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## PSYCHOMETRIC PROPERTIES OF THE POLISH SOCIAL EMPATHY QUESTIONNAIRE: RELIABILITY, VALIDITY, AND GENDER AND AGE EQUIVALENCE\*

**Introduction:** Empathy is a dynamic developmental process, requiring flexible behaviour of the empathiser in the social context. Therefore, it is crucial to know and understand the social function of empathy and its dynamic nature in interpersonal relationships.

**Research Aim:** The aim of the study was to evaluate the psychometric properties of the Polish version of the Social Empathy Questionnaire.

**Method:** This instrument measures empathy levels in interpersonal relationships among adults. It is based on four dimensions of empathy, i.e. taking the perspective of others, emotional sensitivity and concern for others, interpersonal flexibility and openness to compromise, and altruism – deferring decisions for the benefit of others. It assesses levels of empathy in a social context, especially in situations of conflict. Two studies were conducted with 1,149 adults aged 18 to 74 years.

**Results:** Study 1 confirmed the four-factor structure of the tool and assessed the reliability of the empathy dimensions. It also evaluated the measurement equivalence of the models for female and male gender and for age. Study 2 aimed to assess the convergent and discriminant validity.

**Conclusion:** The results confirmed that the 33-item Polish version of the Social Empathy Questionnaire has good psychometric properties. It can be used in research and as a diagnostic tool to help diagnose people with difficulties in establishing social relationships or at risk of social maladjustment. It may also be useful in business, especially in the recruitment of employees for positions that require effective interpersonal communication that impacts work efficiency.

**Keywords:** social empathy, empathy questionnaire, psychometric properties, reliability, validity

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## INTRODUCTION

Empathy is commonly conceptualised as a complex, multidimensional construct with three main domains: cognitive, emotional, and behavioural. The cognitive aspect, defined as perspective-taking, is the ability to understand another person's feelings and thoughts in a given situation (Falcone et al., 2008; Stocks and Lishner, 2018). The emotional domain is a genuine willingness to share another person's feelings, to feel sympathy, concern, or attention to the feelings of others (Falcone et al., 2008). The behavioural aspect involves actions such as expressing oneself through words, gestures, posture and actions, to show an understanding of another person's emotional state (Ickes et al., 1997).

### **Empathy in social relationships**

Many researchers have viewed empathy as a dynamic, functionally oriented, multi-faceted unfolding process (Murphy and Algoe, 2022). Main (2022) emphasised that the emotional needs of others are dynamic and require flexible adaptation in the social context. Empathy is an interpersonal process (Zaki et al., 2008). It involves dynamic emotional attunement and communicative dialogue between people in real time (Kupetz, 2014; Main et al., 2017). Psychological studies of empathy rarely focus on real-life relationships, yet empathy is an interactive social process that depends on both interlocutors (Main et al., 2017). Research has confirmed that higher levels of cognitive and emotional empathy are associated with the formation and maintenance of healthy social bonds (Anderson and Keltner, 2002).

Empathy enables one to better understand others' perspectives, needs, and feelings, leading to the development of a sense of closeness, connection, and trust. Empathic sensitivity and interpersonal flexibility promote building of authentic and satisfying relationships based on mutual respect and trust. In addition, higher levels of perspective taking facilitate effective empathic social communication (Main et al., 2017). This involves active listening, better reading and understanding of the verbal and non-verbal messages of others, as well as adapting one's own emotions and behaviour (Kupetz, 2014). It also facilitates expression of one's feelings and needs in a clear and constructive manner, reducing the risk of conflict and misunderstanding (Halpern, 2007). Understanding another person's point of view is related to inhibition of aggressive responding, destructive behaviour (Davis, 1994), and facilitation of non-aggressive responding (Richardson et al., 2008). It helps create an atmosphere of mutual respect and understanding, which promotes constructive dialogue and negotiation. Affective empathy contributes to a better understanding of and empathising with people in distress (Sinclair et al., 2017). Empathy fosters social bonding and contributes to a sense of belonging, which can be particularly important for people in crisis or socially excluded. It facilitates better recognition and under-

standing of the emotions of others, which reduces the tendency to be violent and aggressive (van Hazebroek et al., 2017), and helps build more tolerant and peaceful interpersonal relationships.

### **A brief overview of questionnaires measuring empathy in adults**

Researchers concerned with empathy, its understanding, conceptualisation and operationalisation of individual factors that make up the multidimensional construct of empathy are trying to develop the best possible tools to assess levels of empathy. However, it seems that scientists have reached no consensus on clearly defined dimensions and factors of empathy, and studies linking empathy to other aspects of human development have been inconclusive. Confirmation of the above arguments can be found in the results of the study by Lima and Osório (2021). The researchers conducted a meta-analysis based on the review of the global literature from the last 10 years on the development of different questionnaires to assess empathy in adults. They compared 23 empathy screening instruments. The most popular were IRI (Davis, 1980, 1983), Empathy Quotient (Baron-Cohen and Wheelwright, 2004) and QCAE (Reniers et al., 2011).

However, it is worth noting that tools measuring not so much the two dimensions of empathy, but other aspects or factors related to empathy, such as positive and negative empathy (Brett et al., 2023), empathic behaviours such as supporting others (Auné et al., 2017), or empathy towards different people (family, peers) (Hollar, 2017), are becoming increasingly popular.

There are also several instruments available in Polish for measuring empathy in the Polish population. The Polish version of IRI (Davis, 1980), which is still very popular in Poland and its use makes it easier to conduct international studies, was modified by Kaźmierczak et al. (2007) and an Empathic Sensitivity Questionnaire was created that includes three important components of empathy: empathic concern, perspective taking, and personal distress. In 2017, a short Polish version of the Empathy Quotient EQ was published (Jankowiak-Siuda et al., 2017), which assesses two dimensions of empathy: cognitive and affective. The Polish version of the Perth Empathy Scale (Larionow and Preece, 2023) can also be used to examine cognitive empathy, understood as the ability to recognise the emotions of others, and affective empathy, which assesses the ability to empathise with positive and negative emotions.

Empathy has been increasingly studied in different environmental and ecological contexts. For example, more and more tools are being developed to assess empathy in specific groups of adults, such as health professionals (Hong and Han, 2020). It would be worthwhile to adapt such tools to other social or professional groups, to easily assess the level of empathy in employees, especially those who work with other people, e.g. teachers or people who work with clients. Adaptation of the Empathy Questionnaire (Falcone et al., 2008) to the Polish context precisely

implements this idea. The questionnaire focuses not only on the assessment of cognitive and affective empathy but also of behavioural empathy, i.e. interpersonal flexibility and altruism, especially since these dimensions of empathy are examined in a social context.

## RESEARCH AIM AND QUESTION

Since there has been a great need to understand better the different aspects that make up the multidimensional understanding of empathy, emphasising its cognitive, emotional, and behavioural nature, it was decided to create the Polish version of the Empathy Inventory (IE) by Falcone et al. (2008), referred to as the Social Empathy Questionnaire (SEQ). What distinguishes the currently adapted tool from those already available in Poland is the context in which the level of different dimensions of empathy is measured that is the social context. The statements in the questionnaire refer to specific interpersonal situations, especially those involving conflict. Respondents are asked to rate their behaviour towards another person in specific interpersonal situations.

This instrument, based on four dimensions of empathy: 1) perspective taking, 2) interpersonal flexibility and openness to compromise, 3) altruistic decisions for the benefit of others, and 4) emotional sensitivity and concern for others, allows for the assessment of the level of empathy in difficult social situations based on direct relationships with others.

According to Murphy and Algoe (2022), empathy is a process in which observation of others, reasoning, and emotional understanding and experience interact dynamically to understand another person's perspective. This tool can be used to assess whether the respondent can freely express their feelings and needs while caring for the needs and emotions of others. High scores may indicate that the respondent is open to criticism and can look at a situation from different perspectives. This also means that the person can see and accept different points of view, even if they do not agree with them. Higher levels of empathy, altruism, and interpersonal flexibility promote positive conflict resolution (Klimecki, 2019). It also allows conflicts to be viewed from different perspectives, making it easier to find a common language and develop compromise solutions. This questionnaire can be used to find out whether the person can communicate effectively, taking into account the needs and emotions of others; and whether they strive to resolve conflicts in a constructive and empathetic way. This conceptualisation of empathy makes it possible to understand the emotions, feelings, and needs of others and promotes positive interpersonal relationships, which inspires a person to help, altruism, and prosocial behaviour (Decety and Jackson, 2004).

## STATISTICAL DATA ANALYSIS PROCEDURE

Two independent studies were conducted. Study 1 aimed to confirm the four-factor structure of the instrument and assess the reliability of individual empathy dimensions. It also assessed the measurement equivalence of the models across gender and age. The cut-off age was 25 years, which is the point at which individuals graduate from university and enter the workforce, thus, transitioning into adulthood. Study 2 aimed to assess convergent and discriminate validity by testing the relationship between empathy dimensions included in the SEQ and empathy measured with other instruments available in Poland, and between empathy and aggression.

Statistical analyses were performed using JASP and SPSS Statistics version 28. Model fit was assessed using the chi-square statistic, where  $\chi^2/df < 2$  values suggest a good fit of the model to the data; the model fit index (CFI) and goodness of fit index (GFI), where GFI and CFI values  $> 0.9$  indicate a good and adequate fit of the model to the data. The root mean square error of approximation (RMSEA) was also considered, with a value of no more than 0.8 (Byrne, 2016). Two reliability coefficients, Cronbach's  $\alpha$ , and McDonald's  $\omega$ , were calculated. Multi-group confirmatory analysis (MG-CFA) was used to compare whether the measurement model for women was equivalent to the model for men and whether the measurement model obtained in Study 1 was equivalent to the data from Study 2. For this purpose, further models with increasing levels of constraint were evaluated, i.e.: configural, metric and scalar models (Meredith, 1993). To assess the external validity of the SEQ, Pearson correlation analysis was performed to investigate the relationship between empathy measured by the SEQ, IRI (Davis, 1980), and QCAE (Reniers et al., 2011) and between empathy (SEQ) and aggression (Buss and Perry, 1992).

## STUDY 1

### Research method and sample characteristics

Two studies were conducted. One group (Study 1) was administered the 40-item version of the questionnaire and the other group (Study 2) the revised 33-item version. A total of 1,149 adults aged between 18 and 74 years participated in the study. The study was conducted between 2020 and 2022. The participants were asked to complete a demographic questionnaire to report on their age, sex, place of residence, education, and professional activity. Study 1 included 786 individuals aged 18–74 ( $M = 26.5$ ,  $SD = 10.5$ , 62% women). The majority of respondents had secondary (63%) or higher (30%) education and were employed (50%) or studying (40%). 33% of the respondents lived in rural areas, 27% in a small town and 39% in a large city.

This study was conducted using snowball sampling via an online platform. Participation in the study was voluntary and completely anonymous, and the participants were informed of the purpose of the study and their right to withdraw at any time. Informed consent was obtained from all participants prior to the start of the study. The study was approved by the Research Ethics Committee of the University. The procedure for adapting the psychological instrument to WHO standards was that, after obtaining permission from the authors of the original tool, two independent translators translated it from Portuguese into Polish. An appointed panel of experts, i.e. two developmental psychologists with expertise in developmental psychology and statistical knowledge of the cross-cultural adaptation of tools, compared the translations to obtain an unambiguous language version.

The original IE questionnaire was developed by Falcone et al. (2008) in Brazil. It was based on the use of 16 social situations in which empathic skills are essential. Initially, 74 items were created that measured cognitive, affective, and behavioural empathy revealed in different social contexts. These include empathic behaviours shown when starting, maintaining, and ending a conversation with another person; asking for a behaviour change; responding directly to criticism; expressing personal opinions; talking to someone in distress; ending a relationship; collecting a debt; and expressing positive and negative emotions (Falcone et al., 2008). Ultimately, 40 statements were left in the questionnaire, 17 of which were scored in reverse fashion. A four-factor solution with four dimensions of empathy proved to be the best. Respondents were asked to mark answers on a 5-point Likert scale (from 1 – *never* to 5 – *always*), rating the frequency of the described behaviour in their daily life.

During works on the Polish version of measure, additional insight was gained into the questions included in each category, resulting in the development of more elaborate names of examined dimensions, and a more precise understanding of individual aspects measured by the IE questionnaire. First, as this instrument assesses the level of empathy in a social context, it was decided to set down the Polish name as the Social Empathy Questionnaire (SEQ). Second, the names of the subscales were more elaborated, as the understanding of each of the four aspects of empathy examined was more profound.

Taking the others' perspective (TP – *Tomada de Perspectiva*) is the ability to understand another person's perspective and feelings, especially in situations of the conflict of interest (e.g. when a person is criticised or disagrees with a conversation interlocutor), where an effort to understand another person before expressing one's own point of view is necessary (Falcone et al., 2008). Perspective taking is considered as a dimension of cognitive empathy. This dimension assesses the ability to understand the emotions, feelings, and motivations of others, to see the situation from the other person's point of view. It is important to understand the

reasons behind other people's behaviour and statements, even if they are critical and difficult to accept.

Interpersonal flexibility and openness to compromise (FI – *Flexibilidade Interpessoal*) is conceptualised as the ability to tolerate the behaviour, thoughts, and attitudes of others that differ from one's own, which may cause frustration (Falcone et al., 2008). According to the authors of the original tool, interpersonal flexibility is also viewed as a dimension of cognitive empathy. A low score indicates difficulty in accepting others' opinions, attitudes, and behaviour, and impulsivity in verbal and non-verbal communication. Low flexibility also indicates a high tendency of the person surveyed to be confrontational and defensive based on criticism and a desire to dominate the other person, which translates into poor effective and efficient social communication skills, misunderstandings, conflicts, and cooperation problems.

Altruism-deferring decisions for the good of others (the original name is *Altruismo*) is making decisions that prioritize the well-being of others, often involving self-sacrifice to selflessly help them. Altruism was included in the emotional dimension of empathy. A low score indicates selfish tendencies and a lack of interest in other people's problems. The statements in this subscale focus primarily on the ability to defer decisions out of concern for the other person's welfare. A high score indicates an understanding of the feelings and needs of others, even in situations that are difficult for a person.

Emotional sensitivity and concern for others (SE – *Sensibilidade Afetiva*) reflects a feeling of interest in the emotional state of the other person, and the ability to adapt one's behaviour to the emotions and feelings of the other person (Falcone et al., 2008). Emotional sensitivity is a dimension of emotional empathy. People with high level of emotional sensitivity express their needs clearly and honestly, the same time leaving space for refusal and negotiation, as well as respecting the boundaries or limitations of others. A low score indicates paying little attention to the emotions of others. Low-scoring person shows a lack of concern for emotional wellbeing of others and low sensitivity to their needs in interpersonal relationships.

## Results

### *Confirmatory factor analysis*

Four confirmatory models were tested in the analyses. Table 1 presents the fit indices of the analysed models. The first model was assumed to confirm the structure of the 40-item tool. However, the confirmatory analysis showed a very poor fit to the data,  $\chi^2(732) = 2965.20$ ;  $p < 0.001$ ; CFI = 0.853; RMSEA = 0.062 [90% CI: 0.060; 0.065]; SRMR = 0.074. For items 5, 16, 24, 26, 32, 36, and 40, factor loadings were below 0.3 or cross-loading occurred, therefore, it was decided to test the 33-item version (excluding the problematic items with low factor loadings). For the 33-item version, three models were tested: a one-factor model, a four-factor model, and



a four-factor model with two additional covariates (MI). The weakest unacceptable fit was manifested by the one-factor model. In the 33-item version of the 4-factor model, the fit indices of the model to the data without including the additional error covariates were acceptable. However, when the additional 2-paired covariates (4-35, 2-22) were included, the model fit indices improved even further. This model was the best fit of all tested models and this version of the tool was further analysed.

Table 1.  
*Summary of the fit of the CFA models for the 33-item version*

Models	$\chi^2$	df	$p$	CMIN/ df	RMSEA	90% CI RMSEA	SRMR	CFI
33-item – 1-factor model	2912.44	495	<0.001	5.88	0.079	0.076–0.082	0.089	0.798
33-item – 4-factor model	1223.33	489	<0.001	2.50	0.044	0.041–0.047	0.058	0.939
33-item – 4-factor model with MI	1156.44	487	<0.001	2.37	0.042	0.039–0.045	0.056	0.944

Source: Author's own study.

The factor structure of the Polish SEQ shows that factor loadings ranged from 0.3 to 0.71 (see Supplementary Materials). In the first and second subscales, the item structure was identical to the original version. Seven items were removed (three from the FI scale – items 5, 24, 32 and four from the AL scale – items 16, 26, 36, 40), six of which were reverse scored. The questionnaire ultimately contained 12 statements in taking the perspective of others (TP) scale, 7 statements in interpersonal flexibility and openness to compromise (FI) scale, 5 statements in altruism-deferring decisions for the benefit of others (AL) scale, and 9 statements in emotional sensitivity and concern for others (SE) scale. The scores on the two subscales (FI and AL except item 2) should be reverse coded before calculating the results.

#### *Internal consistency of the questionnaire*

Cronbach's  $\alpha$  and McDonald's  $\omega$  coefficients were used to estimate the overall internal consistency of the instrument and consistency of individual subscales. The coefficients indicated an acceptable reliability, with the altruism scale having the lowest reliability while the perspective taking scale has the highest. Descriptive statistics and reliability results for the empathy questionnaire and the four empathy dimensions are presented in Table 2.

HTMT correlation coefficient analysis was used to assess discriminant validity. The cut-off value of 0.85 was used in the analysis: values below this threshold indicate that discriminant validity is fulfilled. Weak to moderate correlations were



found between the individual factors, not exceeding the threshold of 0.85. The strongest HTMT correlation occurred between the cognitive (TP) and emotional (SE) dimensions of empathy. The strongest HTMT correlation was between TP and SE (0.61). A slightly weaker correlation was found between AL and SE (0.41) and between AL and FI (0.55). For AL and TP, the HTMT was 0.28. The weakest correlations were found between FI and TP (0.15) and between FI and SE (0.16).

Table 2.  
*Descriptive statistics and internal consistency for dimensions and total empathy score*

Empathy dimensions	Min-Max	<i>M</i>	<i>SD</i>	Skew-ness	Kurto-sis	Cron-bach's $\alpha$	McDonald's $\omega$
Perspective Taking (TP)	1.33–5.00	3.41	0.56	-0.16	0.34	0.84	0.83
Interpersonal Flexibility (FI)	1.00–4.71	2.64	0.60	0.04	-0.15	0.71	0.68
Altruism (AL)	1.00–5.00	3.34	0.69	-0.42	0.35	0.63	0.57
Emotional Sensitivity (SE)	1.67–5.00	3.88	0.55	-0.53	0.58	0.77	0.75
Empathy (total score)	1.76–4.61	3.36	0.41	-0.23	0.58	0.85	0.87

Source: Author's own study.

### *Gender equivalence*

To check whether the presented model had measurement equivalence across men and women, configural, metric, and scalar analyses were performed using multi-group confirmatory analysis (MGCFA). As shown in Table 3, the fit of the configural, metric, and scalar model was satisfactory. The differences between the baseline (configural) model and the metric model, as well as between the baseline and the scalar model, were small and did not exceed the acceptable threshold of 0.010. This demonstrates the measurement equivalence of the model in the analysed groups.

Table 3.  
*Measurement equivalence of the model across gender*

	$\chi^2$	df	<i>p</i>	RMSEA	90% CI RMSEA	SRMR	CFI	$\Delta$ CFI	$\Delta$ RMSEA
Women	933.04	487	<0.001	0.044	0.039–0.048	0.063	0.943		
Men	639.55	487	<0.001	0.032	0.025–0.039	0.068	0.963		
Configural	1572.59	974	<0.001	0.040	0.036–0.043	0.065	0.950		
Metric	1661.30	1003	<0.001	0.041	0.037–0.044	0.067	0.945	0.005	0.001
Scalar	1733.08	1032	<0.001	0.042	0.038–0.045	0.066	0.941	0.009	0.002

Source: Author's own study.

## STUDY 2

### Research method and sample characteristics

The sample in Study 2 included 363 adults. Participants' ages ranged from 18 to 70 years ( $M = 28.23$ ,  $SD = 11.28$ ). The majority of study participants had secondary education (55%), lived in big or small cities (70%), were employed (45%), students (44%), as well as non-working people (11%). Data were collected using the paper-and-pencil technique (snowball sampling). Respondents voluntarily agreed to participate in the research and they were given assurance of anonymity. Before completing the questionnaires, respondents marked their consent to participate in the study.

### Measures

The Polish SEQ tested in Study 1 was used again in Study 2. The scale consists of 33 items grouped into four subscales: TP, FI, AL, and SE. Cronbach's  $\alpha$  for the total scale was 0.85.

Interpersonal Reactivity Index (IRI) (Davis, 1980, 1983) is a 28-item measure consisting of 4 subscales: perspective taking (PT), measuring cognitive empathy, empathic concern (EC) measuring affective empathy, and personal distress (PD) measuring feelings of personal distress caused by the emotions of others. The fantasy scale (FS) measures the ability to empathise with fictions characters in books or films. In this study, Cronbach's  $\alpha$  was 0.87.

The Questionnaire of Cognitive and Affective Empathy (QCAE) (Reniers et al., 2011, translated into Polish by the author). The QCAE consists of 31 items grouped into five dimensions of empathy. Two of them measure cognitive empathy: perspective taking (PT) and online simulation (OS). The other three measure affective empathy: emotion contagion (EC), proximal responsivity (PrR), and peripheral responsivity (PeR). The reliability of the scale in this study was 0.88.

The Aggression Questionnaire (Buss and Perry, 1992) in the Polish adaptation by Aranowska and Rytel (2012) was used to measure aggression. The scale consists of 29 items, contained in four subscales: physical aggression, verbal aggression, anger, and hostility. Furthermore, two dimensions of hostility are additionally distinguished as 1) resentment and jealousy, and 2) suspicion of kindness. Cronbach's  $\alpha$  was 0.86.

## Results

### *Measuring Equivalence of Study 1 and Study 2*

Before starting the analyses of convergent and divergent validity, the equivalence of the two models was tested by comparing the results of Study 1 and Study 2. For this purpose, results of the configural, metric, and scalar analyses were compared using multi-group confirmatory factor analysis (MGCFA). As shown in Table 4, the fit of the configural, metric, and scalar models was acceptable. The differences

between the configural model and the two more restrictive models did not exceed the acceptable threshold of 0.010, demonstrating the measurement equivalence of the models across both groups.

Table 4.  
*Measuring equivalence across the two studies*

	$\chi^2$	<i>df</i>	<i>p</i>	RMSEA	90%CI RMSEA	SRMR	CFI	$\Delta$ CFI	$\Delta$ RMSEA
Study 1	1156.44	487	<0.001	0.042	0.039–0.045	0.056	0.944		
Study 2	748.38	487	<0.001	0.039	0.033–0.045	0.067	0.952		
Configural	1904.82	974	<0.001	0.041	0.038–0.044	0.059	0.946		
Metric	1940.66	1003	<0.001	0.041	0.038–0.043	0.060	0.946	0.000	0.000
Scalar	1959.39	1032	<0.001	0.040	0.037–0.042	0.059	0.947	0.001	0.001

Source: Author's own study.

#### *External Validity of the Social Empathy Questionnaire*

Correlations between the dimensions of the SEQ and the IRI and QCAE indicated good convergent validity of the tool (Table 5). Perspective taking was positively and quite strongly related to cognitive empathy in both instruments. Emotional sensitivity (SE) taken as an affective dimension of empathy in the SEQ correlated most strongly with the affective dimensions of empathy in the IRI (EC) and the QCAE (PrR), although it also correlated quite strongly with cognitive empathy. Interpersonal flexibility (FI) was found to be positively associated with all IRI empathy subscales and positively associated with online simulation (OS) but negatively linked with perspective taking as measured by QCAE. Altruism-deferring decisions for the benefit of others is positively associated with the cognitive and emotional empathy subscales measured using the IRI questionnaire. AL was also associated with empathy as measured by the QCAE, especially affective empathy (EC and PrR) and the total score (AffE), as well as with one dimension of cognitive empathy (OS).

To test the discriminant validity of the SEQ, the relationships between the empathy dimensions and the level of aggression and its subscales were analysed. As shown in Table 6, all empathy dimensions were correlated negatively with different levels of aggression. Cognitive empathy (perspective taking) and affective empathy (emotional sensitivity) were negatively associated with both the overall aggression score and its main subscales. Interpersonal flexibility showed the strongest negative correlation with verbal aggression, while the association with the other scales was weak. Altruism showed a weakly negative association with all dimensions of aggression. Detailed correlation results between empathy and hostility showed that all dimensions of empathy are associated with a suspicion of kindness, but only taking perspective is associated with jealousy and resentment. All other relationships were insignificant.

Table 5.

*Correlations between SEQ dimensions of empathy and empathy measured using the IRI and QCAE*

	Age	Sex	IRI				QCAE						
			PT <sub>1</sub>	EC	PD	F	PT <sub>2</sub>	OS	EC	PrR	PeR	CogE	AffE
TP	-.08	-.12*	.65**	.38**	.10	.34**	.41**	.69**	.15**	.38**	.13*	.62**	.29**
FI	.06	-.02	.27**	.21**	.26**	.17**	-.21**	.17**	-.01	.07	.05	-.04	.05
AL	.02	.06	.19**	.24**	.12*	.07	-.02	.18**	.15**	.25**	.04	.08	.19**
SE	-.00	-.25**	.45**	.44**	.24**	.27**	.40**	.43**	.27**	.43**	.17**	.47**	.38**

Note: PT<sub>1</sub> – Perspective Taking, EC – Emotional Concern, PD – Personal Distress, F – Fantasy, PT<sub>2</sub> – Perspective Taking, OS – Online Simulation, EC – Emotional Contagion, PrR – Proximal Responsivity, PeR – Peripheral Responsivity, CogE – Cognitive Empathy total score, AffE – Affective Empathy total score.

Source: Author's own study.

Table 6.

*Correlations between SEQ dimensions of empathy and aggression*

	A	VA	PA	H	H <sub>1</sub>	H <sub>2</sub>	AGG
TP	-.20**	-.14**	-.18**	-.20**	-.13*	-.20**	-.25**
FI	-.17**	-.54**	-.26**	-.15**	-.01	-.23**	-.34**
AL	-.12*	-.20**	-.14**	-.14**	-.09	-.14**	-.19**
SA	-.17**	-.21**	-.24**	-.11*	-.01	-.23**	-.24**

Note: A – Anger, VA – Verbal Aggression, PA – Physical Aggression, H – Hostility, H<sub>1</sub> – Jealousy and Resentment, H<sub>2</sub> – Suspicion of Kindness, AGG – Aggression total score.

Source: Author's own study.

In addition, it was tested whether there was any relationship between the level of empathy and the demographic variables of the study subjects, such as education, place of residence, and professional activity. Pearson correlation showed that only interpersonal flexibility and openness to compromise (FI) showed a weakly positive correlation with the level of education ( $r = 0.08$ ,  $p < 0.05$ , the higher the education the higher the flexibility), while the other demographic variables were not significantly associated with empathy level.

## DISCUSSION

The aim of this study was to perform a cross-cultural adaptation and validation of the Polish version of Empathy Inventory (IE), named Social Empathy Questionnaire, designed to be used in the adult population. The results of the present study confirm previous empirical reports that empathy should not be treated as a uni-dimensional construct. Although the number of items in the Polish version of the questionnaire was changed, the findings of the first study confirmed the four-factor structure. The results of the psychometric properties of the SEQ showed that, with the removal of seven items, a robust 33-item scale consisting of four subscales was obtained. Reliability assessed using Cronbach's  $\alpha$  and McDonald's  $\omega$  indicators confirmed that all dimensions of empathy in the analysed Polish version of the instrument have satisfactory parameters. The results of the multi-group confirmatory factor analysis confirmed the equivalence of female and male models. Thus, the differences between the scores obtained by women and men using this measure can be interpreted as true gender differences. The discriminant validity of the instrument, as measured by the HTMT index, was satisfactory.

The second study tested the convergent and divergent validity of the adapted tool. Convergent validity, tested with other empathy tools (IRI and QCAE), confirmed the existence of a weak and moderate positive correlation between all empathy dimensions of the Polish SEQ and cognitive and emotional empathy subscales measured with other tools. Interestingly, interpersonal flexibility and openness to compromise (FI), treated by the authors as a cognitive dimension of empathy, did not correlate significantly with emotional empathy as measured by the QCAE, whereas it correlated with cognitive empathy; positively with online simulation but negatively with perspective taking. These findings suggest a need for further exploratory research to clarify the nature of this subscale.

Discriminant validity also confirmed that the empathy subscales of the SEQ were distinguishable from other measures, such as aggression. Correlations between the empathy dimensions and aggression subscales showed that there was a negative relationship between all examined empathy subscales and anger, verbal aggression, physical aggression, and hostility. When hostility was distinguished as jealousy and resentment, or suspicion of kindness, further findings emerged. Interpersonal flexibility, altruism, and emotional sensitivity were significantly associated with suspicion, whereas no such relationship was found for jealousy and resentment. The obtained results point to, on the one hand, the validity of the delineation of types of hostility and, on the other, to the complex nature of the extracted dimensions of empathy in the SEQ. Correlations between empathy and demographic variables revealed that women were more likely to present cognitive and affective empathy than men, and that better educated individuals had higher levels of interpersonal flexibility compared to respondents with lower education. Age, place of residence, and professional activity were not related to the declared

level of empathy in the Polish sample. The results of the Polish version of the SEQ suggest that the perspective taking subscale indeed represents the cognitive dimension, and emotional sensitivity represents the emotional dimension of empathy. However, the scales of interpersonal flexibility (FI) or the scale of altruism-deferring decisions for the benefit of others seem to rather act as behavioural dimensions of empathy than cognitive or emotional ones. This is consistent with the results of a later study by Falcone et al. (2013). These findings recommend a need for further in-depth research, analysis, and interpretation.

## CONCLUSIONS

The SEQ was designed to measure empathy in interpersonal relationships among adults. As the questionnaire contains four subscales, it allows to examine the cognitive, affective, and behavioural dimensions of empathy. What distinguishes this empathy screening tool from others is that questions about empathic behaviour are placed in the social context. Therefore, the SEQ can be used not only as a screening tool for the general Polish population but also as a diagnostic tool used to help diagnose people having difficulty establishing social relationships, aggressive individuals, socially excluded people, or those at risk of social maladjustment. This instrument can be useful in diagnosing or evaluating the effectiveness of psychological or psychotherapeutic interventions in order to support people with social relationship problems, characterised by high levels of aggression, and low levels of sensitivity, flexibility, or altruism. However, SEQ can be a useful tool used in business when recruiting employees, especially managers and team leaders, where effective communication, as well as building and cultivation of constructive long-term interpersonal relationships translating into professional effectiveness are important.

## STUDY LIMITATIONS

Some limitations of this study should be noted. First, despite the large number of participants, the study was cross-sectional. Second, the research presented in this paper is correlational, and the data comes exclusively from surveys based on respondents' self-reports, therefore the results should be interpreted with caution. Third, the Polish sample is homogeneous, which does not allow for the generalisation of the results to other countries or cultures. Another limitation of this study may be that it was conducted only among adults. Finally, although convergent and discriminant validity analyses were conducted, it is recommendable to conduct additional validity analyses considering other instruments.

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## WŁAŚCIWOŚCI PSYCHOMETRYCZNE POLSKIEGO KWESTIONARIUSZA EMPATII SPOŁECZNEJ: RZETELNOŚĆ, TRAFNOŚĆ I RÓWNOWAŻNOŚĆ PŁCI I WIEKU

**Wprowadzenie:** Empatia to dynamiczny proces rozwoju, wymagający elastycznego zachowania osoby empatyzującej w kontekście społecznym. Dlatego niezwykle ważne jest, aby poznać i zrozumieć społeczną funkcję empatii i jej dynamiczną naturę w relacjach interpersonalnych.

**Cel badań:** Celem badania była ocena właściwości psychometrycznych polskiej wersji Kwestionariusza Empatii Społecznej.

**Metoda badań:** Narzędzie to mierzy poziom empatii w relacjach interpersonalnych wśród osób dorosłych. Opiera się na czterech wymiarach empatii, tj. przyjmowaniu perspektywy innych, wrażliwości emocjonalnej i trosce o innych, elastyczności interpersonalnej i otwartości na kompromis, oraz altruizmie – odroczeniu decyzji dla dobra innych. Ocenia poziom empatii w kontekście społecznym, zwłaszcza w sytuacjach konfliktu. Przeprowadzono dwa badania z udziałem 1149 osób dorosłych w wieku od 18 do 74 lat.

**Wyniki:** W Badaniu 1 potwierdzono czteroczynnikową strukturę narzędzia i dokonano oceny rzetelności poszczególnych wymiarów empatii. Dokonano również oceny równoważności pomiarowej modeli dla płci żeńskiej i męskiej oraz dla wieku. Badanie 2 miało na celu ocenę trafności zbieżnej i rozbieżnej.

**Wnioski:** Uzyskane wyniki potwierdziły, że 33-itemowa polska wersja narzędzia wykazuje dobre właściwości psychometryczne. Może być używana zarówno w badaniach naukowych oraz jako narzędzie diagnostyczne, pomocne w diagnozie osób z trudnościami w nawiązywaniu relacji społecznych czy zagrożonych niedostosowaniem społecznym. Może również być przydatna w biznesie, zwłaszcza w rekrutacji pracowników na stanowiska wymagające efektywnej komunikacji interpersonalnej, wpływającej na efektywność pracy.

**Słowa kluczowe:** empatia społeczna, kwestionariusz empatii, właściwości psychometryczne, rzetelność, trafność

### Supplementary Materials

#### Factor structure of the Polish version of the Social Empathy Questionnaire SEQ (N = 786)

Item	Treść itemu	Ładunek	Z**	95% CI
6	Gdy ktoś mnie krytykuje, często stawiam się na miejscu tej osoby, aby zrozumieć jej uczucia i argumenty.	0,62	32,90	0,59; 0,66
10	Zanim poproszę osobę o zmianę zachowania, które mi przeszkadza, próbuję postawić się na jej miejscu, aby zrozumieć, co doprowadza do takiej postawy.	0,55	29,55	0,51; 0,59
11	Łatwo jest mi zrozumieć punkt widzenia drugiej osoby, nawet gdy mnie krytykuje.	0,48	28,31	0,45; 0,52
12	Przed wskazaniem zachowania, które mi w kimś przeszkadza, staram się pokazać, że szanuję jego uczucia i rozumiem jego racje.	0,54	30,91	0,51; 0,57
17	Kiedy ktoś mnie krytykuje, staram się poznać powody tej krytyki.	0,43	23,17	0,40; 0,47
18	Kiedy nie zgadzam się z moim rozmówcą, staram się go wysłuchać, a następnie wyrazić zrozumienie jego punktu widzenia zanim przedstawię mój własny pogląd.	0,55	32,29	0,52; 0,59
21	Przed wyrażeniem opinii na temat czegoś, z czym się nie zgadzam, staram się zrozumieć punkt widzenia wszystkich zainteresowanych stron.	0,59	34,61	0,56; 0,62
23	Jeśli o coś poproszę i otrzymam odmowę, staram się zrozumieć jej przyczyny, mimo mojej frustracji.	0,47	27,11	0,44; 0,51
25	Kiedy ktoś mnie skrytykuje, zapewniam go, że rozumiem jego przekaz, aby upewnić się, że zrozumiałem/am.	0,43	24,53	0,39; 0,46
28	Potrafię w pełni zrozumieć uczucia i powody osoby, która zachowywała się w stosunku do mnie wrogo lub chciała mi zaszkodzić.	0,43	24,42	0,40; 0,47
31	Przed wyrażeniem swoich poglądów w rozmowie, staram się zrozumieć punkt widzenia rozmówcy, zwłaszcza gdy różni się od mojego.	0,55	33,93	0,52; 0,58
33	Staram się postawić na miejscu osoby, przedstawiającej mi jakiś problem, by zobaczyć, jak bym się czuł/a i myślał/a, gdybym to ja znalazł/a się w tej sytuacji.	0,54	31,87	0,50; 0,57

Przyjmowanie perspektywy innych

Elastyczność Interpersonalna i otwartość na kompromis	4*	Kiedy ktoś robi coś, co mi się nie podoba, swobodnie wyrażam swoje niezadowolenie.	0,39	16,07	0,34; 0,44
	8*	Gdy ktoś mnie krytykuje, zwykle natychmiast się bronię.	0,44	17,22	0,39; 0,49
	9*	Kiedy zdaję sobie sprawę z tego, że moja opinia różni się od opinii mojego rozmówcy, staram się być bardziej zdecydowany/a.	0,49	19,33	0,44; 0,54
	13*	Gdy proszę o coś niezgodnego z interesami innej osoby, staram się być tak przekonujący/a, aby dostać to czego pragnę.	0,56	18,75	0,50; 0,62
	19*	Gdy ktoś wyraża pogląd sprzeczny z moim, czuję się poirytowany i staram się szybko udowodnić mój punkt widzenia.	0,64	22,71	0,58; 0,69
	30*	Nie mogę milczeć, gdy słyszę, jak ktoś mówi bzdury.	0,49	19,63	0,44; 0,54
	35*	Kiedy widzę, że ktoś zachowuje się w sposób, który mi przeszkadza, natychmiast wyrażam niezadowolenie, żeby wszystko było między nami jasne.	0,45	17,04	0,40; 0,50
Altruizm-Odroczenie decyzji dla dobra innych	2	Odroczył/abym decyzję o zakończeniu związku, jeśli wiedział/abym, że partner/ka ma kłopoty.	0,44	14,76	0,39; 0,50
	3*	Jeśli się spieszę, a ktoś nalega na dalszą rozmowę, ucinam szybko temat, mówiąc, że muszę iść.	0,41	17,50	0,36; 0,45
	20*	Jeśli ktoś jest mi coś winien, natychmiast ściągam dług, mimo że ta osoba może mieć powody uzasadniające zwłokę.	0,67	24,45	0,62; 0,73
	22*	Lepiej jest od razu zakończyć relację z osobą niż odraczać tę decyzję, nawet jeśli nie jest to najlepszy moment dla tej osoby.	0,39	14,75	0,34; 0,44
	38*	Gdy ktoś nie płaci tego, co jest mi winien, bardzo się złościę i nie waham się ściągnąć długu.	0,71	23,63	0,65; 0,77
Wrażliwość emocjonalna i troska o innych	1	Kiedy o coś proszę, staram się upewnić, że moja prośba nie spowoduje dyskomfortu u drugiej osoby.	0,53	28,59	0,49; 0,56
	7	Gdy muszę poprosić o coś osobę, która jest zajęta, zanim poproszę zapewniam, że wiem, jak bardzo jest zajęta.	0,61	29,01	0,57; 0,65
	14	Po wysłuchaniu znajomego, który ma kłopoty, unikam komentowania moich osiągnięć.	0,45	23,82	0,42; 0,49
	15	Rezygnuję z poproszenia kogoś o coś dla mnie ważnego, jeśli moja prośba jest dla niego bardzo uciążliwa.	0,49	25,01	0,45; 0,53
	27	Unikam wyjawiania moich problemów osobistych, gdy wiem, że druga osoba ma kłopoty.	0,30	18,25	0,27; 0,34
	29	Przed opowiedzeniem o problemach przyjacielowi, staram się upewnić, że jest otwarty na wysłuchanie mnie	0,47	24,57	0,43; 0,51
	34	Podczas rozmowy staram się okazać zainteresowanie drugą osobą, przyjmując uważną postawę.	0,42	26,23	0,39; 0,45
	37	Gdy moja prośba jest sprzeczna z interesami danej osoby, staram się wyrazić moją szczerą wdzięczność za kłopot, jaki jej sprawiam.	0,56	27,22	0,52; 0,60
	39	Nie mówię o moim sukcesie, gdy jestem świadomy/a, że druga osoba jest smutna lub ma kłopoty.	0,45	23,83	0,42; 0,49

Note: \* reverse scoring, \*\* $p < .001$

