

Original Papers

Polish Psychological Bulletin
2019, vol. 50(3) 259–269
DOI - 10.24425/ppb.2019.130699

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Generic Conspiracist Beliefs Scale – Polish adaptation of the method

Abstract: This paper presents the results of a study on the Polish version of the Generic Conspiracist Beliefs Scale (GCBS), which was designed to measure individual differences in conspiracist thinking (Brotherton, French, & Pickering; 2013). The Polish version of the scale had excellent internal consistency as measured by Cronbach alpha: .93. The Polish version also had excellent test-retest stability. To check the validity of the questionnaire, various tools were used to measure the characteristics that can be correlated with conspiracist thinking. As a result, it was found that conspiracist thinking is positively correlated with the external locus of control, the results obtained in the Scale of Belief in Zero-Sum Game and the results of the MMPI-2 Paranoia scale. It was also found that patients with paranoid personality disorder and paranoid schizophrenia had higher results on the adapted scale than healthy subjects. In sum, the Polish version of GCBS had satisfactory psychometric properties, which makes it useful for measuring conspiracist thinking.

Keywords: psychometric adaptation, CONSPIRACIST BELIEFS SCALE

Introduction

Conspiratorial beliefs seem to be more and more widespread across the globe. Surveys conducted in 2006 and 2011 showed that more than half of the population of US citizens believe in at least one conspiracy theory (Oliver & Wood, 2014). While belief in conspiracy theories is often seen as harmless, some beliefs have a bad impact on society (Douglas & Leite, 2017). The manipulation of facts about global warming or the harmful effects of vaccination may be examples (Jolley & Douglas, 2017; Wood, Douglas, & Sutton, 2012). Fear of negative effects of vaccination is an important factor influencing the incidence of infectious diseases among schoolchildren (Salmon et al., 2005), while theories on the origin and spread of HIV affect attitudes towards therapeutic and preventive programmes (Bogart & Thorburn, 2005). Also, conspiracist thinking makes people more likely to choose alternative therapies than biomedical ones (Lamberty & Imhoff, 2018).

With all such potentially dangerous consequences of conspiratorial beliefs it is important that psychology conducts adequate research on them. To facilitate such research, appropriate tools are necessary. In this paper a tool of this kind is analyzed; more specifically, research

on the Polish adaptation of the Generic Conspiracist Beliefs Scale (GCBS; Brotherton, French, & Pickering, 2013) is presented. To our knowledge, there is no standardized tool available for measuring conspiracist beliefs available for Polish psychologists, neither an adaptation nor an original one. The adaptation of GCBS may help to fill this gap, as certainly Polish society is not free from conspiratorial beliefs, to say the least (see for example: Bilewicz & Stefaniak, 2012; Czech, 2016; Kořta & Soral, 2018; Marchlewska, Łozowski, & Cichoćka, 2019).

Believing in conspiracy theories, or conspiracist thinking, can be defined as a belief that observed events are a deliberate action of a certain conspiratorial group when there are other, much more likely, explanations (Aaronovitch, 2009; Van der Wal, Sutton, Lange, & Braga, 2018). Moreover, at the origin of conspiracist thinking there is a projection mechanism, according to which people more often believe in conspiracy theories if they themselves would be willing to participate in a given conspiracy (Douglas & Sutton, 2011).

People who believe in conspiracy theories are commonly attributed low intelligence or low tolerance for ambivalence and complexity of problems, while at the same time indicating a preference for simplified explanations

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for complex problems (Swami, Voracek, Stieger, Tran, & Furnham, 2014). However, research results contradict this association (Abalakina-Paap, Stephan, Craig, & Gregory, 1999). Believing in conspiracy theories is also linked to the fear of social exclusion (Graeupner & Coman, 2017; Lantian et al., 2018). However, many researchers simply assume (Abalakina-Paap et al., 1999; Bruder, Haffke, Neave, Nouripanah, & Imhoff, 2013; Galliford & Furnham, 2017; Goertzel, 1994; Imhoff, & Bruder, 2014) that some people may have a general tendency to accept conspiracy theories.

Measuring the Tendency to Believe in Conspiracy Theories

Pipes (1998) divided conspiracies into two categories: global and marginal ones. Global conspiracies are those that extend beyond the borders of individual countries and communities and are passed down from generation to generation. One of the most common topics of world-wide conspiracies are Jews and secret societies (Pipes, 1998), and they mainly concern plans to take control of the world. Marginal conspiracies, in turn, are those that arise in various communities. They are not as harmful as global conspiracies and are limited to local communities or individual countries (Pipes, 1998).

Similarly, Moskovici (1987) distinguished between beliefs in particular conspiracy theories and a general tendency to conspiracist thinking. This also pointed to the need to find a tool to assess the tendency to conspiracist thinking without referring to specific events, which are the basis for popular and more widely known conspiracy theories. The lack of references to individual events, and thus to a specific cultural context, makes it possible to use such a tool in a wider demographic range. This makes it possible to include people from different cultural backgrounds or generations in the research. In line with this, GCBS (Brotherton et al., 2013) and the Conspiracy Mentality Questionnaire (Bruder et al., 2013) were designed to assess the degree of conspiracist thinking and belief in conspiracy theories without referring to single, well-known conspiracy theories.

In this paper one tool for measuring the tendency to believe in conspiracy theories will be presented, namely, the Generic Conspiracist Beliefs Scale (GCBS; Brotherton et al., 2013). The aim of the presented research is to assess the psychometric properties of its Polish version.

Original Version of the Generic Conspiracist Beliefs Scale

The aim of the GCBS (Brotherton et al., 2013) was to study the generalized tendencies to believe in conspiracy theories without referring to a specific theory, which would allow research at any historical moment and to eliminate the effect of cultural differences. Most of the tools used so far have tested the intensity of belief in conspiracy theories in relation to a particular conspiracy and, consequently, had a large number of limitations in their use (Abalakina-Paap et al., 1999; Goertzel, 1994; Swami et al., 2013). According to the authors of the original

version of the GCBS, the limitations of tools to measure the degree of belief in conspiracy theories concern in particular cultural differences; in one country a given conspiracy theory may even be completely unknown to the public, which reduces the utility value of a given tool. Another limitation in the use of tools assuming measurement based on specific conspiracy theories seems to be a need for their constant updating, as other conspiracy theories become more popular and accessible to a wider audience over time (Brotherton et al., 2013).

Originally Brotherton et al. (2013) developed a 75-item scale, on the basis of a review of scientific literature and popular literature concerning many existing conspiracy theories. The format of the answers assumed that the subjects ($N = 489$) would respond on a five-point Likert-like scale (1: *I strongly disagree*; 2: *probably not true*; 3: *I am not sure / cannot decide*; 4: *probably true*; 5: *definitely true*). Next, the authors carried out an exploratory factor analysis on this version of the scale. This allowed conspiracy theories to be divided into five general categories, such as: hiding contacts with extraterrestrial civilizations, activities detrimental to population health, information control, secret control groups and criminal activities of governmental organizations (Galliford & Furnham, 2017; Goertzel, 1994; Wood et al., 2012). On the basis of this long version, the authors eventually constructed a 15-item GCBS, which, while retaining all the advantages of the extended version, gained one more positive feature – it became more concise and easier to use. In subsequent studies, the authors checked the reliability and criterion validity on a sample of British university students ($N = 235$). The reliability analysis showed that the Cronbach alpha for the total score was very high ($\alpha = .93$). The test-retest stability of the tool was tested on a sample of students ($N = 42$) at a five-week time interval. The correlation obtained by the authors was positive and strong ($r = .89$), which proved very good absolute stability of the tool. The criterion validity was confirmed by high positive correlations of the results obtained using GCBS with the results gained with other tools aimed at measuring conspiracist thinking. The results obtained by the authors of the original tool allow us to conclude that the level of criterion validity is satisfactory.

Based on a series of factor analyses, Brotherton et al. (2013) identified the same five factors in the short version of the GCBS as in the long one: Government malfeasance (allegations of routine criminal conspiracy within governments), Malevolent global conspiracies (allegations that small, secret groups exert total control over global events), Extraterrestrial cover-up (deception of the public about the existence of aliens), Personal well-being (conspiracist concerns over personal health and liberty such as the spread of diseases or the use of mind-control technology), and Control of information (unethical control and suppression of information by organizations including the government, the media, scientists, and corporations). Computing a general score is also possible and recommended by Brotherton et al. (2013).

In their research, the authors also analyzed the theoretical validity of the results by correlating the results obtained with GCBS and other psychological tools that measure the features that may be related to the degree of belief in conspiracy theories among the examined persons. A 3-item tool, previously used by Goertzl (1994) in conspiracy-thinking research, was used to measure trust. The authors expected a negative correlation between trust and conspiracist thinking, which was demonstrated in the studies ($r = -.34$). Another correlate of conspiracist thinking used by the authors was anomie, which was measured using a 3-item scale also used in earlier Goertzl (1994) studies. In this case, a positive correlation between anomie and conspiracist thinking was expected, which was also confirmed by the authors of the original version of the tool ($r = .42$). To measure the correlation between conspiracist thinking and personality traits, a 50-item IPIP (*International Personality Item Pool*) questionnaire (Goldberg, 1999) was used to measure personality from the Big Five perspective. The correlation obtained by the authors of the original GCBS version with IPIP showed only a weak negative correlation with agreeableness ($r = -.16$). All the above results allow us to conclude that the tool by Brotherton et al. (2013) is valid and reliable, and therefore can be effectively used to measure the degree of conspiracist thinking.

Planned Analyses

In the present research, following analyses will be presented, concerning the Polish version of the GCBS. After descriptive results, the five-factor structure suggested by Brotherton et al. (2013) will be analyzed by means of a confirmatory factor analysis. Next, results concerning the internal consistency and test-retest stability will be presented. Three kinds of analyses concerning validity will follow.

The first analysis, most closely resembling criterion validity, consisted in correlating the results from the GCBS scale with the paranoia subscale from the MMPI-2 Inventory (Butcher, Graham, Ben-Porath, Tellegen, & Dahlstrom, 1989), which measures psychotic behavior and irrational thinking. A study conducted by Grzesiak-Feldman & Ejsmont (2008) showed a positive relationship between paranoia and conspiracist thinking. These results are consistent with expectations based on Groh's (1987) thesis that conspiracist thinking is linked to a paranoid perception of social reality and intergroup relations. While adapting the tool, it was also expected to achieve positive correlation between conspiracist thinking and paranoia.

Second, correlations of results on the GCBS scale with some measures believed to be related with conspiracist beliefs were calculated. Namely, it was expected that conspiracist beliefs should be positively related to openness to experience, as they seem to be an extreme form of openness. Such results were already mentioned in the literature: Swami, Chamorro-Premuzic, and Furnham (2010) showed a positive relationship between conspiracist thinking and openness to experience. Conspiracist thinking also correlated negatively with agreeableness

(Goreis & Voracek, 2019), an effect probably due to suspicion and hostility observed among persons with high belief in conspiracy theories. Similar results were hence expected in these studies. Next, based on previous reports (Abalakina-Paap et al., 1999), negative correlation between self-esteem and conspiracist thinking was expected. Such relationship seems probable because belief in conspiracy theories allows people with low self-esteem to blame others for their possible failures (Abalakina-Paap et al., 1999). Also, the sense of lack of control (external locus of control) should increase the acceptance of conspiracy theories as a compensatory mechanism for the need of cognitive order in the environment (Hamsher, Geller, & Rotter, 1968). Finally, a positive correlation between the results obtained on the Scale of Belief in Zero-Sum Game and conspiracist thinking was expected, as – based on the results obtained in previous studies (Goertzl, 1994) – the level of anomie is positively correlated with conspiracist thinking, while anomie, anxiety and uncertainty are determinants of the understanding of life as a zero-sum game (Różycka & Wojciszke, 2010).

The third analysis of validity consisted in a comparison of results on GCBS between persons with diagnosed paranoid schizophrenia or paranoid personality disorder and healthy participants. It was expected that the clinical group would have a significantly higher score than the healthy group, because suspicion is one of the axial symptoms of paranoid personality disorder, as well as delusions of paranoid schizophrenia are (WHO, 1992).

Method

Participants

The adaptation was carried out on a sample of 580 persons, 387 women and 193 men ($M = 26.77$; $SD = 9.23$, aged 13 to 72). The tests were conducted on six samples, including one clinical sample ($n = 22$; see Table 1). The sample also included a group of 88 persons who participated in the verification of the absolute stability of the scale in a time interval of four weeks. The participants were split into several samples. The main reason for doing the research on several samples instead of one was the fact that there were many questionnaires applied and it would be difficult to have each person filling all of them. The main tool – the GCBS – was administered in all samples and the psychometric analyses concerning GCBS were done on all participants (apart from the clinical one). We realize that the samples differed somewhat. On the other hand, having a total sample as diverse as possible has also its obvious advantages. The differences between groups as regards the results on the GCBS were not significant ($F(4, 553) = 1.08$; $p = .336$), as was the correlation with age ($r = .01$, $p = .907$).

The basic characteristics of all samples and the tools administered in them are presented in Table 1. Sample 1 and 2 were recruited from various groups on social networks referring to conspiracy theories, faith in paranormal phenomena, and alternative medicine. Sample 3 consisted of students of the Faculty of Philosophy of

Table 1. Descriptive statistics of the samples tested

Sample No	Tools	<i>N</i>	<i>n_f</i>	<i>n_m</i>	Average age	Age SD	Age range
Sample 1	GCBS, SES, 0 Game, Paranoia, NEO-FFI	195	135	60	29.28	9.43	15–67
Sample 2	GCBS, I/E	88	60	28	32.22	1.84	19–72
Sample 3	GCBS, Paranoia	120	67	53	26.36	6.99	15–52
Sample 4	GCBS	67	45	22	16.88	3.96	13–30
Sample 5 – Retest sample	GCBS, Paranoia	88	72	16	21.47	1.93	20–31
Sample 6 – clinical	GCBS	22	8	14	36.27	14.08	20–72
Total		580	387	193			

GCBS – Generic Conspiracist Beliefs Scale; SES – Self-Esteem Scale; 0 Game – Scale of Belief in Zero-Sum Game; Paranoia – scale of Paranoia in MMPI 2; NEO-FFI – Personality Inventory.

the Jagiellonian University (Psychology, Philosophy, Sociology, Comparative Studies of Civilizations) and Computer Science at the AGH University of Science and Technology. Moreover, the respondents were also health care representatives and companies such as: Mitsubishi Electric, Uber, Saber, Comarch. Sample 4 consisted mainly of school youth in the first grades of junior high school, their parents and some school employees, the research was carried out at school with the consent of the school management and parents of children.

Sample 5, in which the participants performed the test twice, consisted of student volunteers of the first year of Psychology from Jagiellonian University. Participants from the clinical group (Sample 6) were predominantly diagnosed with paranoid schizophrenia and they were usually outpatients. Data from the clinical group were collected in several mental health centers in Lesser Poland.

Materials and Procedure

Polish version of the GCBS was translated into Polish and back-translated by an independent translator. The back-translated version was presented to the author of the original version and received his approval. Polish version of the scale is presented in Appendix.

The version administered to the participants was entitled “The Scale of General Beliefs About the World”, in order to conceal its real purpose. The participants filled in tools on their own, in a random order, in a configuration depending on the sample (see Table 1). The study was most often conducted in groups of several persons (except for the clinical group, which was of an individual character), with no time limit.

Following tools were used, apart from the GCBS:

1. *Rosenberg Self-Esteem Scale* (SES; Rosenberg, 1965; Polish adaptation: Łaguna, Lachowicz-Tabaczek, & Dzwonkowska, 2007). This tool is one-dimensional and consists of 10 items to which the subjects respond on a four-point Likert-like scale. One of the items of

this scale is “*I am able to do things as well as, most other people*”. Internal consistency of this scale in the present research was .90.

2. *Locus of Control Scale* (I-E). The tool was constructed by Rotter (1966) and translated into Polish by Karyłowski (1998; see: Terelak, Krzesicka, & Małkiewicz, 2009). It consists of 29 pairs of statements, 23 of which are diagnostic, constructed so that one relates to the external and the other to the internal locus of the control. An exemplary test item from the above scale is “*One of the major reasons why we have wars is because people don’t take enough interest in politics. / There will be wars, no matter how hard people try to prevent them.*”. Cronbach alpha from the present research was unavailable; in a meta-analysis carried out by Ng, Sorensen, and Eby (2006) Cronbach’s alpha factor of this scale was .70.
3. *NEO-FFI Personality Inventory* (Costa & McCrae, 1978; Polish adaptation: Zawadzki, Strelau, Szczepaniak, & Śliwińska, 1998), which was used to measure neuroticism, extraversion, openness to experience, agreeableness and conscientiousness. Items from each scale of this inventory are: “N-“*Sometimes feel completely worthless*”; E-“*Like to have lots of people around me*”; O-“*Intrigued by patterns I find in art and nature*”; A-“*Try to give help to anyone in need*”; C-“*Work hard to accomplish my goals*”. Cronbach alphas of this inventory in the present research for the five factors were: N: .90; E: .81; O: .71; A: .82; C: .88.
4. *Paranoia scale* (40 items) from the MMPI-2 Inventory (Butcher et al., 1989; Polish adaptation: Kucharski & Gomuła, 1998), which measures psychotic behaviour, irrational thinking, suspiciousness, hostility, and interpersonal sensitivity. Items are answered as “Yes” or “No”, e.g. “*There are persons who are trying to steal my thoughts and ideas*”. The internal consistency in this research was .73.

5. *Scale of Belief in Zero-Sum Game* (Różycka & Wojciszke, 2010) tests whether people tend to think that they can only gain something at the expense of another person and that the interests of most people are in conflict with each other. It consists of 12 items answered on a 7-point Likert-like scale, e.g. “One loses so that one other can gain, that’s life”. Cronbach alpha in the present research was .83.

Results

Descriptive Statistics

We start by presenting the means and standard deviations on the results of the GCBS: on items, five factors identified in the original version, and the overall score, including gender differences (Table 2). To allow for easy comparability, we expressed the results on items and

Table 2. Means, SDs on the items, subscales, and total score of the Generic Conspiracist Beliefs Scale

Item / Subscale / Total score	Women		Men		Total	
1. The government is involved in the murder of innocent citizens and/or well-known public figures, and keeps this a secret	2.72	1.18	2.85	1.22	2.76	1.20
2. The power held by heads of state is second to that of small unknown groups who really control world politics	3.02	1.27	3.18	1.24	3.07	1.26
3. Secret organizations communicate with extraterrestrials, but keep this fact from the public	1.61	1.00	1.75	1.10	1.66	1.04
4. The spread of certain viruses and/or diseases is the result of the deliberate, concealed efforts of some organization	2.64	1.24	2.69	1.29	2.66	1.26
5. Groups of scientists manipulate, fabricate, or suppress evidence in order to deceive the public	3.11	1.27	3.03	1.33	3.08	1.29
6. The government permits or perpetrates acts of terrorism on its own soil, disguising its involvement *	2.88	1.23	3.11	1.24	2.95	1.24
7. A small, secret group of people is responsible for making all major world decisions, such as going to war	2.43	1.24	2.34	1.18	2.40	1.22
8. Evidence of alien contact is being concealed from the public	2.08	1.25	2.16	1.25	2.10	1.25
9. Technology with mind-control capacities is used on people without their knowledge	2.51	1.35	2.44	1.33	2.49	1.34
10. New and advanced technology which would harm current industry is being suppressed *	3.08	1.30	3.36	1.23	3.17	1.28
11. The government uses people as patsies to hide its involvement in criminal activity *	2.99	1.19	3.26	1.14	3.08	1.18
12. Certain significant events have been the result of the activity of a small group who secretly manipulate world events	2.66	1.22	2.60	1.34	2.64	1.26
13. Some UFO sightings and rumors are planned or staged in order to distract the public from real alien contact	2.01	1.20	2.03	1.21	2.01	1.20
14. Experiments involving new drugs or technologies are routinely carried out on the public without their knowledge or consent	2.88	1.30	2.92	1.27	2.90	1.29
15. A lot of important information is deliberately concealed from the public out of self-interest *	3.78	1.14	4.03	1.00	3.86	1.10
Government malfeasance *	2.86	1.00	3.07	1.03	2.93	1.01
Malevolent global conspiracies	2.70	1.11	2.71	1.08	2.70	1.10
Extraterrestrial cover up	1.90	1.03	1.98	1.09	1.93	1.05
Personal wellbeing	2.68	1.10	2.68	1.09	2.68	1.10
Control of information	3.32	.98	3.47	.93	3.37	.97
Total score	2.69	(.87)	2.78	(.87)	2.72	(.87)

Positions marked with and asterisk differ significantly between women and men based on Student *t* tests.

subscales, as well as the total score, as means. These and following analyses were performed on combined samples 1, 2, 3, 4 and 5, that is, on healthy adults.

The items most often endorsed were “15. A lot of important information is deliberately concealed from the public out of self-interest”, “10. New and advanced technology which would harm current industry is being suppressed”, “5. Groups of scientists manipulate, fabricate, or suppress evidence in order to deceive the public”, and “11. The government uses people as patsies to hide its involvement in criminal activity”. It seems then that in the Polish society most widespread conspiracist beliefs tend to concern hiding of important information. In contrast, statements “8. Evidence of alien contact is being concealed from the public”, “13. Some UFO sightings and rumors are planned or staged in order to distract the public from real alien contact”, and especially “3. Secret organizations communicate with extraterrestrials but keep this fact from the public” had lowest means in this research, which means that the Polish participants do not believe much in aliens. On the level of subscales, the most believed one was “Control of information”, and the least endorsed: “Extraterrestrial cover up”. Not many gender differences were detected; as for subscales, men more than women believed in government malfeasance.

Factor Structure and Reliability

Although the authors of the original version of the GCBS finally recommend using the general score, they nevertheless found important factors and confirmed them in confirmatory factor analysis, as well they used the factors in their analyses (Brotherton et al., 2013). Therefore, confirmatory factor analysis was performed on our results as well. Following analyses were performed: (1) a model assuming one general factor; (2) a five-factor model in which the factors were allowed to correlate; (3) a five-factor model assuming uncorrelated factors. Also, the fit of the first three models was compared, using the chi-square based significance test for differences among nested models. Confirmatory factor analyses and comparisons were done with the *lavaan* software (Rosseel, 2012) running under the R Environment (R Core Team, 2016). The results are presented in Table 3.

As can be seen in Table 1, the five-factor model assuming correlated factors had by far the best fit, and one acceptable by most conventional criteria (e.g. Hu & Bentler, 1999). The remaining models had a much worse fit. Comparisons done by means of the chi-square tests

indicated that the first model was significantly worse than the second one ($\chi^2_{diff} = 689.36, p < .001$) and the second one was better than the third one ($\chi^2_{diff} = 1583.90, p < .001$). Therefore, the five-factor model allowing for intercorrelations among factors was adopted and used in subsequent analyses. However, the general score was analyzed as well.

Reliability statistics are given in Table 4. As can be seen, the reliability of the total score calculated as Cronbach alpha was excellent. The subscales had high internal consistency as well, which is satisfactory given that each of them only comprised three items. Four-week test-retest stability was also high.

The intercorrelations among subscales were all significant and ranged from .43 (between Extraterrestrial cover up and Control of information) to .74 (between Malevolent global conspiracies and Personal wellbeing).

Table 4. Reliability of the general scores and subscales

Subscale / Total score	Cronbach alpha	Test-retest 4 weeks (n = 88)
Government malfeasance	.79	.80
Malevolent global conspiracies	.85	.77
Extraterrestrial cover up	.88	.87
Personal wellbeing	.80	.79
Control of information	.70	.77
Total score	.93	.90

Validity

Results of correlational analyses concerning construct validity are presented in Table 5.

In accordance with expectations, conspiracist beliefs were positively related to paranoid tendencies, however, only in the case of two subscales (Government malfeasance and Malevolent global conspiracies). The total score was also significantly related to paranoia, but this correlation was weak ($r = .16$). Also, as expected, agreeableness was negatively related to conspiracist beliefs: in the case of the total score, and Government malfeasance, Malevolent

Table 3. Goodness-of-fit indexes for three factorial models

Model	CFI	TLI	SRMR	RMSEA	L 90% CI	H 90% CI
1. General factor	.82	.79	.07	.13	.12	.14
2. 5-factor correlated	.97	.96	.04	.06	.05	.07
3. 5-factor orthogonal	.64	.57	.39	.19	.18	.19

Table 5. Results of correlation analyses between the GCBS subscales and the total score, and paranoia, personality, self-esteem, locus of control, and believing in zero-sum games Pearson *r*

	Government malfeasance	Malevolent global conspiracies	Extraterrestrial cover up	Personal wellbeing	Control of information	Total score
Paranoia	.22**	.20**	.07	.10	.05	.16*
Neuroticism	.14	.10	.05	.07	.06	.10
Extraversion	-.01	.03	.09	.05	.03	.04
Openness to experience	-.04	-.08	-.04	-.09	-.09	-.08
Agreeableness	-.24**	-.18*	-.11	-.13	-.14*	-.19**
Conscientiousness	-.11	-.03	-.08	-.06	-.14	-.10
Self-esteem	.25**	.12	.11	.14	.17*	.18*
External Locus of control	.33**	.20	.27*	.22*	.22*	.30**
Beliefs in zero-sum game	.29**	.22**	.21**	.27**	.25**	.29**

* $p < .05$; ** $p < .01$.

global conspiracies and Control of information subscales. However, no significant correlations were found for openness to experience (and neuroticism, extraversion, and conscientiousness). The correlation of the total score on the GCBS (and Government malfeasance) with self-esteem were significant, but positive, contrary to expectations. Finally, all subscales and the total score on the GCBS showed the expected positive correlation with believing in life as a zero-sum game. In sum, correlational analyses provided some support for the validity of GCBS, but not a strong one.

Finally, results comparing persons with diagnosed paranoid schizophrenia or paranoid personality disorder with healthy controls are presented in Table 6. The control group was constructed by means of matching age and gender.

The results were clear-cut: the clinical sample consisting of persons with diagnosed paranoid schizophrenia or paranoid personality scored higher on all subscales and the general score on the GCBS scale, and the effect sizes (eta-squared) were quite sizeable. This confirms the validity of this tool.

General Discussion

The results of the study showed that GCBS is a tool that had high internal reliability and test-retest stability. No substantial gender differences were found, in line with other analyses of this kind (Freeman & Bentall, 2017; Van Prooijen, 2017); the correlation with age was also not significant.

On the whole, the results pertaining to means, factor structure, and reliabilities were very comparable to those concerning the original version of the scale. The mean results on the Polish version of GCBS was 2.69, and in the original version: 2.61. Both versions showed a similar and good fit as regards the factor structure. Also, internal consistency was very similar; for the total score, the original and adapted version had identical Cronbach alpha: .93.

Conspiracist thinking measured with the Polish version of GCBS correlated with some factors that, judging from theoretical grounds, could be related to conspiracist thinking. The results obtained on the Paranoia scale of the MMPI-2 Inventory and the Scale of Belief in Zero-Sum

Table 6. Comparison of the clinical (paranoid schizophrenia/paranoid personality) and healthy samples – means (SDs) and results of *t* tests for differences

	Clinical (n = 22)	Healthy (n = 22)	<i>t</i> (42)	η^2	<i>p</i>
Government malfeasance	4.02 (.65)	2.42 (.92)	6.60	.51	< .001
Malevolent global conspiracies	3.55 (.90)	2.23 (.92)	4.80	.35	< .001
Extraterrestrial cover up	3.20 (.74)	1.76 (.97)	5.53	.42	< .001
Personal wellbeing	3.70 (.80)	2.29 (1.02)	5.11	.38	< .001
Control of information	3.97 (.50)	3.03 (.88)	4.33	.31	< .001
Total score	3.68 (.57)	2.35 (.81)	6.33	.49	< .001

Game were in line with expectations – they showed positive correlation dependencies, but, as for paranoia, the correlation was rather low. High scores on the Paranoia MMPI-2 scale may indicate that the respondents have a tendency for conspiracist thinking with regard to the representatives of other nationalities, as demonstrated earlier in the study by Grzesiak-Feldman & Ejsmont (2008). In addition, high scores on the Paranoia scale may indicate moral and ethical inflexibility of the respondents, which is also linked to belief in conspiracy theories (Van Prooijen & Jostmann, 2013). Results of the previous studies (Drinkwater, Dagnall, & Parker, 2012), also pointed to similarities between conspiracist thinking and paranoia, in which it is possible to logically argue for, and defend delusional beliefs, superstitions and beliefs in supernatural phenomena. Van Prooijen, Douglas, & Inocencio (2018) stated that belief in conspiracy theories and supernatural phenomena results from an illusory pattern of perception. They believe that the illusory perception of patterns is the main mechanism that is responsible for both conspiracy and supernatural beliefs.

What combines the results of the MMPI-2 Inventory and the Scale of Belief in Zero-Sum Game with conspiracist thinking is mistrust towards the rest of the population (Abalakina-Paap et al., 1999). This mistrust gives rise to fear, which in a zero-sum game situation is the cause of realization of the limitation of resources in the population and, consequently, of the need to fight for these resources.

As for believing in life as a zero-sum game a caveat is however needed. Although the results were clear-cut, the justification of the hypothesis about the relationship between conspiracist beliefs and believing in zero-sum game has its weakness. It was postulated that anomie correlates with conspiracy belief and also correlates with a zero-sum understanding of life. A sort of mediation is assumed here, not testable in the present research.

Interestingly, self-esteem proved to be positively correlated with conspiracist thinking, while the results of studies presented by Abalakina-Paap et al. (1999) showed a negative correlation of these two traits. A possible explanation for the positive relationship between self-esteem and a tendency to conspiracist thinking in this study is that people with high self-esteem are less critical of the information they receive (Góralewska-Słońska, 2011; Reykowski, 1992), which is also typical for persons with a strong belief in conspiracy theories.

Conspiracist thinking correlated positively with external locus of control, which was expected and consistent with the results obtained by other researchers (Hamsher, Geller, & Rotter, 1968). Individuals with an elevated level of manifestation of a sense of control seek the causes of surrounding phenomena in people or events that lie beyond their control, resulting in an increased belief in conspiracy theories (Hamsher et al., 1968).

Results of previous studies using personality research tools within the Big Five have shown a negative relationship between conspiracist thinking and agreeableness (Goreis & Voracek, 2019) and a positive relationship with openness

to experience (Swami et al., 2010). In the present research, a significant negative correlation of conspiracist thinking concerned only the scale of agreeableness. This was expected and consistent with previous studies (Goreis & Voracek, 2019). In a study conducted by Galliford & Furnham (2017), agreeableness was negatively correlated only with political conspiracy theories – not medical theories.

Limitations and Future Directions

First of all, the validity of the GCBS remains still to be demonstrated more convincingly, as some of the relevant effects in the present analyses were weak, and one was even reverse to the expected (the positive correlation of self-esteem with conspiracist beliefs). One important validity analysis is missing in the present study, namely, direct criterion validity. However, we were not aware of any other already existing tool in Polish language measuring conspiracist beliefs. Such an analysis remains an important topic for future research. To some extent however, the correlations of GCBS with the paranoia scale from the MMPI-2 Inventory confirms its criterion validity.

Also, measurement invariance has to be proven between the Polish adaptation and the original version of the scale, and also perhaps between men and women. Moreover, more research on various populations is needed. The main sample was recruited, among others, on social networks referring to conspiracy theories which means the participants may have been biased.

Another limitation of the present study may be the way in which we recruited samples: they were quite heterogeneous, and it is possible that the psychometric and correlational analyses would yield somewhat different results had all participants be administered all tools. This however was difficult given the number of tools. Expanding the research populations remains an important task, so that the findings can be generalized to broader populations.

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Appendix

Ogólna Skala Wierzeń Konspiracyjnych

Przekonania na temat świata.

Często rozważa się czy opinia publiczna jest poinformowana o całej prawdzie na temat różnych istotnych problemów. Ta krótka ankieta została zaprojektowana w celu oszacowania Pana/i przekonań na temat niektórych z tych problemów.

Proszę aby Pan/i określił/a prawdziwość poniższych stwierdzeń za pomocą następującej skali:

1. Zdecydowanie nieprawdziwe.
2. Prawdopodobnie nieprawdziwe.
3. Nie mam pewności/nie mogę zdecydować.
4. Prawdopodobnie prawdziwe.
5. Zdecydowanie prawdziwe.

- | | | | | | |
|---|---|---|---|---|---|
| 1. Rząd w sekrecie jest zamieszany w morderstwa niewinnych obywateli lub znanych osób publicznych. | 1 | 2 | 3 | 4 | 5 |
| 2. Ponad przywódcami państw istnieją nieliczne, niejawne grupy utrzymujące prawdziwą kontrolę nad polityką światową. | 1 | 2 | 3 | 4 | 5 |
| 3. Tajne organizacje komunikują się z istotami pozaziemskimi w sekrecie przed społeczeństwem. | 1 | 2 | 3 | 4 | 5 |
| 4. Pewne wirusy lub choroby rozprzestrzeniane są w efekcie rozmyślnego, ukrytego działania pewnych organizacji. | 1 | 2 | 3 | 4 | 5 |
| 5. Grupy naukowców manipulują, preparują lub ukrywają fakty, by zwiść społeczeństwo. | 1 | 2 | 3 | 4 | 5 |
| 6. Rząd umożliwia lub popełnia akty terroru na własnym terytorium, ukrywając swój udział. | 1 | 2 | 3 | 4 | 5 |
| 7. Niewielka, tajna grupa jest odpowiedzialna za wszystkie znaczące światowe decyzje, takie jak wypowiedzenie wojny. | 1 | 2 | 3 | 4 | 5 |
| 8. Dowody na kontakt z obcą cywilizacją jest ukrywany przed społeczeństwem. | 1 | 2 | 3 | 4 | 5 |
| 9. Technologia umożliwiająca kontrolę umysłu jest stosowana na ludziach, bez ich wiedzy. | 1 | 2 | 3 | 4 | 5 |
| 10. Nowe, zaawansowane technologie są blokowane, żeby nie zaszkodzić istniejącemu przemysłowi. | 1 | 2 | 3 | 4 | 5 |
| 11. Rząd ukrywa swoją aktywność przestępczą przedstawiając ludzi w roli kozła ofiarnego. | 1 | 2 | 3 | 4 | 5 |
| 12. Pewne znaczące wydarzenia były efektem działania niewielkiej grupy, która w sekrecie manipuluje wydarzeniami na świecie. | 1 | 2 | 3 | 4 | 5 |
| 13. Pewne obserwacje lub pogłoski na temat UFO są pozorowane, w celu odwrócenia uwagi społeczeństwa od prawdziwego kontaktu z obcą cywilizacją. | 1 | 2 | 3 | 4 | 5 |
| 14. Powszechnie przeprowadza się eksperymenty z wykorzystaniem nowych technologii lub substancji chemicznych na nieświadomym społeczeństwie | 1 | 2 | 3 | 4 | 5 |
| 15. Pewne osoby celowo ukrywają przed społeczeństwem wiele znaczących informacji, by odnieść osobiste korzyści. | 1 | 2 | 3 | 4 | 5 |