

Schizotypal Personality Questionnaire-Brief: effect of invalid responding on factor structure analysis and scores of schizotypy

QUESTIONNAIRE DE PERSONNALITE SCHIZOTYPIQUE – VERSION BREVE (SPQ-B) : INFLUENCE DU MODE DE REPONSE NON VALIDE SUR L'ANALYSE DE LA STRUCTURE FACTORIELLE ET LES SCORES DE SCHIZOTYPIE

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Acknowledgements:

We would like to thank Doctor Arina Luca Sofia (Romanian psychiatrist) and Doctor Gary Goldsmith (USA psychiatrist) for their help in translating the SPQ-B from English to Romanian.

We would like to thank Professor Nicoleta Petcu (statistician) for her precious help in analyzing data.

Abstract

Objectives: We assessed the effect of invalid responding on factor structure and on scores of schizotypy through the factor analysis of the Schizotypal Personality Questionnaire-Brief (SPQ-B) in a sample of 580 Romanian students using 3 validity items and 5 social desirability items. **Methods:** We examined the factor structure of the SPQ-B, we compared the mean SPQ-B scores between reliable and unreliable responders and between high vs. low social desirability responders, and we re-run the factor analysis restricting the sample to the reliable or low social desirability responders. **Results:** Factor analysis resulted in a 3-factor solution: Cognitive-perceptual, Interpersonal and Disorganized dimensions. Unreliable responders had lower scores of positive, negative and total schizotypy. Subjects with high social desirability scores had lower scores of disorganized schizotypy. Factor analyses in the samples of “good” responders showed minor differences in reliable responders, whereas, after taking into account the effect of social desirability, 2 items correctly loaded on expected dimensions. **Conclusions:** Random responding and social desirability could influence scores of schizotypy and factor structure. Simple methods could be used to identify invalid responses. The effect of social desirability could be linked to the phrasing of items.

Keywords: Random responding, invalid responding, social desirability, schizotypy, Factor analysis.

Résumé

Objectifs: Plusieurs facteurs peuvent influencer la fiabilité des réponses à un auto-questionnaire et biaiser les résultats s'ils ne sont pas dépistés et pris en compte. L'objectif principal de notre étude était d'évaluer l'effet de la fiabilité des réponses sur la structure factorielle et sur les scores de schizotypie. Notre objectif secondaire était d'analyser la structure

factorielle de la version Brève du Questionnaire de Personnalité Schizotypique (SPQ-B) dans un échantillon d'étudiants roumains. **Méthodes :** Nous avons fait remplir une traduction roumaine du SPQ-B format Likert à 580 étudiants de 3 universités roumaines. Afin d'évaluer la fiabilité des réponses, nous avons ajouté au SPQ-B 3 items de validité et 5 items de désirabilité sociale extraits de l'échelle de mensonge d'Eysenck (Eysenck's Lie Scale). Nous avons d'abord examiné la structure factorielle du SPQ-B, puis nous avons comparé la moyenne des scores du SPQ-B entre réponders fiables et non fiables et entre réponders à faible désirabilité sociale et ceux à désirabilité sociale élevée, et enfin nous avons relancé l'analyse factorielle limitée aux échantillons des réponders fiables et de ceux à désirabilité sociale faible.

Résultats: L'analyse factorielle a montré une solution à 3 facteurs expliquant 43,8% de la variance et correspondant aux dimensions cognitive-perceptive (positive), interpersonnelle (négative) et désorganisée. Les réponders non fiables avaient des scores de schizotypie positive, négative et totale significativement plus faibles que les réponders fiables. Les sujets ayant des scores élevés de désirabilité sociale avaient des scores significativement plus faibles de schizotypie désorganisée comparés à ceux ayant des scores faibles de désirabilité sociale. L'analyse factorielle de l'échantillon des réponders fiables a retrouvé des différences mineures en comparaison avec l'analyse factorielle initiale. Par contre, lorsque nous avons tenu compte de l'effet de la désirabilité sociale, 2 items ont chargé correctement sur les dimensions attendues. **Conclusions:** Le mode de réponse aléatoire et la désirabilité sociale pourraient influencer les scores de schizotypie et la structure factorielle. Des méthodes simples pourraient servir à identifier ce type de réponses non valides. L'effet de la désirabilité sociale pourrait être lié à la formulation des questions.

Mots clés : Réponse aléatoire, réponse non valide, désirabilité sociale, schizotypie, analyse factorielle.

Introduction

Self-report measures have several advantages over clinician scored scales: they are easy to administer, are short, inexpensive and non-invasive tools allowing for the study of large samples. Their main drawback is that many factors could result in invalid responding, as poor comprehension of the questions, inattentiveness, carelessness and hurriedly responding, lack of motivation and good faith or deliberate faking or lying [1, 2]. Subtler alterations in responding may result from social desirability (i.e. bias that originate from the desire to conform to social norms, to gain approval from others or to “please” the examiner) [3, 4]. Rates of invalid responding were estimated to vary from 3% to 60% [1, 5, 6-8]. Some of the unreliable responses to self-report questionnaires are readily spotted and methods to deal with the consequences on data collected have been developed e.g. lack of response or response in the wrong area, the use of the same response repeatedly or extreme/outlier responses. Some other types of unreliable responses are however not so easy to recognize (e.g. random responding or social desirability) unless specific measures are taken before the questionnaires are administered.

Irrespective of the specific mechanism, invalid responses could “increase noise and attenuate true statistical relationships” [9]. Fervaha and Remington (2013) studied the effect of invalid responses on the relationship between schizotypy and hedonic reaction. They found a significant inverse relationship between negative schizotypy and anticipatory and consummatory pleasure in reliable responders, but the relationship was dampened in the entire sample when those with aberrant answers on the validity items were not excluded [9]. In addition, a socially desirable responding pattern has been shown to underestimate self-reported behaviors like drug use [10] and contaminate self-reported personality traits [3]. Despite these arguments, only a small proportion of studies that use self-report questionnaires include measures to screen their data for invalid responding [8].

Schizotypy and schizophrenia seem to share etiological genetic and environmental factors. For this reason, schizotypy which allows for the examination of risk factors in larger samples and without some of the confounds inherent to the study of schizophrenia has been advocated as a mean to unravel etiological factors associated with schizophrenia [11].

Schizotypy has also been associated with psychiatric comorbidity (e.g. anxiety, depression [12]), handicap [13] and altered quality of life [14] and thus this make it a subject worth studying in its own right.

Several self-report instruments for the study of attenuated psychosis/ schizotypy have been developed. One of the most widely used instrument for measuring schizotypy is the Schizotypal Personality Questionnaire (SPQ) developed and validated by Raine [15]. The SPQ has been used either for a categorical diagnosis of Schizotypal Personality Disorder or as a dimensional measure of schizotypy and its three dimensions (i.e. cognitive-perceptual or positive, interpersonal or negative, and disorganized). [15]

Several changes in its format have been proposed shortening the questionnaire from 74 items to a 22-item (the Brief version, SPQ-B [16]), and improving its response format from a dichotomous to a Likert format [17]. Also several studies replicated its validity across different languages and populations [18, 19].

To our knowledge, only one study assessed the effect of invalid responding in schizotypy research using the SPQ [9] and none assessed the potential impact of random responding on the factorial structure of the instrument.

In addition, neither the SPQ or SPQ-B (nor any other tool measuring schizotypy) was validated, to our knowledge, in Romanian.

So, in our study we aimed to assess the effect of invalid responding on factor structure and dimensional scores of schizotypy through the factor analysis of the Romanian version of the Schizotypal Personality Questionnaire-Brief in a Likert format in a non-clinical sample.

2. Materials and methods

2.1 Subjects

Subjects were undergraduate students from 3 Romanian Universities: Bucharest (Medical School), Craiova (Medical School) and Brasov (Sociology). Recruitment took place over 2 years in Bucharest and over a year in the other two locations. There were 2258 eligible students (1805 Bucharest, 293 in Craiova and 260 in Brasov) from which the 580 complete questionnaires have been obtained (the percent of eligible students from which complete questionnaires were obtained was 22.8% in Bucharest, 23.2 % in Craiova and 63.1% in Brasov). We used a non-probability sampling method based on accessibility of the respondents (convenience or availability sampling). It consists in deliberate selection of individuals among the target population available at a certain moment, in a certain place. This type of survey is often used for testing a questionnaire before applying it in the general population. [20].

2.2 Measures

When asked to participate the students were informed of the scope of the study (to assess personality traits and their relation to demographic variables), of the fact that the questionnaires were anonymous, and of the necessity of answering all the questions as best and as honest that they can. They were also informed that the estimated time for completion was 15 minutes, that the study has been approved by an ethics committee and that they were free to take the survey or to decline. This information was also reproduced on the first page of the questionnaire that they completed.

Sociodemographic data (i.e. gender, age...) were collected.

Schizotypal traits were measured using the Romanian translation of the 22-items Schizotypal Personality Questionnaire-Brief (SPQ-B) [16], in a Likert format (from 1=completely disagree to 5=completely agree). Translation from English to Romanian was made by a clinician (ML). Then, another clinician made the back translation from Romanian into English (ALS). Finally, a native speaking American psychiatrist (GG) compared the two English versions and changes

were made, if necessary, to ensure that the original meaning was retained. SPQ-B scores were calculated by summing the 22 items (total score) and items contributing for each dimension (as suggested by the factor analysis – see below). Total score ranges from 22 to 110.

To assess the effect of invalid responding, we added 3 validity items and 5 social desirability items distributed at random among the 22 SPQ-B original items. We chose to place these items in a random manner in the SPQ-B first to make them less easy to identify by the subjects and, secondly, to capture invalid responses at different moments of filling the self-report.

Two of the validity items were items for which some of the responses are very improbable (infrequent answers). The first one was “Sometimes I feel tired or sleepy” and the second one “I have answered this questionnaire the best I could”. Such items have previously been shown to capture invalid responses [7, 9].

We considered answers of “completely disagree” or “disagree” (scores of 1 or 2) to these items as indicative of unreliable questionnaire completion.

The third validity item, “I find it easy to make other people understand what I want to say”, has the exact opposite meaning of one of the SPQ-B item (i.e. “I find it hard to communicate clearly what I want to say to people”). Answers of the same polarity to the two items (i.e. scores of 1 or 2, or scores of 4 or 5) were considered indicative of unreliable responding.

The subjects with one (or more) answers indicative of unreliable answers were classified as unreliable responders.

We extracted 5 items from the Eysenck’s Lie scale [21] to measure social desirability:

- “When I take a decision or make a promise I always keep it, no matter how difficult it would be for me”,
- “I have never taken anything that was not mine, no matter how small that thing was”,
- “I have never blamed someone else when it was actually my fault”,
- “I’ve never said anything bad or unpleasant about someone else”,

- "I have never cheated when playing a game".

Because of the shortness of the SPQ-B, we considered it unsuitable to add the entire Eysenck's Lie scale (21 items). A desirability score was calculated by summing the 5 items. We considered scores in the highest quartile as indicative of a style of response influenced by social desirability (and considered subjects with such scores high social desirability responders).

2.3 Data analysis

Descriptive statistics and mean SPQ score comparisons have been calculated separately for the total sample and for the samples of reliable and unreliable responders and high vs. low/normal social desirability responders.

2.3.1 Factor analysis in total sample:

A principal component analysis (PCA) was performed based on the 22 items in order to explore the factor structure of the SPQ-B.

Testing methods have been applied to determine the extent to which using Kaiser-Meyer-Olkin Measure of Sampling Adequacy (MSA) and Bartlett's Test of Sphericity is useful.

The MSA test is used to measure the degree of correlation between variables and the results are between 0 and 1. For a significant factor analysis, the result must be higher than 0.60.

Bartlett's Test of Sphericity starts from the null hypothesis, H_0 , which is the absence of correlation in the correlation matrix. In order to perform the PCA, this test must have significant results.

The Cattell's scree test was used to determine the number of factors to be kept. This test defines the point of inflection on a plot of eigenvalues.

In order to obtain a clear and easily interpretable factor structure, a PROMAX rotation was used, a procedure in which a varimax rotation is followed by an oblique rotation. The items with a factor saturation equal or greater than 0.40 are considered significant.

To assess internal reliability, we calculated Cronbach's Alpha coefficient for total SPQ-B and for each dimension.

2.3.2 Influence of random or biased responding on schizotypy:

To assess the influence of random responding on schizotypy we compared the mean SPQ scores (total and for each dimension) in reliable vs. unreliable responders and in high vs. normal/low social desirability responders.

2.3.3 Influence of random or biased responding on factor analysis:

When the previous analyses indicated an influence of random or biased responding on SPQ-B we re-run the factor analysis restricting the sample to the 'good responders' (i.e. reliable responders and/or normal/low social desirability responders). Then we compared the results with the factor analysis in the total sample.

All statistical analyses have been performed using SPSS 20 [22].

3. Results

[3.1 Descriptive statistics](#)

580 students completed questionnaires. 479 of them were medical students.

Twenty-one incomplete questionnaires were excluded.

Our sample was constituted of 433 women and 147 men reflecting the gender structure in the medical/ sociology schools. Their mean age was 24.6 ± 4.5 years.

SPQ-B total scores ranged from 23 to 90 points (mean = 55 ± 12.1).

The mean score of social desirability was 15.06 ± 3.28 . First and last quartiles were respectively: 13.00 and 17.00 (Median=15.00 and IQR=4.00).

Seventy-one (12.2%) participants were classified as unreliable responders after taking into account the validity questions.

[3.2 Factor analysis](#)

Bartlett's Test of Sphericity (<0.001) and MSA (0.862) scores indicated that the surveyed population sample and the variables can be well used in factor analysis.

The Cattell's scree test resulted in a 3-factor solution that explained 43.8% of the variance.

Factor 1 (Cognitive-perceptual; 10 items) includes items related to "ideas of reference", "magical thinking", "unusual perceptual experiences" and "suspiciousness".

Factor 2 (Interpersonal; 5 items) includes items related to "social anxiety", "no close friends", and "constricted affect".

Factor 3 (Disorganized; 7 items) includes items related to "odd behavior", "odd speech" and "constricted affect". (Table 1)

Internal consistency measured with Cronbach's Alpha was 0.74 for the cognitive-perceptual (positive) dimension, 0.78 for the interpersonal (negative) dimension, 0.78 for the disorganized dimension and 0.86 for SPQ-B total score.

3.3 Influence of response sets on schizotypal scores

The scores of schizotypy in the total sample, in reliable and unreliable responders are shown in Table 2.

For the positive and negative dimensions (and total score) the differences were significant with unreliable responders showing lower scores than reliable responders.

Table 3 shows the scores in the high social desirability sample compared to the rest of the total sample. Subjects with high social desirability scores had significantly lower scores of disorganized schizotypy than those with normal/low social desirability scores.

When factor analyses were conducted in the samples restricted to the "good" responders, the three-dimensional structure of the SPQ-B was preserved and for a vast majority of items (20 out of 22) the loadings were on the same factors. However, minor differences did exist. Compared to Factor analysis in total sample, item 13 ("I sometimes use words in an unusual way") loaded slightly more on cognitive –perceptual dimension (0.414) than on disorganized

dimension (0.406) and item 1 (“sometimes other people think that I am detached or distant”) cross-loaded on interpersonal and disorganized dimensions in reliable responders.

Similarly, when factor analysis was repeated after the exclusion of high desirability responders, and compared to the analysis in the total sample, Item 1 loaded on interpersonal dimension instead of the disorganized one. In addition, item 13 loaded exclusively on the disorganized dimension. (Detailed results in supplementary material)

4. Discussion

The main objective of our study was to assess the effect of invalid/biased responding on scores and the factor structure of the SPQ-B.

To screen for invalid responding, we used 3 questions inspired by Fervaha and Remington’s study [9] which have already shown to capture invalid responding [7].

In our sample, 12.2% of participants were classified as unreliable responders. Mead and Craig (2012) examined multiple methods for identifying careless responses and also found that 10%-12% of undergraduates were unreliable responders [7]. Our result was lower than percentages observed in other studies [8, 9]. It is possible that this result is due to the shortness of the SPQ-B.

If exclusion of unreliable responders only marginally impacted the Factor analysis of the SPQ-B in our study, invalid responding did influence scores of schizotypy (positive, negative and total score in this case). In agreement with previous studies [9, 23], this result suggests that, in the absence of validity items, the results observed could significantly differ from the “correct” results. This could have important consequences for example for studies in which an association with potential etiological factors is tested.

Furthermore, although we found no significant impact on the factorial structure analysis this could be the result of the low proportion of unreliable responders.

One could expect the identification of unreliable answers to be more critical as their proportion increases.

As recommended by Fervaha and Remington (2013) in their discussion, and to detect subtler biases, we used 5 items of social desirability extracted from the Eysenck's Lie scale [21]. Although we expected to find a (negative) correlation with the interpersonal dimension (with items such as "social anxiety", "no close friends", and "constricted affect") we found an inverse relationship between social desirability and disorganization.

This was somewhat surprising as there are no clear social norms related to disorganization and hence a more socially "desirable" pattern of answers. One explanation could be that people with high schizotypal disorganization would be less able to play a more conforming social role. Another one could be linked to the phrasing of the items. Interestingly, 5 of the 7 items related to the disorganized dimension ask the responder to answer how other people could judge his speech or behavior. So we could suppose that responders that were sensitive to other people opinion would score low on these items. In other words, we could ask if the rephrasing of these items could prevent participants from responding in a socially desirable manner. It is also interesting that after taking into account the effect of social desirability, item 1 ("sometimes other people think that I'm detached or distant") and item 13 ("I sometimes use words in an unusual way") were respectively related to the interpersonal and the disorganized dimensions, as the theory would anticipated.

Our second objective was to explore the factorial structure of the newly translated Romanian version of the Schizotypal Personality Questionnaire-Brief in a Likert format in a non-clinical sample. Factor analysis confirmed the three-factor structure of schizotypy [16, 18, 19] and enriched the cross-cultural validity of the SPQ-B [24].

The SPQ-B in a Likert format demonstrated good internal reliability for both total and subscales scores. This result replicated previous findings [19, 25] and supports the use of a Likert-type

scale format which allows partial endorsement of items and reduces the risk of defensive answers [17].

Our study suffered from many methodological limitations. First, we considered as unreliable all respondents that had one or more invalid responses. Our approach did not differentiate those who were always carelessly responding from those who were momentarily distracted. In addition, we did not distinguish the degree of invalid responding. We could suppose that responding “disagree” to “I have answered this questionnaire the best I could” could be more specific of invalid responding than responding “disagree” to “Sometimes I feel tired or sleepy”. To assess social desirability, we used 5 items extracted from the Eysenck’s Lie scale [21] instead of the entire scale. We chose an arbitrary cut-off to define high and normal/low social desirability scores.

Conclusion

Our study suggests that random responding and social desirability could have significant consequences on psychometric measures.

Unreliable responders could be identified using a simple, easily administered procedure and thus such methods need to be more often employed in research when self-report measures are used. Finally, the effect of social desirability could be limited by the phrasing of items during instrument construction.

Conflict of interest

The authors declare that there is no conflict of interest.

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TABLE 1: SPQ-B FACTOR ANALYSIS IN THE ENTIRE SAMPLE: PROMAX SOLUTION WITH 3 FACTORS

	Factor loadings		
	1 Cognitive- Perceptual	2 Interpersonal	3 Disorganized
17) I often must be vigilant for other people not to take advantage of me	.693	.192	-.157
10) When I go shopping I have the feeling that people notice me	.657	-.014	-.044
7) I feel that I must be vigilant even with my friends	.657	.185	-.136
5) It happens to me that certain objects or ordinary situations have a special significance for me	.609	-.107	.020
9) It often happens to me to see hidden threats or derogatory remarks in what other people say or do	.601	.125	.071
16) Sometimes, I'm suddenly distracted by distant sounds to which usually I don't pay much attention.	.572	-.054	.077
12) It happened to me to have special experiences about astrology, premonition, unidentified flying objects, extrasensory perception, or the sixth sense	.567	-.106	.136
4) I am sometimes convinced that other people are able to guess what I think	.406	-.207	.143
14) I think it's better that people don't know too much about me	.402	.363	-.152
2) I happen to feel an unseen force or presence around me	.342	-.109	.256
15) I tend to stay withdrawn when I am in social situations	-.072	.819	.061
11) I don't feel at all at ease when I am around people I don't know	.000	.818	-.040
21) I don't feel comfortable when I talk to people I don't know well	-.098	.720	.057
18) I have the feeling that I can't be close to people	-.015	.571	.206
22) I tend to keep my feelings to myself	.067	.566	-.070
19) I am a strange or unusual person	-.090	.023	.839
6) Some people believe I am very odd/bizarre	.008	-.051	.813
8) Some people consider my way of speaking vague or not too clear	.050	.118	.575
3) Sometimes other people comment on my behavior particularities or my unusual habits	.291	-.040	.489
20) It's difficult for me to make other people understand what I want to say	-.048	.362	.460
13) I sometimes use words in an unusual way	.405	-.094	.415
1) Sometimes other people think that I am detached or distant	-.027	.324	.400
Eigenvalue	5,8	2,3	1,5
Cumulative variance explained (%)	26,4	36,97	43,76

Extraction Method: Principal Component Analysis. Rotation Method: Promax with Kaiser Normalization.

Item loadings retained for each factor are indicated in bold.

TABLE 2: COMPARISON OF SOCIODEMOGRAPHICS AND SPQ-B SCORES BETWEEN RELIABLE AND UNRELIABLE RESPONDERS

	Total sample (n=580) m (sd) / n (%)	Reliable responders (n=509) m (sd) / n (%)	Unreliable responders (n=71) m (sd) / n (%)	t-test for Equality of Means t (p)
Sociodemographic variables				
Age	24.6 (4.5)	24.6 (4.7)	24.4 (3.3)	
Gender (females)	433 (74.7%)	393 (77.2%)	40 (56.3%)	
SPQ Scores				
SPQ Total	55.0 (12.1)	55.5 (12.0)	51.1 (12.5)	2.88 (0.004)
SPQ Cognitive/Perceptive	25.4 (6.4)	25.7 (6.3)	23.4 (6.4)	2.88 (0.004)
SPQ Interpersonal	13.0 (4.0)	13.1 (4.0)	12.1 (3.6)	2.00 (0.046)
SPQ Disorganized	16.60 (4.9)	16.7 (4.8)	15.6 (5.5)	1.78 (0.076)

m: mean; sd: standard deviation; n: number of females;

TABLE 3: COMPARISON OF SOCIODEMOGRAPHICS AND SPQ-B SCORES BETWEEN HIGH AND LOW SOCIAL DESIRABILITY RESPONDERS

	Low social desirability scores (Three first quartiles) m (sd) / n (%)	High social desirability scores (Last quartile) m (sd) / n (%)	t-test for Equality of Means t (p)
Sociodemographic variables			
Age	24.6 (4.5)	24.7 (4.8)	
Gender (females)	329 (73.27%)	104 (79.39%)	
SPQ Scores			
SPQ Total	55.00 (11.50)	54.79 (14.03)	0.18 (0.86)
SPQ Cognitive/Perceptive	25.22 (6.13)	25.95 (7.17)	-1.19 (0.24)
SPQ Interpersonal	12.98 (3.81)	13.02 (4.41)	- 0.11 (0.92)
SPQ Disorganized	16.80 (4.64)	15.81 (5.51)	2.12 (0.034)

m: mean; sd: standard deviation; n: number;

TABLE 4: SPQ-B FACTOR ANALYSIS IN RELIABLE RESPONDERS: PROMAX SOLUTION WITH 3 FACTORS

	Factor loadings		
	1 Cognitive- Perceptual	2 Interpersona 1	3 Disorganized
17) I often must be vigilant for other people not to take advantage of me	.719	.174	-.180
10) When I go shopping I have the feeling that people notice me	.653	.020	-.054
7) I feel that I must be vigilant even with my friends	.648	.168	-.116
16) Sometimes, I'm suddenly distracted by distant sounds to which usually I don't pay much attention	.617	-.055	.066
5) It happens to me that certain objects or ordinary situations have a special significance for me	.578	-.133	.071
9) It often happens to me to see hidden threats or derogatory remarks in what other people say or do	.577	.122	.109
12) It happened to me to have special experiences about astrology, premonition, unidentified flying objects, extrasensory perception, or the sixth sense	.539	-.090	.136
14) I think it's better that people don't know too much about me	.442	.353	-.165
13) I sometimes use words in an unusual way	.414	-.105	.406
2) I happen to feel an unseen force or presence around me	.368	-.111	.218
4) I am sometimes convinced that other people are able to guess what I think	.307	-.246	.262
11) I don't feel at all at ease when I am around people I don't know	.006	.809	-.033
15) I tend to stay withdrawn when I am in social situations	-.020	.802	.066
21) I don't feel comfortable when I talk to people I don't know well	-.093	.677	.119
22) I tend to keep my feelings to myself	.062	.596	-.113
18) I have the feeling that I can't be close to people	.034	.595	.162
19) I am a strange or unusual person	-.071	.041	.809
6) Some people believe I am very odd/bizarre	.054	-.030	.771
8) Some people consider my way of speaking vague or not too clear	-.015	.131	.628
20) It's difficult for me to make other people understand what I want to say	-.124	.378	.506
3) Sometimes other people comment on my behavior particularities or my unusual habits	.291	-.042	.471
1) Sometimes other people think that I am detached or distant	.001	.335	.344
Eigenvalue	5,74	2,31	1,52
Cumulative variance explained (%)	26,1	36,64	43,58

Extraction Method: Principal Component Analysis. Rotation Method: Promax with Kaiser Normalization.

Item loadings retained for each factor are indicated in bold.

TABLE 5: SPQ-B FACTOR ANALYSIS IN LOW SOCIAL DESIRABILITY RESPONDERS: PROMAX SOLUTION WITH 3 FACTORS

	Factor loadings		
	1 Cognitive- Perceptual	2 Interpersonal	3 Disorganized
17) I often must be vigilant for other people not to take advantage of me	.728	.144	-.132
10) When I go shopping I have the feeling that people notice me	.703	-.014	-.145
9) It often happens to me to see hidden threats or derogatory remarks in what other people say or do	.630	.087	.052
7) I feel that I must be vigilant even with my friends	.623	.132	-.071
5) It happens to me that certain objects or ordinary situations have a special significance for me	.592	-.134	.023
16) Sometimes, I'm suddenly distracted by distant sounds to which usually I don't pay much attention.	.506	-.029	.133
12) It happened to me to have special experiences about astrology, premonition, unidentified flying objects, extrasensory perception, or the sixth sense	.491	-.135	.167
14) I think it's better that people don't know too much about me	.466	.296	-.148
4) I am sometimes convinced that other people are able to guess what I think	.364	-.168	.193
2) I happen to feel an unseen force or presence around me	.330	-.050	.203
15) I tend to stay withdrawn when I am in social situations	-.041	.827	-.005
11) I don't feel at all at ease when I am around people I don't know	-.008	.805	-.017
21) I don't feel comfortable when I talk to people I don't know well	-.108	.733	.050
22) I tend to keep my feelings to myself	.068	.594	-.110
18) I have the feeling that I can't be close to people	.036	.546	.185
1) Sometimes other people think that I am detached or distant	.050	.374	.237
19) I am a strange or unusual person	-.112	.022	.853
6) Some people believe I am very odd/bizarre	-.012	-.040	.797
8) Some people consider my way of speaking vague or not too clear	.043	.164	.569
20) It's difficult for me to make other people understand what I want to say	-.050	.358	.481
3) Sometimes other people comment on my behavior particularities or my unusual habits	.339	-.054	.444
13) I sometimes use words in an unusual way	.368	-.100	.413
Eigenvalue	5.57	2.37	1.4
Cumulative variance explained (%)	25.32	36.14	42.53

Extraction Method: Principal Component Analysis. Rotation Method: Promax with Kaiser Normalization.

Item loadings retained for each factor are indicated in bold.

