



PSYCHOMETRIC PROPERTIES OF ONLINE VERSIONS OF EMPATHY AND DARK TRIAD PERSONALITY TRAITS QUESTIONNAIRES IN BASKETBALL PLAYERS

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Abstract:

The goal of this study was to examine the psychometric properties of using the online version of self-report questionnaires for assessing empathy and dark triad personality traits to gather and analyse the data in scientific research. The assumption was made that, with the right written explanation and introduction to the questionnaire, the participants will fill out the online forms in the way that will revile good psychometric properties of the results.

Sample for the study was composed out of 79 male athletes that actively played basketball in a 22/23 season. They filed an online version of the Sports Interpersonal Reactivity Index (IRI), and The Dark Triad Dirty Dozen (DTDD).

Results of descriptive analyses reviled good and acceptable metric characteristics and discriminativeness of both questionnaires. Good reliability was confirmed with obtained Cronbach's alpha coefficient scores for DTDD but reliability of IRI scores was questionable. Obtained correlations among scales and subscales speak in favour of construct validity of online versions of questionnaires.

It was concluded that further research of this topic is necessary but also justified.

Keywords:

Online platforms, Online questionnaires, IRI, DTDD.

INTRODUCTION

Basketball is a collective sport, which implies that, in order to participate and achieve a positive outcome, an individual has to have a social interaction with other individuals in his environment. The way the individual perceives and interacts with its social environment is determined by one's personality traits. Two such traits, that were studied over last decades are empathy and dark triad. Many authors refer to empathy is a key component of social interactions by promoting prosocial behaviours while inhibiting aggressive behaviours toward others. [1], [2], [3]. Empathy is broadly defined as the capacity to imagine, experience, and understand what the other person is feeling, [3] or it is described as the ability to experience and understand what others feel without confusion between oneself and others. [4] [3] Decety and Lamm [4] noted that empathic concern is defined as an emotional reaction characterized by such feelings as compassion, tenderness, softheartedness, and sympathy.

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Empathy is considered a multidimensional concept that contains the cognitive, perspective-taking capabilities or tendencies of the individual, and the affective or emotional reactivity of such individuals and the influences that these components may have on behaviour. [5] Decety and Jackson [6] [3] refer to empathy as an a phenomenon that requires both the ability to share the emotional experience of the other person (affective component) and an understanding of the other person's experience (cognitive component) as well as natural ability to understand the emotions and feelings of others, whether one actually witnessed his or her situation, perceived it from a photograph, read about it in fiction book, or merely imagined it. On the other hand, the dark triad is a term used to describe a constellation of three socially undesirable personality traits: narcissism, psychopathy, and Machiavellianism. [7] [8] Narcissism is characterized by a grandiose sense of self, entitlement, dominance, and superiority; Machiavellianism by manipulateness, callous affect, strategic planning, and superior impulse regulation; and psychopathy by thrill-seeking, lack of empathy and remorse, superficial charm, low anxiety proneness, and a lack of long-term goals. [9] [10] [11] Specifically, the Dark Triad as a whole can be thought of as a short-term, agentic, exploitive social strategy that may have evolved to enable exploitation when conspecifics are likely to avoid or punish defectors. [12] [8] Jonason and Webster further developed the test for psychometric properties that contains 12-item version of the Dark Triad called the Dirty Dozen (DTDD). [8] The Dirty Dozen represents a brief measure of each of the three traits composed of 4 items for each dimension was designed to maximize the intercorrelations between the traits and, thus, doing so is an essential task to understand the validity of each dark triad subscale. [13] Jonason, Kaufman, Webster and Geher [14] claim that scores on the psychopathy subscale of the DTDD to be correlated with emotional instability and disagreeableness through high rates of volatility and low rates of compassion. Although some researchers like Haar and de Jong [13] argue that dark triad personalities might have an edge over the competition and be beneficial in highly competitive environments and jobs like CEOs and managerial jobs it is yet to be seen what kind of influence DTDD have in sports. Studies on personal traits are usually conducted by a self-valuation questionnaire that would place the results on a scale measuring the construct [15]. The scales usually used are Likert 5- or 7-point scales, where 1 represents a false claim 100% and the opposite and 100% true is represented by biggest number (5 or 7), with the numbers

in between representing the claims slowly graduating from one statement to another. Often the purpose of the research is to understand the opinions/perceptions of participants related with single 'latent' variable phenomenon of interest. This 'latent' variable is expressed by several 'manifested' items in the questionnaire [16]. For example, by agreeing or disagreeing with the statements like "I laugh a lot" regarding humour, and "I am always committed and involved" regarding sense of purpose, the person is actually answering the question of happiness and subjective well-being. [17]

COVID-19 pandemic, changed how we interact and do research. Before the pandemic questionnaires were, usually written on paper [18], but the person doing the research had an advantage, being present in person to interpret and conduct the process. Online environment and transdisciplinary attitude were needed to develop scientific research, given the complex societal challenges we are facing [19]. Collecting samples via online platforms, which was practically the only safe way to conduct large-scale research during the last couple of years, become very practical and effective. Biggest strengths of the online survey are: global reach, business-to-business and business-to-consumer appeal, flexibility, speed and timeliness, technological innovations, convenience, ease of data entry and analysis, question diversity, low administration cost, ease of follow up, controlled sampling, large sample easy to obtain, control of answer order, required completion of answers, go to capabilities, knowledge of respondent vs. nonrespondent characteristics, while the major potential weaknesses are: perception as junk mail, skewed attributes of internet population: up-scale, male, etc., questions about sample selection (representativeness) and implementation, respondent lack of online experience/expertise, technological variations, unclear answering instructions, impersonal, privacy and security issues, low response rate. [20]

On the other hand, when it comes to surveys aiming to examine psychological constructs, psychological assessment without a psychologist present, who would administrate the tests and interpret the obtained results, is very problematic. In order for psychological assessment to be valid presence of psychologist as a person who monitors the entire process of the examination is obligatory. With online testing, the biggest problem is the absence of a psychologist during filling out the questionnaire. However, in the process of data collection, the psychologist's physical presence can be partially replaced by his online presence through applications such as Google Meet, Microsoft Teams, and the like.



After this step, the psychologist, as a person who ensures the validity and ethics of data storage, processing and interpretation, is equally present when questionnaires are filled out in classic or online form. Nevertheless, question that arises is how valid such method of running research, regarding the fact that most of the questionnaires were intended to be filled in with the physical presence of the examiner.

The aim of this study is to examine the psychometric properties of using the online version of self-report instruments for assessing empathy and dark triad personality traits to gather and analyse the data in research practice. The assumption was made that the results will have good psychometric properties which will imply that this topic deserves further examination and validation.

2. METHOD

2.1. PARTICIPANTS

Sample used for this research was a total of 79 male athletes that played basketball in the 2022/2023 season. The participants were divided in two categories, Serbian speaking and non-Serbian speaking. Non-Serbian speaking participants were filling an English version of the questionnaire, and the participants that speak Serbian language were filling a Serbian language translation. 54 participants filled Serbian language form (age = 21.6 ± 4.9) playing for 9 different clubs, in three different divisions (14 participants was playing in the 1st division during the 22/23 season, 14 of them played in 2nd division, and 28 of them played in the 3rd division). 14 out of 54 participants still played in youth competitions and had a junior status while the other 40 had only a senior status. The sports experience (number of years playing the sport) of the participants was on average of 11.7 ± 5.5 years. 21 of them we define as an elite athlete (had national team experience during the career) while 33 of them never had any national team experience. Regarding the playing position in the team, 14 of them were playing as a point guard (1), 12 of them were shooting guards (2), 11 small forwards (3), 11 power forwards (4), and 5 of them were playing centre (5) position. English form was filled by 25 participants (age 18.6 ± 5.0) playing for 3 different clubs, from which 11 had a cadet status, 6 of them were juniors and 8 of them played senior basketball with an average experience in sport of 9.3 ± 4.8 . 3 of them were 1st division players, 9 played in 2nd division while 13 played 3rd division in the course of the 22/23 season. 8 had a national team experience

during their career and 17 of them had none. Regarding the playing position in the team, 4 of them played as a point guard (1), 7 of them as a shooting guard (2), 4 were small forwards (3), 6 power forwards (4), and 4 of them were playing center (5) position.

2.2. MEASUREMENTS AND PROCEDURES

Google Forms was a tool of choice to collect and analyse the data for this study. It allowed us to compose a questionnaire, collect answers from participants, present data in spreadsheet format using Google Sheets, which makes tracking and analysing the data easier for everyone involved. [21] Participants, during this study, were filling the questionnaire in privacy, comfort and at the time when they felt like it, usually using their mobile phones, just following the link sent to them by their coach. This is not a standard environment for a study like this which raises the question of validity of the results. Google Forms is a web-based survey tool. It offers no limits regarding the number of surveys conducted and number of respondents. Survey answers and data are automatically collected in Google Spreadsheets. It offers an option to embed any survey into emails or websites. Has a lots of theme options and options to add a custom logo, photo or video. Collaboration is the only option comes with only limitation in data privacy. [22] It has a great potential for any type of similar studies, thus the attempt to validate the results. Web-based surveying offers researchers plenty advantages in comparison to more conventional survey modes, these findings suggest that non-market valuation practitioners should consider the use of this survey administration mode in the future. [23] For our study we chose Google Forms as it provides various options to capture the data from the multiple answers and can have multiple choice options, check boxes, scale, grid, text, and etc. [22]

Since aim of the study was to investigate the psychometric properties of the online version of psychological questionnaires, the idea was that additional means that would ensure greater validity such as video instructions, online presence through meeting platforms and chat with the examiner were not used. In this way, in comparison with the results of earlier validation studies, it was possible to analyse the effect that the change of media and environment has on the psychometric properties of the results.



2.3. STATISTICAL ANALYSES

The online questioner was set in the way that prevents existence of missing values and multiple answers, thus enabling the analysis to be carried out immediately after data collection. The data were, at first, subjected to descriptive statistical analysis and minimum, maximum, mean, standard error of mean, standard deviation, coefficient of variation, skewness as well as kurtosis was calculated. To determine the normality of the data distribution, we used Kolmogorov-Smirnov nonparametric test. To determine the reliability of the instruments reliability analysis was used and Cronbach's alpha coefficient as Cronbach's alpha coefficient based on standardized Items was calculated. Spearman's nonparametric correlation test was used to construct and convergent validity. In order to achieve discriminant validity assessments descriptive statistics, skewness and kurtosis as well as nonparametric Kolmogorov-Smirnov test were used.

Statistical significance was defined at the level of 95% probability, for the value of $p < 0.05$ and at the level of 99% probability, for the value of $p < 0.01$. All statistical analyses were performed using SPSS 20 (IBM Corp., Armonk, N.Y., USA) and Jamovi (version 1.2.27.0).

3. RESULTS

Descriptive statistical analysis was performed for the total scores as well as for the scores on subscales of the IRI and DTDD for the whole sample (Table 1). Standard error of mean ranging from 2.47% (empathic concern) to 6.12% (psychopathy) of mean scores enables accurate and narrow estimation of the population mean.

The analysis also shows that the sample was quite heterogeneous on DTDD variables and personal distress and more homogenous on rest of the variables. Descriptive statistics and the Kolmogorov-Smirnov nonparametric test showed there are no significant deviations from the normal distribution except Machiavellianism and narcissism.

The analysis of the observed deviations of the distributions in Machiavellianism and psychopathy was done with the Q-Q plots (Figure 1). The presence of outliers at higher scores as well as accumulation in minimal values can be observed in both distributions. Considering the applied goals of this work, elimination of outliers want be performed and further analyses will be done on the original data and scores.

Reliability analysis (Table 2) for both IRI and DTDD was performed at the level of individual answers of all respondents and items for total scores and subscales. Obtained Cronbach's alpha coefficient scores prove to be excellent and very good for all DTDD variables, acceptable for total IRI score and personal distress, questionable for fantasy, perspective taking and empathic concern.

Table 1 - Descriptive statistics for the IRI, and DTDD scores.

	Minimum	Maximum	Mean	SEM	Std. Deviation	COV	Skewness	Kurtosis	Kolmogorov-Smirnov Z
Fantasy	1.00	3.86	2.12	0.07	0.62	0.29	0.50	0.01	1.02
perspective taking	1.29	4.00	2.37	0.07	0.59	0.25	0.08	-0.23	0.91
empathic concern	1.29	3.43	2.29	0.06	0.50	0.22	0.02	-0.64	0.90
personal distress	0.00	2.71	1.19	0.07	0.60	0.51	-0.27	-0.52	1.09
IRI	1.18	2.75	1.99	0.04	0.36	0.18	0.04	-0.06	0.72
Machiavellianism	1.00	7.00	2.25	0.17	1.50	0.67	1.66	2.45	1.78*
Psychopathy	1.00	7.00	2.50	0.15	1.35	0.54	1.04	0.65	1.38*
Narcissism	1.00	7.00	3.49	0.18	1.57	0.45	0.14	-1.04	0.93
DT	1.00	6.50	2.75	0.13	1.14	0.42	0.74	0.26	0.92

* Significant at the 0.05 level

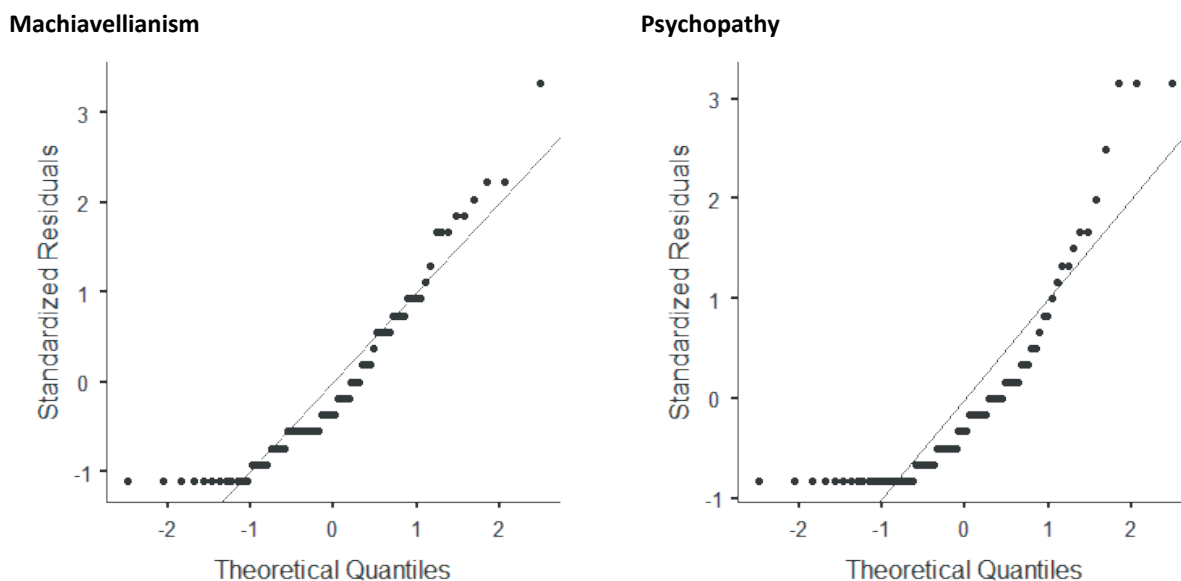


Figure 1 – Q-Q plots for Machiavellianism and psychopathy scores.

Table 2 - Reliability statistics for the SMTQ, PPI-A and MTI scores.

	Cronbach's α	Cronbach's α Based on Standardised Items	N of Items
Fantasy	0.55	0.54	7
perspective taking	0.6	0.61	7
empathic concern	0.59	0.59	7
personal distress	0.69	0.7	7
IRI	0.68	0.67	28
Machiavellianism	0.9	0.91	4
Psychopathy	0.81	0.81	4
Narcissism	0.82	0.82	4
DT	0.87	0.87	12

Table 3 - Correlation analyses for the IRI and DTDD scores.

	perspective taking	empathic concern	personal distress	IRI	Machiavellianism	Psychopathy	narcissism	DT	MTI
Fantasy	.324**	.325**	.245*	.756**	.057	-.133	.250*	.064	.524**
perspective taking		.435**	-.139	.636**	-.049	-.335**	.054	-.096	.433**
empathic concern			-.097	.656**	-.232*	-.518**	.060	-.218	.422**
personal distress				.3703**	.357**	.161	.171	.217	0.159
IRI					.050	-.352**	.191	-.032	.795**
Machiavellianism						.572**	.315**	.734**	.709**
Psychopathy							.349**	.775**	.551**
Narcissism								.763**	.683**

** Correlation is significant at the 0.01 level (2-tailed), * Correlation is significant at the 0.05 level (2-tailed).



Spearman's nonparametric correlation analysis was performed for IRI and DTDD for the total scores as well as for the scores on subscales on the whole sample (Table 3). Among scales and subscales, low to high significant positive and negative correlations were obtained. Correlation of empathic concern and DT was on the edge of statistical significance ($p=0.056$). Having in mind goals of this paper significant negative low correlations of psychopathy and IRI scores attract the most attention.

4. DISCUSSION

This study aimed to examine the psychometric properties of online version of the IRI and DTDD in the population of basketball players. Majority of the findings confirmed good psychometric characteristics of online versions of questioners in sport population, making this way of gathering data in scientific research worthy of further research.

According to descriptive indicators (Tables 1), the participants in the research have not very well developed empathy and also weakly present dark triad personality traits. When discussing the metric characteristics it should be kept in mind that both questioners are intended for general population. Never the less, they demonstrate solid metric characteristics in selected sport population. Also, because of applicative character of this study, the results were not subjected to the procedure of removal of the outliers. That is why observed deviation from normal distribution in Machiavellianism and psychopathy can be characterised as acceptable, which is illustrated with Q-Q plots (Figure 1). Also, in previous validation studies [24] some violation of normality of distribution of the DTDD scores was also obtained, which speaks in favour of acceptability of obtained results. Taking everything into account, the obtained results speak in favour of the discriminativeness of the online versions of both measuring instruments.

According to reliability parameters (Table 2) DTDD showed excellent properties. This finding is in line with finding of previous validation studies [24], and more over online version showed greater reliability than paper version in some earlier studies [25]. On the other hand, IRI was quite questionable when it comes to reliability. While perspective taking, personal distress and IRI total score can be described as acceptable according to the Cronbach's alpha coefficient scores, this is not the case with fantasy and empathic concern. However, having in mind sample, it could be assumed that this deviation is the cause of the sample size and its selected character

rather than the online way of filing the questionnaire with already proven reliability [5, 26, 27].

Results of correlation analyses (Table 3) are also in line with results of previous studies [28, 5, 26, 25, 27]. Having in mind direction, intensity, and number of obtained correlations it can be easily claimed that construct validity of online versions of all three instruments in population of basketball players is confirmed.

It is necessary to emphasize the limitations of this research. First, it concerns the sample, primarily its size and unrepresentativeness. Further research is needed with a larger and more diversified sample, both according to sports disciplines and other demographic characteristics. Second, given the exploratory nature of this study, numerous limitations are related to the validity of psychological assessment without the presence of an examiner. The next researches should gradually introduce one technological solution at a time, which would simulate the presence of the examiner to a greater degree, which should lead to a greater degree of validity of this method of research.

In the end, regardless of the possible results of future validation studies, the author's opinion is that we are still far from possibility of valid replacing the live presence of the examiner in the process of psychological assessment. researched methodology, although tempting and effective, should actually be an alternative solution in moments when direct face-to-face examination is not possible. Also, this research does not advocate changing the role of psychologists in the process of psychological assessment, especially when it comes to monitoring, ensuring ethics, storing, processing and interpreting the results.

5. CONCLUSION

Having in mind that good metric characteristics, discriminativeness, reliability and construct validity of online versions of IRI and DTDD questioners was clearly demonstrated by the obtained results, it can be concluded that this way of using of measuring instruments showed good and acceptable psychometric characteristics. Adding to this the efficiency of data collection with the help of online platforms, further research and development of implementation of informational technology in psychological assessment is quite justified. Therefore, it can be concluded that this study met its aims, although further research with larger and more diverse samples is still necessary before online versions of psychological questionnaires become part of research practice.



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