedure, i.e., a reverse translation in to English. In order to evaluate the semantic identity of the versions obtained in this way, a committee was appointed, consisting of a sworn translator of English, a certified schema therapist and a person responsible for the translation process. The proposed amendments concerned 10 items of the questionnaire (9, 10, 24, 31, 40, 55, 68, 76, 81, 89) and the phrasing of the response scales. Most of the amendments resulted from the difficulty of preserving the faithfulness of the translation while maintaining the semantic equivalence of items. After taking into account the experts' comments, an experimental version of the questionnaire was agreed, which was used in a "think aloud" pilot study [28] among 30 psychiatric outpatients. The patients reported how they understood each test item. After this procedure, the Polish version of the questionnaire was approved ready for the psychometric evaluation process.

Analysis of internal consistency

Cronbach's alpha reliability analysis showed a varied internal consistency of the subscales, ranging from 0.62 to 0.81. For each schema, these values are as follows: 0.71 Emotional Deprivation, 0.79 Abandonment, 0.73 Mistrust, 0.74 Isolation, 0.75 Defectiveness, 0.81 Failure, 0.74 Dependence, 0.76 Vulnerability to harm or illness, 0.73 Enmeshment, 0.74 Subjugation, 0.71 Self-Sacrifice, 0.79 Emotional Inhibition, 0.66 Unrelenting Standards, 0.62 Entitlement, 0.71 Insufficient Self-Control, 0.77 Recognition-Seeking, 0.79 Negativity, and 0.72 Punitiveness. These values may be considered acceptable, similar to those found in the international literature [5, 15, 19]. It is noteworthy that in our study, just like in the adaptations into different languages, the lowest alpha was noted for the Entitlement schema (alpha values for this schema were, e.g., 0.57 in the Canadian studies using the French version, 0.67 in the German version and 0.59 in the Korean version) [2, 13, 15]. The exception is the Greek version, where the alphas were above 0.80 for all schemas [18]. For the overall index the internal consistency in our study was very high, 0.96, and similar to the one obtained in the cited Canadian studies [2].

Exploratory factor analysis

In order to verify the internal structure of the tool, there were used both exploratory factor analysis and confirmatory factor analysis. To make indispensable calculations, the data from the entire sample ($n = 1,529$) were divided randomly to two subsets ($n = 764$ and $n = 765$). In the first subset there was made the exploratory analysis, in the second one – the confirmatory analysis.

To check whether the analyzed matrix is unitary, Bartlett's test ($\chi^2 = 40336.585$; $df = 4500$; $p < 0.001$) and the Kaiser–Meyer–Olkin test were used (KMO $= 0.95$). Both results indicate the adequacy of analyzing the matrix for the existence of common factors. First, the principal component analysis was performed with unrestricted number of factors and orthogonal rotation (varimax). The factor loadings above 0.4 were considered a necessary condition for recognizing affinity of a statement for a factor, with values below 0.4 for each of the other factors at the same time. In this way, 18 factors were identified, which could suggest a structure identical to the original. However, only such factors as Emotional Deprivation, Failure, Recognition-Seeking, Self-Sacrifice, Isolation, Emotional Inhibition, Punitiveness and Insufficient Self-Control have been reconstructed. Still, more than 50% of the items either did not reach the criterion value or their factorial location was different from the expected.

Solutions with a different number of factors were also tested, based on Cattell's scree test, HPA (Horn's parallel analysis) [29] and MAP (minimum average partials) [30], with the use of the syntax for the SPSS software by O'Connor [31]. The principle of isolating the number of factors on the basis of the Kaiser criterion (eigenvalues greater than 1), generally leads to a decisions resulting in selecting an excessive number of factors. Scree plot analysis suggests at most 5 factors. On the other hand, MAP suggests 10 factors, and HPA, depending on criteria, 9 or 10 factors. These solutions were tested successively. Analysis with a restriction to 5 factors results in a mixed structure of items, which absolutely does not correspond to Young's five domains. At 10 factors, the last one do not have appropriate loading values, similarly at 9 factors. In this situation, the 8-factor structure is presented as the most accurate. The analysis of content of the items loading on each of the 8 factors remains coherent, they do not cross-load more than 0.4 on other factors. For this solution, however, 24 items are not connected strongly enough with any of the obtained factors. In sum, for the Polish version, this solution is probably optimal.

The analysis of factorial validity: confirmatory factor analysis

A confirmatory factor analysis was performed in order to verify the assumed factorial structure of the tool (the description of the method together with the common indexes of goodness of fit in [32]). As seen in Table 1, also here, the model originally developed by Young did not present a sufficient goodness of fit to Polish data for each

verified structure, including 18 schemas, both uncorrelated and correlated, as well as schemas grouped into 5 domains, i.e., higher order factors. On the basis of other adaptations of this tool, a model with one higher-order factor for all schemas (model 4) was also tested. Finally, a theoretically interesting bi-factor model with one common factor and 18 specific orthogonal (model 5) or correlated (model 6) factors was taken into account.

Table 1. **The comparison of goodness of fit of models with different factor structure**

Model		χ^2(df)	χ^2/df	TLI	CFI	AIC	RMSEA (90% CI)
1.	18 uncorrelated first-order factors	29 703.74 (3916)	7.59	0.50	0.52	30 241.74	0.066 (0.065; 0.066)
2.	18 correlated first-order factors	14 645.36 (3763)	3.89	0.78	0.80	15 489.36	0.044 (0.043; 0.044)
3.	5 correlated second-order factors	19 031.65 (3893)	4.89	0.70	0.72	19 615.65	0.050 (0.050; 0.051)
4.	1 second-order factor	17 654.63 (3897)	4.50	0.73	0.74	18 230.63	0.048 (0.047; 0.049)
5.	bi-factor uncorrelated	15 620.64 (3826)	4.08	0.77	0.78	16 338.64	0.045 (0.044; 0.046)
6.	bi-factor correlated	12 129.80 (3673)	3.30	0.82	0.84	12 153.18	0.039 (0.038; 0.040)

$\chi^2 - \chi^2$ discrepancy index; df – degrees of freedom; χ^2/df – normalized χ^2 index; TLI – Tucker-Lewis index; CFI – comparative fit index; AIC – Akaike information criterion; RMSEA – root mean squared error of approximation; 90% CI – 90% confidence interval for RMSEA

The comparison of parameters indicates that the only acceptable fit for the data was obtained for bi-factor model, i.e., model with one common (generic) factor and correlated specific factors. Similar results were obtained in studies conducted in Germany by Kriston et al. [7]. Therefore, it can be said that there have been schema-specific variances as well as a variance shared by all the items in the questionnaire, which is shown in Figure 1. The highest value of common variance is represented by the Defectiveness schema. It also includes an item which is the mostly saturated (0.68) of what is shared by all the items in the questionnaire, namely YSQ_59-PL "I feel that I am not lovable".
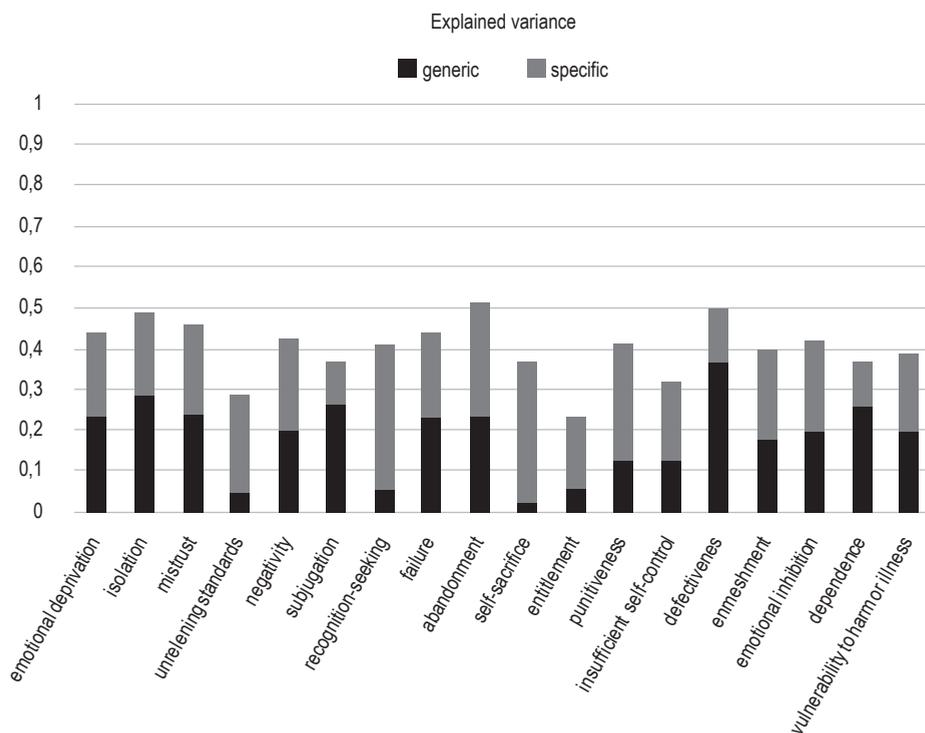
Figure 1. **The amount of variance explained by the generic factor and specific factors in the bi-factor model**

Analysis of construct validity

Convergence validity of the method was estimated on the basis of the analysis of the relationships between its scores and those of the tools used to measure psycho-pathological symptoms, depression and trait anxiety. Discriminant validity was estimated by examining correlations of the YSQ-S3-PLwith optimism and self-efficacy. The choice of methods was dictated by their mutual relationships suggested in the literature. Young et al. [1] refer to studies indicating the associations of the results obtained in the Questionnaire both with depression and well-being measurement scales. Relationships between schemas intensity and anxiety level were also observed [i.a., 33]. The obtained results (Pearson's r correlation) are shown in Table 2. The analysis was conducted for some of the participants only – respectively 120 and 270 people from the studied sample.

Table 2. **Convergent and discriminant validity for YSQ-S3-PL: correlation coefficients**

D	S	SCL 27						BDI	STAI-C	LOT-R	GSES
		1	2	3	4	5	6				
I.	1	**0.23***	0.03	-0.01	0.05	**0.42****	**0.32****	**0.54****	**0.21****	**-0.15***	**-0.40****
	2	**0.44****	-0.05	**0.23***	**0.25****	**0.39****	0.12	**0.51****	**0.51****	-0.06	**-0.29****
	3	**0.39****	-0.01	0.14	0.16	**0.30****	0.05	**0.54****	**0.41****	-0.08	**-0.37****
	4	**0.35****	-0.04	0.04	-0.03	**0.44****	0.17	**0.62****	**0.35****	**-0.21****	**-0.35****
	5	**0.35****	-0.02	-0.07	0.09	**0.41****	**0.24****	**0.66****	**0.39****	**-0.23****	**-0.45****
II.	6	**0.47****	-0.07	-0.01	**0.19***	**0.32****	**0.27****	**0.61****	**0.59****	-0.09	**-0.28****
	7	**0.36****	-0.04	0.08	**0.21***	**0.31****	**0.19***	**0.56****	**0.42****	**-0.24****	**-0.22****
	8	**0.32****	0.05	**0.24****	**0.34****	**0.27****	0.13	**0.54****	**0.55****	-0.11	**-0.16***
	9	**0.38****	-0.08	0.05	0.14	**0.31****	0.14	**0.37****	**0.47****	-0.03	**-0.29****
III.	10	**0.46****	-0.02	0.11	**0.20***	**0.40****	**0.32****	**0.47****	**0.48****	0.03	**-0.30****
	11	**0.24****	0.04	**0.19***	**0.22***	**0.21***	0.06	**0.35****	**0.28****	0.05	-0.02
	12	**0.33****	-0.03	0.10	**0.18***	**0.26****	0.09	**0.17****	**0.45****	0.14	**-0.35****
IV.	13	0.06	-0.03	0.09	0.03	0.18	0.15	**0.18****	**0.23****	-0.01	-0.01
	14	**0.26****	-0.05	0.03	0.04	**0.25****	**0.23****	**0.50****	**0.36****	0.05	**-0.16***
V.	15	0.14	0.00	0.06	0.01	**0.21***	0.09	**0.19****	**0.23****	0.08	-0.05
	16	**0.54****	-0.07	0.02	0.18	**0.28****	**0.20***	**0.41****	**0.45****	**-0.18***	**-0.35****
	17	**0.36****	-0.02	**0.29****	**0.22***	**0.38****	0.12	**0.61****	**0.52****	**-0.21****	**-0.44****
	18	**0.26****	-0.01	0.17	0.18	**0.23***	**0.19***	**0.36****	**0.35****	0.07	**-0.22****
General indicator		**0.50****	-0.04	0.16	**0.22***	**0.45****	**0.25****	**0.66****	**0.60****	-0.07	**-0.35****

Significant correlation *$p < 0.05$; ***$p < 0.01$

Legend:

D – Domains: I – Disconnection/Rejection, II – Impaired Autonomy, III – Other-Directedness, IV – Impaired limits, V – Overvigilance/Inhibition.

S – Schema: 1 – Emotional Deprivation, 2 – Abandonment, 3 – Mistrust, 4 – Isolation, 5 – Defectiveness, 6 – Failure, 7 – Dependence, 8 – Vulnerability to harm or illness, 9 – Enmeshment, 10 – Subjugation, 11 – Self–Sacrifice, 12– Recognition-Seeking, 13 – Entitlement, 14 – Insufficient Self–Control, 15 – Unrelenting Standards, 16 – Emotional Inhibition, 17 – Negativity, 18 – Punitiveness

SCL 27: 1 – social phobia, 2 – vegetative symptoms, 3 – pain, 4 – agoraphobia, 5 – current depression, 6 – depression during life

As seen in Table 2, the correlation coefficients of the adapted scale are consistent with the theoretical expectations. What is important, these correlations are at most moderate, so the YSQ-S3-PL is not redundant to well-known scales measuring positive psychological characteristics or psychopathology. The issue of the discriminant

validity between schemas or domains is somewhat more complex. For example – the results in the social phobia subscale are most positively correlated with the following schemas: Emotional Inhibition, Abandonment, Failure and Subjugation, which fits the disorder description. These schemas, however, are scattered across different domains, and their correlations with the criterion are highly similar. In turn, all schemas correlate significantly with depression measured by BDI and trait anxiety, indicating a common variance of schemas and constructs (up to about 44%). For BDI, the strongest correlations (minimum 0.60) were obtained for Isolation, Defectiveness, Failure and Negativity, which can be considered theoretically and clinically understandable. Similar results for depression (as well as for anxiety measured using SCL-90 and BDI) were obtained in Turkish, Korean and Canadian studies [2, 5, 16]. However, the weakest relationships (below 0.20) were obtained for Recognition-Seeking, Entitlement and Unrelenting Standards. By comparing these results, it can be seen that correct prediction of depressive symptoms on the basis of selected schemas may be difficult.

It should also be noted that not all studies on adaptation of the tool analyzed its validity, and in those in which it was analyzed, a discriminant validity was considered extremely rarely [see 1, 2, 4, 5, 8, 14–19]. The present study demonstrated significant negative relationships of many schemas with a sense of self-efficacy and optimism, and the strength of these relationships also excludes redundancy.

Recapitulation

The aim of the presented research was to prepare the Polish adaptation of the Young Schema Questionnaire (YSQ-S3-PL). The need to adapt the tool stemmed from both its popularity revealed in numerous foreign studies, as well as therapeutic and clinical practice in which it could be helpful. On the basis of all the analyses carried out, it can be stated that the Polish version of the method does not differ in terms of both strengths and weaknesses from other language versions. It measures the general factor and specific factors saturated with it to varying degree, and does so with varying but acceptable reliability. The tool has satisfactory construct validity – its results cannot be reduced to measurement of depression, anxiety or other psychopathological symptoms. Also, they are not the reverse of optimism and self-efficacy or positive orientation, and the direction and strength of many relationships are consistent with the theoretical expectations. On the other hand, discriminative power of schemas in relation to various psychopathological symptoms requires further research. Thus, further studies, including diverse clinical groups, are recommended to establish the criterion validity of the method. Clinical trials are also needed to further verification of the factorial structure of the tool – there are suggestions that the structure may be different in the clinical and non-clinical population [1, 34].

In conclusion, the YSQ-S3-PL can be recommended for use but with the awareness of its psychometric limitations. Particularly, at the present stage of analysis in the

case of clinical diagnosis the results obtained with this tool should only be regarded as supportive, not conclusive.

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