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ORIGINAL ARTICLE

Dyadic empathy in Polish samples: validation of the Interpersonal Reactivity Index for Couples

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BACKGROUND
Empathy as a multidimensional construct is considered a basis of satisfying intimate relationships. The role of other-oriented focus in empathizing with a partner has been highlighted. The Interpersonal Reactivity Index for Couples (IRIC) measures emotional and cognitive empathy displayed in the context of a romantic relationship and expressed towards the partner.

PARTICIPANTS AND PROCEDURE
A total sample of 2339 individuals in intimate relationships (including 1006 couples) participated in the research. Three studies are presented on adaptation of the IRIC to Polish in the context of participants' emotional and relational functioning.

RESULTS
The two-factor structure of the measure was confirmed. However, the specific content of two factors was modified to better fit the data. A reliable and valid measure of empathic tendencies in couples has been obtained. Emotional dyadic empathic concern and cognitive dyadic perspective taking were associated with general emotional and cognitive empathy as well as with relationship satisfaction. Correlations with emotional contagion, stress and attachment were also explored.

CONCLUSIONS
The IRIC is a short, reliable and valid measure of empathic tendencies in couples to be easily implemented in research and practice. Personal traits of both partners should be seen as predictors or correlates of dyadic empathy. The presented research results might be applied to the design of interventions and programs increasing quality of romantic relationships.

KEY WORDS
perspective taking; empathy; empathic concern; intimate relationship

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BACKGROUND

In times when happy romantic relationships are usually built on mutual fulfillment of needs for emotional intimacy (*expressive marriage*; Twenge et al., 2003) and self-expression (Finkel et al., 2015), and hence on the basis of emotional interdependence rather than on material dependencies (Kagitcibasi, 1999), the lack of empathy as a 'social glue' is regarded as a major setback. The detrimental impact of absence of this 'social glue' on interpersonal functioning has been described in the Generation Me concept (Konrath et al., 2011) or even referred to as *empathy deficits* (Obama, 2006). Therefore, in psychological and sociological literature the advantages of empathic communication or listening, especially in the context of family and intimate couples (e.g., Kaźmierczak & Pawlicka, 2019; Plopa et al., 2019), have been popularized. In this paper, we present the validation of the Interpersonal Reactivity Index for Couples (IRIC) in Polish samples. It might be especially interesting to validate the IRIC in one of the largest populations of East Europe (Chopik et al., 2017). Thus we will try to show the assets of empathy in romantic couples.

EMPATHY IN GENERAL AND IN COUPLES

Empathy is generally regarded as a multifaceted construct with emotional and cognitive dimensions, which reflects individual differences in abilities and tendencies to feel, think and act empathically (Davis, 2006). In this paper we follow Davis' (2004, 2006) definition of empathy. Davis differentiates between two emotional components of such a general concept: *empathic concern* – a tendency to experience and express other-oriented compassion, sympathy and care towards others in need (similar to empathy by Batson, 2009 or to sympathy by Eisenberg & Eggum, 2009); and *personal distress* – a tendency to experience self-oriented negative emotions in response to others' distress, associated with physiological and emotional overarousal. Eisenberg (2009) draws attention to this differentiation between empathic focus on self or others in defining emotional empathic reactions, which have been related to more or less complex cognitive processes (Davis, 2006; Eisenberg & Eggum, 2009; Hoffman, 2003). In Davis' view cognitive components of general empathy are: *perspective taking* – the other-oriented tendency to take on others' point of view in everyday social situations, thus popular in relationship research; and *fantasy* – the tendency to imaginatively transpose oneself into situations of fictional characters, less often analyzed in the context of close relationships. Such defined general empathic dimensions are measured by the Interpersonal Reactivity Index (IRI; Davis, 1980, 1983).

Referring to the above described general concept of empathy, *dyadic empathy*, as defined by Peloquin and Lafontaine (2010), is a set of individual empathic tendencies expressed in the context of romantic relationships. In compliance with Davis' empathy model it should be viewed as more than a unidimensional construct, and consists of emotional and cognitive dimensions. The context of an intimate relationship might shape partners' empathic tendencies due to shared experiences of various problems and life challenges (Peloquin & Lafontaine, 2010), which highlights the role of other-oriented focus when empathy in couples is examined. Therefore, dyadic empathic concern and perspective taking should be considered as its main facets.

As such, dyadic empathy in couples has been shown to predict relationship satisfaction (Kimmes et al., 2014; Levesque et al., 2014; Peloquin & Lafontaine, 2010), including sexual satisfaction, relationship adjustment and quality in a such psychologically challenging time for a couple as transition to parenthood (Muise et al., 2017; Rosen et al., 2017). This type of empathy has been linked to reactions and behaviors that promote higher quality of intimate relationships, such as synchrony in positive interactions between partners (Coutinho et al., 2019). Therefore, dyadic empathy has been successfully included in training on relationship quality for romantic couples (Bernstein et al., 2015; Ramezani et al., 2019).

However, dyadic empathic concern (EC) and perspective taking (PT) might be of particular importance in challenging relational circumstances, when supporting a romantic partner (Francis et al., 2019) or forgiveness (Kimmes & Durtschi, 2016; Levesque et al., 2014) are needed. Therefore, correlations of dyadic EC and PT with stress and experiencing emotions of others are worth examination in the context of intimate relationships and with respect to gender. For example, significant effects of women's dyadic empathic concern and men's perspective taking for their partners' dyadic coping strategies were found (Levesque et al., 2014). Additionally, emotional regulation and management of stress while sustaining intimacy in close relationships are associated with secure attachment (low attachment anxiety and avoidance), and have been linked to higher dyadic empathy (e.g., Péloquin et al., 2011).

INTERPERSONAL REACTIVITY INDEX FOR COUPLES (IRIC)

The IRIC is designed to measure dyadic empathy expressed towards the partner in a romantic relationship. It is a two-factor measure of emotional and cognitive dyadic empathy (Peloquin & Lafontaine, 2010). Both IRIC dimensions refer to other-oriented empathy and as described above they are: *dyadic empathic concern (EC)* – emotional empathy toward the part-

ner (feelings of sympathy and care); and *dyadic perspective taking (PT)* – cognitive empathy toward the partner (adopting their psychological point of view). Thus they both reflect empathic tendencies to focus on a partner's feelings, needs or point of view.

The scale's structure has been confirmed in multiple samples. Peloquin and Lafontaine (2010) constructed the scale based on three Canadian samples, composed of participants involved in a heterosexual or in a homosexual romantic relationship, and on a group of heterosexual romantic couples. The two-factor model of the IRIC was confirmed in a Portuguese sample of participants who were in romantic relationships (Coutinho et al., 2015), in two Chilean samples of individuals involved in romantic relationships (Guzman Gonzalez et al., 2014) and in a sample of Iranian couples (Ramezani et al., 2019). Good psychometric properties were indicated and were better for dyadic perspective taking in the original version, whereas in Chile dyadic empathic concern did not show proper internal consistency. However, all previous studies indicated that the IRIC is a valid measure as both dyadic empathy factors were associated with general empathic concern and general perspective taking, and with a higher level of romantic satisfaction (Coutinho et al., 2015; Peloquin & Lafontaine, 2010). There were significant associations between two dyadic dimensions and between assessments of both partners in a romantic couple (Peloquin & Lafontaine, 2010). Additionally, the results of previously conducted research indicated factorial invariance across gender (Guzman Gonzalez et al., 2014; Peloquin & Lafontaine, 2010). The scale consists of 13 items in the original Canadian version (Peloquin & Lafontaine, 2010), 12 items in the Portuguese version (Coutinho et al., 2015) and 9 items in the Chilean version (Guzman Gonzalez et al., 2014). Thus, in the subsequent versions of the IRIC some items had to be removed (one from the EC subscale in the Portuguese version and four reversely coded items – three from the EC and one from the PT subscales – in the Chilean version).

RESEARCH OBJECTIVE

A research project on the Polish version of the IRIC[1] comprising three studies was planned. The Polish extended version of the IRIC was tested against the original model and the final structure was proposed. The factor structure (the two-factor model as opposed to a one-factor model), gender invariance, reliability coefficients, and test-retest stability for the IRIC were estimated in the largest sample of heterosexual couples (both informal and married). As suggested by Peloquin and Lafontaine (2010), we hypothesized that a two-factor model of the IRIC would be replicated with invariance across gender and lack of correlations with age and relationship duration was expected.

Additionally, in two samples of married couples and individuals in heterosexual relationships convergent, discriminant and concurrent validity were examined. Based on theoretical links between general and dyadic empathy dimensions we hypothesized that dyadic EC and PT would be associated with general EC and PT. Still, associations with taking on or catching others' emotions, that is with personal distress and emotional contagion, should have been stronger for dyadic EC – the emotional empathic factor – as compared with dyadic PT. In previous studies dyadic empathy has positively correlated with higher quality of intimate relationships and better management of challenging or stressful relational situations. Therefore, both EC and PT should be linked to higher satisfaction with a romantic relationship and negatively correlate with variables that decrease the quality of interpersonal relationships – with stress (in the sample of married couples) and with insecure attachment styles (which allow for analysis of reactions to close others' needs, emotions or behaviors in the sample of individuals in heterosexual relationships).

PARTICIPANTS AND PROCEDURE

PARTICIPANTS

Sample 1: Heterosexual couples

A total of $N = 950$ couples (1900 participants) participated in the study. The average age of participants was $M_{age} = 27.8$, $SD_{age} = 7.6$ (women were 27.2 years old on average and men were 28.5 years old on average). All participants were in a stable romantic relationship for 12 years on average ($M = 12.1$, $SD = 4.2$). Over 60% ($n = 589$ couples, 62% of total sample) of couples were married and over 5% ($n = 48$ couples, 5.1%) stated that they intended to marry in the near future. A random sample of $n = 192$ couples completed the IRIC for the second time (the same procedure) to estimate the time stability of the measure.

Sample 2: Married couples

One hundred and six married couples (212 participants) participated in the study, wives: $M_{age} = 43.0$, $SD_{age} = 10.9$; husbands: $M_{age} = 45.3$, $SD_{age} = 10.8$. The couples had been married for 17 years on average ($M = 17.8$, $SD = 11.5$). Eighty-five percent of couples ($n = 90$ couples) had children.

Sample 3: Individuals involved in heterosexual relationships

Two hundred and twenty-seven individuals involved in heterosexual relationships (119 women) took part

in the study. Women: M_{age} = 40.0, SD_{age} = 10.4; men: M_{age} = 40.5, SD_{age} = 11.9. Ninety-five percent of participants (n = 216) were married. The couples had been married for 18 years on average (M = 18.1, SD = 10.1). Seventy-six percent of participants (n = 173) had children.

PROCEDURE

All studies were limited to individuals involved in heterosexual relationships as previous research on the adaptation of the IRIC was primarily focused on such individuals and couples. Participants from three samples filled out an online (samples 1 and 3) or paper-and-pencil (sample 2) set of questionnaires. Couples from sample 1 completed online questionnaires (IRIC and demographic information form) with the assistance of an experimenter's assistants[2]. All couples from sample 2 were contacted personally by research assistants[3] to fill out the set of questionnaires (IRIC and questionnaires measuring general empathy, relationship satisfaction, stress). Participants from sample 3 filled out the questionnaires online (IRIC and questionnaires measuring general empathy, relationship satisfaction, emotional contagion and attachment); the general empathy questionnaires and the IRIC were filled out separately, with at least a two-week break to control for similarity of the questionnaires' content.

MEASURES

Couples and individuals in heterosexual relationships

Dyadic empathy. The IRIC measures empathic tendencies displayed in intimate relationships. As proposed by Peloquin and Lafontaine (2010), this is a two-factor, 13-item measure composed of dyadic empathic concern (dyadic EC, 7 items; feelings of compassion and care towards the partner in the intimate relationship) and dyadic perspective taking (dyadic PT, 6 items; considering the partner's point of view in the intimate relationship), with a 5-point Likert response scale from 1 (*I do not agree at all – does not describe me well*) to 5 (*I completely agree – describes me very well*). The higher the score is, the greater are empathic concern and perspective taking. The previous studies on cultural adaptation of the IRIC indicated that some modifications had to be implemented and several items had to be removed. Therefore, items from the Polish version of the Interpersonal Reactivity Index (SWE; Kaźmierczak et al., 2007) were added to create a 23-item two-factor version better fitted to the Polish cultural context – 12 items for dyadic EC and 11 items for dyadic PT. The process of modifications of the Polish IRIC and its psychometric properties are presented in the results section.

Demographic data. Participants from all samples provided personal information – e.g. age, marital status, relationship duration.

Married couples and individuals involved in heterosexual relationships

Empathy. The Polish version of the Interpersonal Reactivity Index (Davis, 1980, 1983) – the Empathic Sensitiveness Scale (*Skala Wrażliwości Empatycznej*, SWE; Kaźmierczak et al., 2007) – was used; it measures dispositional empathy and consists of 28 items with a 5-point Likert response scale from 1 (*does not describe me well*) to 5 (*describes me very well*). The SWE assesses three aspects of empathy: other-oriented, emotional empathic concern (EC, feelings of compassion and concern for unfortunate others; 11 items); self-oriented, emotional personal distress (PD, taking on others' negative emotions and experiencing others' unease and suffering or discomfort; 8 items) and other-oriented, cognitive perspective-taking (PT, adopting others' point of view in various social situations; 9 items). Higher scores mean higher EC, PD and PT (e.g. "I often have tender, concerned feelings for people less fortunate than me"). Cronbach's α values for empathic concern, personal distress and perspective-taking subscales in sample 2 were .72, .74, .72, respectively, and in sample 3 were .81, .80, .77, respectively.

Relationship satisfaction. The RELAT scale measures satisfaction with a romantic relationship (Kaźmierczak & Rostowska, 2010 – this is the Polish adaptation of the scale coming from the RELATionship Evaluation Questionnaire; Busby et al., 2001, 2009). It is a 7-item measure of satisfaction with the romantic relationship with a 5-point Likert response scale from 1 (*I am not satisfied at all*) to 5 (*I am completely satisfied*) asking the participants how satisfied they are with different areas of their relationship (e.g. intimacy, love, communication). The higher the score is, the more satisfied the partners are with their relationship. Cronbach's α for the scale in sample 2 was .76, and in sample 3 was .85.

Married couples

Stress. The Perceived Stress Scale (PSS-10; Juczyński & Ogińska-Bulik, 2009) is a 10-item measure of experienced stress with a 5-point Likert response scale from 0 (*never*) to 4 (*very often*). Respondents are asked about their feelings regarding their personal problems and dealing with them (e.g. "How often within the last month have you got angry, because you had no influence on what happened?"). Cronbach's α for the scale in sample 2 was .85.

Individuals involved in heterosexual relationships

Emotional contagion. The Emotional Contagion Scale (ECS; Doherty, 1997; Polish adaptation by Wróbel & Lundqvist, 2014) is a 15-item multidimensional measure of individual differences in susceptibility to emotional contagion of various emotions (e.g. "Being around happy people fills me with happy thoughts"), with a 5-point Likert response scale from 1 (*not at all*) to 5 (*always*). For the purpose of the present research emotional convergence regarding positive and negative emotions was analyzed. Cronbach's α in sample 3 for positive emotions was .79 and for negative emotions .83.

Attachment. The Experiences in Close Relationships-Revised (Fraley et al., 2000; Polish adaptation by Lubiewska et al., 2016) is a short 16-item scale that measures adult attachment regarding close relationships with a 7-point Likert response scale from 1 (*I do not agree at all*) to 7 (*I completely agree*). It assesses anxiety (8 items) and avoidance (8 items) in close relationships (e.g. "I am very worried about my close relationships"). Cronbach's α in sample 3 for each subscale – anxiety and avoidance – was .86.

DATA ANALYSIS

In sample 1 confirmatory factor analysis (CFA) using the maximum likelihood estimator and analysis of invariance were performed using the lavaan package in R, version 2.6.2 (Rosseel, 2012). Multiple fit indexes to assess the model's goodness of fit were used (Hu & Bentler, 1999; Simsek et al., 2005). The recommended fit indexes are: root mean square error of approximation (RMSEA; with values below 0.06 considered a good fit; Hu & Bentler, 1999), with the 90% RMSEA confidence intervals (CI); the standardized root mean square residual (SRMR; with values below 0.08 considered a good fit; Hu & Bentler, 1999); comparative fit index (CFI; criterion of model fit – CFI ≥ .95; Hu & Bentler, 1999; highly recommended by Batinic et al., 2008); and Tucker-Lewis index (TLI; cutoff value of .95; Hu & Bentler, 1999). Additionally, chi-squared statistics are reported (although known to be sensitive to sample size; MacCullum et al., 1996). In order to estimate internal reliability Cronbach's α and Macdonald's ω were calculated for dyadic EC and dyadic PT subscales and the total score was computed as the weighted mean of all ten items. In order to estimate uniqueness of subscales, average variance explained (AVE) and shared variance (MSV) were estimated for subscales and for the total score. All these indices were estimated for the total sample 1 and separately for males and females assuming gender scalar invariance. To analyze correlations with participants' age, relationship duration and convergent, concurrent and discriminant validity (in three samples) Pearson's r coefficients were calculated in IBM SPSS 25. The significance level was set at $p < .05$.

RESULTS

FACTOR STRUCTURE AND GENDER INVARIANCE

Confirmatory factor analysis (CFA) using maximum likelihood estimator was conducted to assess the structure of IRIC, which confirmed that the two-factor model is a better fit than a one-factor model. CFI and TLI values for the original IRIC (Péloquin & Lafontaine, 2010) and for the preliminary Polish version were not satisfactory. Therefore, items with standardized factor loadings (below .3) or with the reversed coding were removed (such negatively worded items, single or all, have been previously excluded in all cultural versions). The final Polish model of the IRIC with 10 items showed a good fit (see Table 1).

All standardized factor loadings for the two-factor model of the IRIC exceeded the .40 value and are presented in Table 2.

Table 1

Confirmatory factor analysis – goodness of fit indices (sample 1; N = 950 couples)

	n_{items}	χ^2	*df*	*p*	CFI	TLI	SRMR	RMSEA	RMSEA 90% CI	
									LLCI	ULCI
Model with one factor – preliminary Polish version	23	1002.80	229	< .001	.812	.793	.058	.060	.056	.063
Model with two factors – final Polish version	10	2103.72	45	< .001	.967	.956	.036	.046	.036	.056

Table 2

Factor loadings for two-factor model of IRIC (sample 1; N = 950 couples)

	Two-factor model	Estimates		
		Unstandardized	Standard error	Standardized
Dyadic empathic concern	1. Często zdarza mi się odczuwać czułość lub troskę w stosunku do mojego partnera/mojej partnerki, kiedy powiodło się jemu/jej gorzej ode mnie. *I often have tender, concerned feelings for my partner when he/she is less fortunate than me.*	1.012	0.107	0.411
	4. Kiedy widzę, że mój partner/moja partnerka jest wykorzystywany/wykorzystywana, czuję swego rodzaju potrzebę zaopiekowania się nim/nią. *When I see my partner being taken advantage of, I feel kind of protective towards him/her.*	1.226	0.096	0.669
	6. Jestem skłonny/skłonna do uczuciowego angażowania się w problemy mojego partnera/mojej partnerki. *I have a tendency to emotionally engage in problems of my partner.*	1.000		0.591
	8. Cierpienie mojego partnera/mojej partnerki wymaga ode mnie współczucia i troski. *Suffering of my partner requires my sympathy and care.*	1.338	0.107	0.635
Dyadic perspective taking	2. Staram się spojrzeć na nieporozumienie między nami ze strony mojego partnera/mojej partnerki, zanim podejmę decyzję. *I try to look at my partner's side of a disagreement before I make a decision.*	1.411	0.093	0.715
	3. Zanim ocenię zachowanie mojego partnera/mojej partnerki, staram się zrozumieć jego przyczyny. *Before I assess my partner's behavior, I try to understand its causes.*	1.000		0.571
	5. Czasami próbuję lepiej zrozumieć mojego partnera/moją partnerkę, wyobrażając sobie, jak sytuacja wygląda z jego/jej punktu widzenia. *I sometimes try to understand my partner better by imaging how things look from his/her perspective.*	1.271	0.084	0.699
	7. W naszym związku wierzę, że każdy medal ma dwie strony i staram się uwzględnić obie. *In my relationship, I believe that there are two sides to every question and I try to look at them both.*	1.013	0.076	0.579
	9. Kiedy mój partner/moja partnerka sprawi mi zawód, staram się zazwyczaj na chwilę „wejść w jego/jej skórę". *When I'm upset at my partner, I usually try to "put myself in his/her shoes" for a while.*	1.246	0.098	0.537
	10. Zanim skrytykuję mojego partnera/moją partnerkę, staram się sobie wyobrazić, jak sam/sama czułbym/czułabym się na jego/jej miejscu. *Before criticizing my partner, I try to imagine how I would feel if I were in his/her place.*	1.379	0.097	0.632

Note. Factor loadings for items 3 and 6 were constrained to 1, and SE of estimates were not computed.

Dyadic empathic concern and dyadic perspective taking were intercorrelated (r = .48, p < .001).

Next, we tested the IRIC for gender invariance (Table 3). The analysis indicated that the model of IRIC was gender invariant at the level of metric invariance – the factor structure and loadings for the two subscales were approximately the same in women and men. Metric invariance meant that the IRIC had the same psychometric properties, factorial validity and reliability in males and females in romantic relationships. However, the IRIC was variable at the level of strict invariance – the structure differed in men and women in the sense of items' intercepts and latent variables' means and variances.

RELIABILITY

Factorial reliability statistics are shown in Table 4. The table shows that in males the two IRIC subscales were closely related and their specific variance was nearly the same as the common variance.

TIME STABILITY

One hundred and ninety-six couples from sample 1 filled in the IRIC twice within a three-month interval and the time stability of EC was r = .66, and PT r = .69 (for males: r = .68, and r = .72, respectively; for females: r = .62, and r = .64, respectively).

AGE AND RELATIONSHIP DURATION

Due to the large sample size correlation coefficients of dyadic EC and PT with participants' age and relationship duration above .10 were statistically significant with p < .05, but trivial in effect size. Age and relationship duration explained 2-3% of dyadic empathy in sample 1 (see Table 5).

CONVERGENT, CONCURRENT AND DISCRIMINANT VALIDITY IN THE CONTEXT OF PSYCHOLOGICAL MEASURES

In samples of married couples and individuals involved in heterosexual relationships correlations with general empathy measures were analyzed (see Table 6). Statistically significant correlations between general and dyadic EC as well as PT were confirmed. Dyadic EC was also associated with general PT. Both dyadic subscales correlated with emotional contagion of positive emotions in the sample of individuals in heterosexual relationships. Only one (negative) correlation occurred between general per-

Table 3

Summary of the analysis of invariance (sample 1; N = 950 couples)

Model	Fit measures										Change statistics		
	df	AIC	BIC	χ^2	RMSEA	LO90	HI90	CFI	TLI	SRMR	χ^2	*df*	*p*
Configural	68	22941	23242	153.3	.051	.041	.062	.960	.947	.037			
Metric	76	22938	23200	166.4	.050	.040	.060	.957	.949	.043	13.12	8	.108
Scalar	84	22955	23178	199.2	.054	.044	.065	.946	.942	.046	32.83	8	< .001
Strict	86	22951	23165	199.6	.053	.043	.062	.946	.944	.047	0.37	2	.830

Table 4

Factorial reliability statistics (sample 1; N = 950 couples)

	Total sample			Females			Males		
	EC	PT	Total	EC	PT	Total	EC	PT	Total
Cronbach's α	.64	.79	.78	.62	.79	.75	.68	.78	.81
McDonald's ω	.65	.79	.81	.62	.79	.79	.67	.78	.83
AVE	.32	.39	.27	.39	.39	.36	.34	.38	.37
MSV	.23	.23	.49	.10	.10	.53	.44	.44	.42

Table 5

Correlations with participants' age and relationship duration (sample 1; N = 950 couples)

	Total sample		Males		Females	
	EC	PT	EC	PT	EC	PT
Age	−.11	−.11	.03	.06	−.14	−.11
Duration	−.09	−.10	.07	.07	−.17	−.11

Table 6

Regression results for the strongest CWB explanatory model achieved by stepwise regression

Sample	Dyadic empathic concern		Dyadic perspective taking	
Married couples (sample 2)	Wives	Husbands	Wives	Husbands
General empathic concern	.378***	.313**	.051	.070
General perspective taking	.223*	.405***	.484***	.668***
General personal distress	.036	−.028	−.073	−.241*
Individuals in heterosexual relationships (sample 3)				
General empathic concern	.292***		.269***	
General perspective taking	.196**		.482***	
General personal distress	.195**		.019	
Emotional contagion – positive emotions	.358***		.372***	
Emotional contagion – negative emotions	.181**		.128	

Note. $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$.

sonal distress and dyadic PT in the sample of married couples. In the sample of married couples dyadic EC was positively associated with emotional contagion of negative emotions.

Next, associations between dyadic subscales and relationship satisfaction as well as with stress and attachment styles were analyzed (see Table 7). All correlations between dyadic EC/PT and relationship satisfaction but one (wives' dyadic EC – husbands' relationship satisfaction) were statistically significant and positive in samples of married couples and individuals in heterosexual relationships. Dyadic PT was negatively associated with own and not with partner's stress, while there was only one statistically significant and negative correlation between dyadic EC and avoidant attachment style.

DISCUSSION

The Interpersonal Reactivity Index for couples has been tested in the Polish cultural context. The conducted research confirmed the two-factor structure of the measure, with emotional and cognitive factors. However, the specific content of two factors was modified to better fit the data. A reliable and valid measure of empathic tendencies in couples has been obtained.

Our findings confirmed that dyadic perspective taking seemed to be more easily analyzed in the context of couples than dyadic empathic concern. In previous research dyadic EC displayed worse (Peloquin & Lafontaine, 2010) or unsatisfactory (Guzman Gonzalez et al., 2014) psychometric properties. It might be partially caused by negatively worded items, which could be problematic in the context of intimate relationships. In the case of dyadic EC, inverse items refer to lack of emotional empathic sensitivity, compassion and care in couples and might be difficult to declare and assess in stable relationships. In previous research negatively worded items were removed: all inverse items from both dyadic subscales in Chile (Guzman Gonzalez et al., 2014) and one inverse item from a dyadic EC subscale in Portugal (Coutinho et al., 2015). In addition, we observed that dyadic EC items that referred to a more general affectivity, e.g. "I am often quite touched by things I see happen in my relationship" or "In my relationship with

Table 7

Concurrent and discriminant validity correlations of Polish version of IRIC – relationship satisfaction, stress and attachment styles

Sample	Dyadic empathic concern		Dyadic perspective taking	
Married couples (sample 2)	Wives	Husbands	Wives	Husbands
Concurrent validity				
Relationship satisfaction of wives	.219*	.269**	.261**	.238*
Relationship satisfaction of husbands	.088	.199*	.288**	.355***
Discriminant validity				
Stress of wives	.042	.054	−.293**	−.152
Stress of husbands	−.006	−.042	−.159	−.236*
Individuals in heterosexual relationships (sample 3)				
Concurrent validity				
Relationship satisfaction	.277***		.399***	
Discriminant validity				
Anxious attachment	−.103		−.039	
Avoidant attachment	−.174*		−.089	

Note. $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$.

my partner, I would describe myself as a pretty soft-hearted person" – with lack of direct reference to a partner, had lower factor loadings and had to be removed. It seemed that regarding the intimate relationship context these items might have been too broadly formulated as compared to the other scale's items and interpreted variously. In contrast, as cognitive empathy is closely linked to communication in couples, e.g. resolving conflicts, it might be easier for romantic partners to recall and assess their reactions comprising this particular empathic factor. It might be for that reason that previous research on empathy in intimate relationships focused more on cognitive empathy, that is perspective taking (Long & Andrews, 1990) or empathic accuracy (Ickes et al., 1990).

Thus we excluded inversely worded items from both subscales of the Polish version of the IRIC as well as those with the lowest factorial loadings and we added additional items to obtain a good fit to the Polish context. As a result, the dyadic EC subscale consists of 4 items and the dyadic PT is a 6-item subscale. Additionally, since two subscales were interrelated (especially in men, see Table 4), we also recommend using the total score of the IRIC if required (thus measuring other-oriented, emotional and cognitive, empathy in an intimate relationship).

Further analyses confirmed that dyadic PT is the factor linked to general cognitive empathy and to a lesser extent to general EC in sample 3. Dyadic PT was also associated with catching positive emotions from other people. It was unrelated or, in the case of husbands from sample 2, negatively related to general PD. Dyadic EC was related to general EC, but statistically significant correlations with general PT, and in sample 3 with general PD, occurred. Significant correlations of dyadic EC with catching not only positive but also negative emotions were also obtained.

Referring to the above described results, dyadic PT as a cognitive empathic component should be associated with better self-regulation, mental flexibility and lower or optimal levels of arousal (Eisenberg & Eggum, 2009). Thus negative associations between dyadic PT and stress (in married couples from sample 2) confirmed the abovementioned theses. Compassion and care defining dyadic EC have been linked to high emotional reactivity but still to other-focus and thus are related to both positive and negative emotions (e.g., Batson, 2009; Eisenberg & Eggum, 2009). Additionally, dyadic EC and PT (as in the case of general empathy) are other-oriented; therefore mutual associations of these dimensions are expected and confirmed previous findings and theses (Davis, 1980, 1983, 2004, 2006). Hence the presented results might indicate the complex nature of dyadic EC – an emotional empathic component that to a certain extent includes or stems from the perspective taking process (e.g., Eisenberg & Eggum, 2009).

The present research results confirm that both subscales of dyadic empathy correlate positively

with relationship satisfaction. The higher dyadic PT was, the more satisfied were both partners in couples in sample 2 and participants in intimate relationships in sample 3. Relationship satisfaction in wives was linked with dyadic EC of both partners whereas in husbands it was linked only with their own dyadic EC (sample 2). Peloquin and Lafontaine (2010) concluded that dyadic empathy might be of special value to women and their perception of intimate relationships. In addition, dyadic EC refers to such partners' reactions that are displayed in situations of emotional support and thus might be treated as 'natural' for women who function as emotional 'barometers' in relationships (Kiecolt-Glaser & Newton, 2001). In contrast, such tendencies might be viewed as a valued quality in male partners (e.g., Busby & Gardner, 2008; Kaźmierczak, 2013). These results are worth confirming in further studies. Furthermore, only one weak and negative correlation occurred between dyadic EC and avoidant attachment. Therefore further research might include measures designed to assess attachment in intimate relationships.

In conclusion, the findings of the present research project not only confirmed satisfactory psychometric properties of the IRIC in the Polish context, thus allowing for cross-cultural analyses, but also showed that empathic tendencies in intimate dyads have to be explored in the context of individual differences and experiences. Therefore, personal traits of both partners should be seen as predictors or correlates of dyadic empathy. In consequence, the IRIC constitutes a short and easily implemented measure with multiple possible uses. The present research results might be applied to the design of interventions and programs increasing quality of romantic relationships.

LIMITATIONS

The present research project consisted of three studies, in which a large sample of intimate couples (N = 1056) and 227 individuals involved in such relationships participated. However, distressed couples (e.g., in separation or in couple therapy) were not specifically addressed in the project, which might have limited the generalizability of the obtained results. Only heterosexual participants took part in the study, and repeating the analyses among homosexual individuals and couples would be desirable (e.g., Peloquin & Lafontaine, 2010). The Polish IRIC is a short measure, which facilitates its use in studies, but might negatively influence its diagnostic validity. Finally, as this research project was correlational, it would be valuable to test the significance of the IRIC in interventions designed to improve the quality of intimate relationships. Thus inclusion of experimental and qualitative data would further expand our knowledge on the role of dyadic empathy in couples.

Endnotes

1 The Polish name for the IRIC will be SWEP, referring to a general empathy questionnaire, SWE (Kaźmierczak, Plopa, & Retowski, 2007).

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