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The Polish adaptation of the Public Speaking Anxiety Questionnaire

Jan Chodkiewicz, Joanna Miniszewska

Department of Health Psychology, Institute of Psychology, University of Lodz
Head: prof. dr hab. N. Ogińska-Bulik

Summary

Objectives. The aim of the study was the Polish adaptation of the shortened Public Speaking Anxiety Questionnaire GFER by Spitznagel and co-workers.

Methods. GFER is a self-assessment method which consists of 16 statements and is designed to assess emotions, physiological reactions, and thoughts that appear in a situation of public speaking. GFER was used to examine 320 students from Lodz's universities. The State/Trait Anxiety Inventory – STAI by Spielberger, The Hospital Anxiety and Depression Scale by Zigmunt and Snaith and TCI by Cloninger were also used.

Results. The Polish version of GFER is a reliable and valid tool. The factor structure is similar to the original structure. As a result of the conducted analyses, there was obtained the 9-item version of the tool, which has a 2-factor structure – factor I: emotional and physiological reactions, factor II: worrying. The results obtained with GFER present a statistically significant correlation with other measures of anxiety and with the dimension of temperament: harm avoidance.

Conclusions. The obtained results indicate that GFER may be used in both scientific research and therapeutic practice.

Key words: public speaking anxiety, validation, GFER – Polish version

Introduction

Feeling discomfort, nervousness, and stage fright in situations of public speaking applies, to a smaller or greater extent, to almost every person. The universal character of public speaking anxiety is confirmed in numerous reports: in a national research in the USA this anxiety was indicated to be felt most frequently, it was found to apply to 20-30% of healthy people (women twice more often than men) and almost 50% of students [1, 2, 3]. In their monograph devoted to social phobia, Leary and Kowalski [4] present data which show that despite their numerous experiences with public performances, over 20% of artists who work in an opera or a concert hall feel constantly

a high level of anxiety related to these situations. Similar anxieties are experienced by sportspersons before, in the course of, and after competitions, although – as proved by Hall and Kerr – in this case an important role is played also by their sense of competence [5].

According to Rossi and Seiler [6], public speaking anxiety is linked with many other types of anxiety – anxiety related to physical unattractiveness, social unsuitability, rejection by authorities, anxiety of unknown situations, of feeling strong and unpleasant emotions, and anticipation anxiety. This type of anxiety is sometimes referred to as a subtype of social phobia, which shows quantitative and qualitative differences from other subtypes, and thus may present, as social phobia does, some relations with personality disorders, depression, general anxiety syndrome, psychoactive substances overuse, addictions, and eating disorders [7–10]. However, it is also often the case that this anxiety does not co-occur with other disorders and does not take such a form that would allow for classifying it as a serious psychic disorder [3, 11]. Yet, even in such form, this anxiety exerts a negative influence upon life quality, choices and decisions of many people, especially in the present times, when there is a marked tendency to expose and promote oneself, one's ideas, good points, views, and achievements in public.

The theory of learning and cognitive-behavioural theories are cited most often in searching for genesis of public speaking anxiety. According to the latter approach, it is claimed that persons suffering from this type of anxiety have some specific and negative beliefs concerning themselves and their surrounding, which result in their greater criticism in the evaluation of their own behaviour and constant comparisons of themselves with other people [3, 7, 12]. Whereas Barlow [13] suggests an integrative approach to anxiety in which three types of vulnerability are included: biological (heritable) vulnerability, psychological vulnerability – related to childhood experiences of the sense of control over events, and vulnerability that results from having learnt to react to some specific situations with anxiety.

Many measurement tools are used in studies on public speaking anxiety. One of the most popular ones is Liebowitz Social Anxiety Scale (LSAS) [14], which allows for assessing varied social situations (including public speaking and public activity) that lead to fear and/or avoidance in persons with social phobia. The questionnaire comprises 24 test items. Each of them presents a situation and levels of fear and avoidance, which are assessed by an examinee on a three-level scale (fear: no fear – strong fear; avoidance: never – always). The obtained scores render it possible to distinguish between the isolated and general subtypes of social phobia [15]. The scale is also applied to assess effectiveness of different ways of treatment, including medicines that are used in social phobia treatment [16]. The method has good psychometric characteristics and it was used in studies on social phobia that have been conducted in our country [17].

While the LSAS is used to examine people with varied types of social phobia, some other methods are designed to examine public speaking anxiety only. One of them is the Personal Report of Communication Apprehension – PRCA [18]. The method includes 10 test items and it is designed to measure real and anticipated anxiety related

to a situation of public speaking. Answers are given at a 5-level Likert scale (1 – I fully agree, 5 – I fully disagree). A subject is asked about the extent to which he or she agrees with statements like: "I am afraid to say a word during a conversation", "I always avoid public speaking", "I am afraid of expressing my views in a group". A detailed analysis of the test items indicates that the scale includes a large spectrum of situations that pertain to social relations, not only to public speaking. Another disadvantage is that the authors do not give some important data on psychometric values [19].

Discovering the role of cognitive processes in the emergence and maintaining public speaking anxiety has led to focusing attention to beliefs of patients who suffer from this disorder [20, 21]. These can be found using two relatively new tools: Self-Statements During Public Speaking – SSPS [19] and Speech Anxiety Thoughts Inventory – SATI [22]. The first method contains 10 statements – 5 positive and 5 negative ones – that serve to assess anxiety thoughts which appear during public speaking. The subjects answer using a 6-level scale. The statements include for example the following: "I'm a loser", "What I say will probably sound stupid", "Instead of worrying I could concentrate on what I want to say", "What do I have to lose? It's worth a try" [19]. The second method consists of 23 items that serve to assess wrong beliefs related to speaking anxiety. The subjects give their answers using a 5-level scale and refer them to a situation of public presentation which is typical for them. The statements include for example the following: "My speech won't impress the audience", "I won't be able to speak as well as others", "If I make a mistake, the audience will think I'm stupid", "My mind will go blank", "I won't be able to answer any questions from the audience" [22].

An attempt at making a broader conceptualisation and operationalisation of the discussed issues has been made by Spitznagel et al. [23]. On the basis of a concept by Liebert and Morris [24], who distinguished cognitive and emotional aspects of the examination anxiety, these authors define public speaking anxiety as: "learned, temporary or chronic fear, combined with emotional and physiological reactions, that appear in a situation of imagined or real activities such as making a speech, declaiming, reciting, singing, playing, in the presence of an imagined or real audience" [23].These anxieties make functioning and well-being of an individual significantly lower [23].

In order to measure anxiety that was conceptualised in this way, the Public Speaking Anxiety Questionnaire (Giessener Fragebogen zur Erfassung von Redehemmungen – GFER) was made. Two versions of the questionnaire were prepared – an extended version and a shortened one. The shortened version examines intensity of cognitive (thoughts about poor performance that are flashing through one's mind), emotional, and physiological components of anxiety that appears in a situation of performing in front of a smaller or larger audience. The extended version encompasses also feelings before and after performance.

The study aimed at elaborating Polish adaptation of the GFER Questionnaire in its shortened version. The procedure has been found useful due to the fact that up till now none of the specific methods of public speaking anxiety measurement has been adapted in Poland. It has been also decided that if the Polish adaptation of the method

has satisfactory psychometric characteristics, an attempt at adapting its extended version will be taken later.

Material and method

320 students of the 5th year of the following faculties: medicine (n = 90; 53 women and 37 men), law (n = 132; 72 women and 60 men), and psychology (n = 95; 80 women and 15 men) were examined. The mean age of all the participants was 23.7 (SD = 1.9). There was no statistically significant difference between age of students of medicine, law, and psychology.

The adapted method, i.e. the Public Speaking Anxiety Questionnaire GFER by Spitznagel et al. was used in the research [23]. The original questionnaire consists of 16 test items, and answers are given using a 4-level scale: 1 – I fully disagree, 2 – I rather disagree, 3 – I rather agree, and 4-I fully agree. A subject is asked about his/her usual feelings and thoughts in public speaking situations (a speech, a lecture, a report in front of a group of people). The higher score, the higher anxiety level. The original version has very good psychometric characteristics. The reliability coefficient Cronbach's alpha is 0.92; two factors ("emotional and physiological reactions" and "worrying") that explain together over 60% of variance were distinguished in factor analysis. The first factor includes the following statements: 1, 3 (reversed item), 5, 7, 9, 12, 13, 15. The second factor comprises the following items: 2, 4, 6, 8, 10, 11, 14, 16. The correlation coefficient for the two factors was 0.72 ($p < 0.001$). There is a strong positive correlation between the scale and neuroticism as measured with NEO-FFI, and a negative correlation with extraversion. German studies in a group of 358 persons indicated that the level of public speaking anxiety was significantly higher in women as compared to men [23].

Moreover, the following methods were used:

- The State/Trait Anxiety Inventory – STAI by Spielberger, in the adaptation by Wrześniewski et al. [25];
- The Hospital Anxiety and Depression Scale – HADS by Zigmunt and Snaith, in the adaptation by Majkowicz et al. [26];
- The Temperament and Character Inventory – TCI by Cloninger, in the Polish adaptation by Hornowska [27]. Only the scale measuring one temperament dimension: harm avoidance was used in the current study.

All the applied methods have good psychometric properties [25, 26, 27].

Results

At the first stage, after having received the authors' consent for adapting the method, two translators (including a psychologist who is simultaneously a German philologist) made their translations from German to Polish. Next, two other translators (one of them being a sworn translator) made their back-translations. After comparing the obtained versions, the final version was defined.

Calculations were started with finding the basic data regarding distribution of the results. The mean score obtained in the questionnaire was 38.42 (SD = 9.06). The indicators of skewness and kurtosis were -0.14 and -0.61, respectively; the values are satisfying, they do not exceed the level of 1. The result obtained using Kolmogorow-Smirnow test d = 0.07, p > 0.20 indicated the distribution close to the normal one. The examined women received the general score significantly higher as compared with men (M = 40.52, SD = 8.51 for women and M = 35.43, SD = 10.21 for men; t = 2.57; p < 0.01). A similar result was obtained in the German study [23].

The next step consisted in the analysis of the discriminant power of all the questionnaire items. The results are presented in table 1. The discriminant power of the analysed items is satisfactory: correlation between the statements and the total score ranged from 0.41 for item 10 (p < 0.01) to 0.75 for item 5 (p < 0.01).

Table 1. **The discriminant power of the GFER Questionnaire items**

1. Item number	Discriminant power coefficients
2. I feel insecure	0.69
3. I expect negative consequences	0.64
4. I'm calm and relaxed	0.69
5. I'm afraid of making a fool of myself	0.55
6. I feel anxious	0.75
7. I'm afraid of critical reactions from audience	0.63
8. I'm in panic	0.71
9. I'm tired with thoughts that people see my uncertainty	0.63
10. I feel my heart beating	0.54
11. I feel doubts whether the audience understands what I want to say	0.41
12. I feel that nobody sympathises with me	0.42
13. I'm nervous	0.69
14. I feel bad	0.71
15. I feel I'm not equal to the task	0.65
16. My nerves are clearly tense	0.72
17. I have thoughts flashing through my mind that someone could leave the room where I'm speaking	0.46

In order to define validity and to verify the internal structure of the scale, there were used both exploratory factor analysis (scree plot, principal components method, Oblimin rotation with Kaiser normalisation) and confirmatory analysis. The use of Oblimin rotation in the exploratory factor analysis was caused by the adopted assumption – similar to that in the original version – of non-orthogonal character of the factors. To make indispensable calculations, the data from the whole sample (n = 320) were divided randomly to two equal subsets (n = 160). In the first sub-

set there was made the exploratory analysis, in the second one – the confirmatory analysis.

At the beginning of the factor analysis, it was checked whether the obtained data fulfilled its necessary assumptions. The KMO coefficient was 0.89, and the Bartlett's test of sphericity was 948.55, $p < 0.001$, so the obtained statistics were fully satisfactory.

The exploratory factor analysis led, as it was in the German version, to distinguishing two factors, which explained 56% of the results' variance (61% in the original version). Although the scree plot suggested that there could exist the third factor, and its own value was more than 1 (1.04), yet it did not explain the suggested by statisticians minimum value of 5% of variance [28]. The results of the exploratory factor analysis with use of Oblimin rotation are presented in table 2.

Table 2. **Exploratory factor analysis with Oblimin rotation**

Item number	Factor loadings	
	1	2
1. I feel insecure	0.82	0.40
2. I expect negative consequences	0.43	0.76
3. I'm calm and relaxed	0.81	0.39
4. I'm afraid of making a fool of myself	0.44	0.59
5. I feel anxious	0.88	0.47
6. I'm afraid of critical reactions from audience	0.55	0.57
7. I'm in panic	0.59	0.50
8. I'm tired with thoughts that people see my uncertainty	0.59	0.51
9. I feel my heart beating	0.72	0.28
10. I feel doubts whether audience understands what I want to say	0.36	0.39
11. I feel that nobody sympathises with me	0.19	0.63
12. I'm nervous	0.82	0.35
13. I feel bad	0.58	0.53
14. I feel I'm not equal to the task	0.54	0.59
15. My nerves are clearly tense	0.79	0.49
16. I have thoughts flashing through my mind that someone could leave the room where I'm speaking	0.24	0.73

As it is indicated in the table, the two distinguished factors correspond to the factors from the original version, i.e. the first factor (emotional and physiological reactions) includes items: 1, 3 (reversed item), 5, 7, 9, 12, 13, 15, and the second factor (worrying) contains the remaining items. At the same time, the analysis of the data presented in the table shows that a few statements has significant (over 0.5) loadings in both the factors. This applies to the following items: 6, 7, 8, 13, 14. Whereas fac-

tor loadings for the statement number 10 are low (below 0.4). The additionally used Promax rotation indicated the identical order of items in the factors.

In order to check whether the two-factor structure is well fit to the data, the confirmatory analysis was conducted. The model in which it was assumed that there exist two correlated factors obtained with the use of exploratory factor analysis with Oblimin rotation, appeared an unsatisfactory fit to the data – the method of estimation of the generalised smallest GLS squares, the method of searching the line – golden division, consistency in 8 interactions, the goodness of fit index: $Chi^2 = 339.45$, df: 104, $p < 0.0001$; RMSEA: 0.16; McDonald's non-centrality index: 0.50; GFI=0.79; AGFI=0.73.

As the obtained goodness of fit indices were unsatisfactory, it was decided to remove the test items with factor loadings below 0.60 (in exploratory analysis) and to examine goodness of fit of such a model. After this operation there remained 6 items in factor 1 (1, 3, 5, 9, 12, 15) and only 3 items in factor 2 (2, 11, 16). The model turned out well fit to the data: the method of estimation of the generalised smallest GLS squares, the method of searching the line – golden division, consistency in 14 interactions, the goodness of fit index: $Chi^2 = 24.93$, df: 14, $p = 0.03$; RMSEA: 0.04; McDonald's non-centrality index: 0.98; GFI=0.98; AGFI=0.96.

Next, it was decided to examine one-factor model. This model appeared to be an unsatisfactory fit to the data: the method of estimation of the generalised smallest GLS squares, the method of searching the line – golden division, consistency in 6 interactions, the goodness of fit index: $Chi^2 = 501.93$, df: 104, $p < 0.0001$; RMSEA: 0.15; McDonald's non-centrality index: 0.32; GFI=0.75; AGFI=0.67. Unsatisfactory goodness of fit indices were obtained also after removing items with factor loadings below 0.60. Thus, the performed analyses speak for the two-factor model with the number of items lower than in the original version. The Cronbach's alpha coefficient for the whole scale comprising 9 items was 0.86, for the first factor 0.90, and for the second factor 0.71, which indicates a satisfactory coherence of the method.

In order to define the time stability coefficient of the tool, 55 students of psychology were examined twice, with the interval of 3 weeks. The obtained coefficient $r_{tt} = 0.83$, $p < 0.01$ indicates that time stability of the tool is fully satisfying (coefficients for the two factors - $r_{tt=} = 0.85$, $p < 0.01$ for factor I and $r_{tt=} = 0.75$, $p < 0.01$ for factor II).

The convergent validity of the GFER Questionnaire was assessed with an analysis of relations between its scores and the results obtained with some other tools that measure the level of anxiety (STAI, HAD). These tools were chosen according to the suggestion contained in literature that there are relations between public speaking anxiety and general anxiety [6–10]. Correlation coefficients between GFER scores and the temperament dimension distinguished by R. Cloninger in the psychobiological theory of personality, namely harm avoidance, on which persons who are anxious, shy, and reserved in social situations, obtain high scores, were also computed [27]. The scale of harm avoidance consists of four subdimensions: pessimism, anxiety of uncertainty, social phobia, and fatigability/asthenia. The results obtained for the general public speaking anxiety and the distinguished factors, are presented in table 3. The calculations

were made after reduction of the scale items that resulted from confirmatory analysis (both general score and factors).

Table 3. **Correlation coefficients between the Polish version of the GFER and STAI, HAD, and TCI (the dimension of harm avoidance and subdimensions)**

	STAI-S	STAI-T	HAD-A	HA-total score	HA1	HA2	HA3	HA4
GFER-total score	0.22*	0.48**	0.40**	0.54**	0.44**	0.54**	0.43**	0.38**
factor I	0.20*	0.46**	0.27*	0.51**	0.46**	0.53**	0.42**	0.28*
factor II	0.19*	0.26*	0.18*	0.46**	0.28*	0.22*	0.35**	0.39**

*p<0.05; **p<0.01

Legend: GFER – total score, factor I – emotional and physiological reactions, factor II – worrying, STAI-S –anxiety state, STAI-T – anxiety trait, HAD-A – anxiety, HA – harm avoidance – total score, HA1 – pessimism, HA2 - fear of uncertainty, HA3 – social phobia, HA4 – fatigability/ asthenia

As it is shown in table 3, the GFER Questionnaire and the distinguished factors display statistically significant relations with all the analysed variables of the level of anxiety and the temperament dimension of harm avoidance (total score and all subdimensions). The strongest relations were observed for the level of anxiety as a trait, measured with STAI, and the total score on harm avoidance and its subdimension – anxiety of uncertainty. Most results point to a moderate strength of correlations between the analysed variables, and few of them are weak. Thus, the received result proves satisfactory validity of the tool.

Recapitulation

The presented studies aimed at assessing psychometric characteristics of the Polish version of the GFER Questionnaire by Spitznagel et al. [23]. The conducted analyses indicate that the tool has satisfactory psychometric properties, it is reliable and valid. It displays statistically significant relations with the level of anxiety as a state and as a trait, and with the temperament dimension of harm avoidance. At the same time, it should be mentioned that as a result of the applied statistical analyses, there was obtained a shortened version of the questionnaire (a few items less), which makes it impossible to use the tool in intercultural studies. It is worth noticing that in the process of creating the method, its authors did not use confirmatory analysis, but only the exploratory one [23].

In case of any type of social phobia a person who suffers from it feels unpleasant emotions (nervousness, stage fright, suffering, anxiety) in situations of exposition, and also expects an unfavourable evaluation from audience [21, 29, 30]. The Polish version of the GFER Questionnaire by Spitznagel and et al., similarly to the original version, allows for examining both the components of public speaking anxiety – emotional/physiological reactions and worrying. Thus, it may be applied both to further empirical studies on public speaking anxiety determinants and on coping with this anxiety, as well as to analyses of the process of psychotherapy and its results.

A limitation to the presented research consists in lack of comparison between scores on the GFER Questionnaire and results from other – discussed in the introduction to this article - methods of measurement of public speaking anxiety, which has been caused by lack of Polish adaptation of the methods. In further analyses it is necessary to examine dependencies between the level of public speaking anxiety and personality traits as measured in NEO-FFI and to compare, with use of GFER, groups of persons with varied levels of exposition to public performance situations (e.g. students, actors, musicians, sportspersons). It would be also interesting to get to know relations between locus of control and anxiety level, and thus to examine the Barlow's concept in which lack of the sense of control over events is one of the sources of anxiety [13].

To sum up, it may be stated that the obtained tool has satisfactory psychometric properties, yet its usefulness for scientific and practical aims should be still verified. Only then it will be justified to adapt the extended version of the questionnaire, which is based on analogical items that are additionally referred to varied time perspectives that relate to situations before, in the course of, and after performance.

Conclusions

1. The Polish version of the GFER Questionnaire has good psychometric characteristics – it is a reliable and valid tool.
2. As a result of the conducted analyses, there was obtained the 9-item version of the tool, which has a 2-factor structure – factor I: emotional and physiological reactions, factor II: worrying.
3. The outcome of the works on adaptation of the GFER Questionnaire speaks for recommending the method for further scientific researches and for usage in therapeutic practice.

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Address: Jan Chodkiewicz
Department of Health Psychology
Institute of Psychology, University of Lodz
91-433 Łódź, Smugowa Street 10/12