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The polish version of the Affectionate Communication Index. Preliminary report

Polska wersja Indeksu Komunikacji Afektywnej. Raport wstępny

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Abstract: The aim of the present study was to investigate the psychometric properties of the Polish version of the Affectionate Communication Index (ACI). The study comprised 430 participants (of which 61,63% were female). Their age ranged from 18 to 36 (*M* = 27,41; *SD* = 4,72). The Affectionate Communication Index (ACI), the Adult Siblings Relationship Questionnaire – short version (ASRQ-SF), and the Empathic Sensitiveness Scale (ESS) were applied as research tools.
The results of exploratory factor analysis indicated the advisability of a two-factor solution in the Polish version of the ACI, unlike in the original version, where a three-factor solution was implemented. The internal consistency of the Polish version of ACI factors was determined by Cronbach's α factor which ranged from 0,89 to 0,93. Affectionate communication was marked by differences between the sexes. Women obtained higher mean scores within the dimension of support and nonverbal communication than men. The ASRQ and EES questionnaires measured the external validity of the ACI. The results confirm the external validity of the Polish adaptation of the ACI.
Summing up, the results of the study suggest that the Polish version of ACI is a tool with good psychometric properties that allows a multidimensional measurement of the quality of affectionate communication in terms of support and nonverbal and verbal communication.
Keywords: affectionate communication, measurement, empathy, adult sibling relationship

Abstrakt: Celem przedstawionych badań było określenie właściwości psychometrycznych polskiej wersji Indeksu Komunikacji Afektywnej (ang. Affectionate Communication Index). Uczestnikami badań było 430 osób (w tym 61,63% kobiet). Badani znajdowali się w przedziale wiekowym od 18 do 36 roku życia (*M* = 27,41; *SD* = 4,72). Wykorzystano następujące narzędzia badawcze: Affectionate Communication Index (ACI), Kwestionariusz Relacji Dorosłego Rodzeństwa (ASRQ-SF) oraz Empathic Sensitiveness Scale (ESS).
Wyniki eksploracyjnej analizy czynnikowej wykazały zasadność dwuczynnikowego rozwiązania polskiej wersji ACI, odmiennie niż w oryginalnej wersji narzędzia, cechującej się rozwiązaniem trójczynnikowym. Spójność wewnętrzna polskiej wersji ACI została określona za pomocą współczynnika α- Cronbacha, który osiągnął wysokie wartości, mieszczące się w przedziale od 0,89 do 0,93. W zakresie komunikacji afektywnej wystąpiły różnice międzypłciowe. Badane kobiety uzyskały wyższe wyniki średnie w zakresie wymiaru *Wsparcie i komunikacja niewerbalna* niż mężczyźni. Trafność zewnętrzną ACI określono z wykorzystaniem kwestionariusza do badania *Relacji Dorosłego Rodzeństwa* (ASRQ) oraz *Indeksu Wrażliwości Empatycznej* (EES). Uzyskane wyniki konfirmują trafność zewnętrzną polskiej adaptacji ACI.
Reasumując, stwierdzono, że polska adaptacja ACI stanowi narzędzie o dobrych właściwościach psychometrycznych, służące do pomiaru komunikacji afektywnej na wymiarach *Wsparcie i komunikacja niewerbalna* oraz *Komunikacja werbalna*.
Słowa kluczowe: komunikacja afektywna, pomiar, empatia, relacje dorosłego rodzeństwa

Introduction

The desire to be loved and appreciated has a fundamental meaning for the development of a human being, and one of the ways of expressing feelings can be through affectionate communication (Floyd, Pauley and Hesse, 2010). Affectionate communication is understood as both a verbal and nonverbal form of communicating, thanks to which people try to express their positive attitude to each other (Rittenour et al., 2007). It is assumed that the aim of emotional communication is the facilitation of establishing close interpersonal relationships between people (Floyd, 2002).

Floyd (2019) showed that emotional communication has a significant meaning for the quality of the social functioning of a person. People using emotional communication enjoy better mental health, feel happier, are self-confident and demonstrate greater social activity whereas people with a lower level of emotional communication skills are more vulnerable to stress, depression, and sometimes even to experiencing social isolation. Summing up, a high level of emotional communication definitely allows people to get more satisfaction from interpersonal relationships (Bell, 2014).

In Poland, there are not enough studies whose results would enable scientists to define precisely the term of *affectionate communication* and investigate its occurrence and strength in the population. Due to the lack of standardized questionnaire methods, so far, the Polish research has mainly referred to other aspects and kinds of communication (Frydrychowicz, 2005; Harwas-Napierała, 2014; Kaźmierczak, Plopa, 2008; Musiał, 2019; Rostowska, 2008). This indicates the need for updating and supplementing psychological knowledge in this respect.

The present study focuses on the Affectionate Communication Index (ACI) by Floyd and Morman (1998). The work to create the Polish adaptation of the ACI was started after obtaining consent from the authors. The adaptation procedure was planned according to the translation principles with a confirmation of the translation accuracy. The applied method of translation assumes an accurate translation of the original version with a possibility of making changes wherever they seem necessary, considering the specificity of a given language (Drwal, 1990; Magnusson, 1981).

The original version of the ACI was translated by three independent translators who were competent in both written and spoken English and had experience in social and psychological research. Then, the obtained results were compared and the statements which were different in the translations (that concerned 3 items) highlighted. The doubts were cleared up at the meeting, where the joint version of the questionnaire was agreed upon.

1. Aims and hypotheses of the study

An attempt for the Affectionate Communication Index (ACI) was also undertaken in Poland. It was important to compare the results obtained in the Polish version of ACI with the results obtained by the authors of Affectionate Communication Index. There were three main research goals in the process of ACI development.

The first was to establish the factorial structure of the tool based on the results of the Principal Component analysis of the main components. The second concerned the determination of the reliability of ACI, and the last goal was related to the external validity of the ACI. Based on the relevant literature and the extant empirical data (Floyd, 2002; Floyd, 2006; Floyd, Morman, 1998; Kaźmierczak, et al., 2007; Stocker et al., 1997; Walęcka-Matyja, 2016), six hypotheses were formulated:

Hypothesis 1: The Polish version of the ACI will confirm the three-factor solution of the original scale.

Hypothesis 2: The factor of Warmth will be positively correlated with the dimensions of ACI.

Hypothesis 3: The factor of Conflict will be negatively correlated with the dimensions of ACI.

Hypothesis 4: The factor of Rivalry will be negatively correlated with the dimensions of ACI.

Hypothesis5: There will be positive correlations between the dimensions of empathy Perspective Taking and the dimensions of ACI.

Hypothesis 6: There will be positive correlations between the dimensions of empathy Empathic Concern and the dimensions of ACI.

2. Method

2.1. Participants

Participants were 430 young adults from Poland, aged 18 to 36 (M=27,41, SD=4,72). Of them 59,6% were women (n=193) and 40,4% men (n=131). The data were collected in 2016 – March 2019 in two studies, in independent samples. In Study 1, there were 324 participants (193 females; 59,6%; 131 males; 40,4%) aged 18-36 years (M = 26,73, SD = 3,27).

The greater part of the respondents lived in the city (n=259;80,0%) than in the country (n=65;20,0%) and they most often declared higher education (n=180; 55%). Secondary and undergraduate education was respectively declared by 25% (n=81) and 20% (n=63) of the respondents.

In Study 2, there were 106 respondents (72 females; 68%, 34 males; 32%) aged 20-35 (M=23,56, SD=4,12). The majority of the respondents lived in the city (n=73; 68,2%). More

than half of the participants of the study had secondary education (n=69;64,5%), whereas higher education was declared by 35,5% of the respondents (n=37). The participants from Study 2 had adult siblings, aged at least 18 years.

The participants were students of different faculties of the University of Łódź, the Technical University of Łódź. Participation was voluntary. Student participants were recruited during class lectures.

2.2. Measures

Firstly, in study 1 participants completed Affectionate Communication Index (ACI) and sociodemographic data. Second, in study 2 participants completed Affectionate Communication Index (ACI), Adult Siblings Relationship Questionnaire - short version (ASRQ-SF), Empathic Sensitiveness Scale (ESS) and sociodemographic data (age, gender, type of relationships between the examined people and their siblings, place of residence, marital status, economic situation).

Affectionate Communication Index (ACI) by Floyd and Morman (1998) measures dimensions of emotional communication. The factorial analysis has shown the existence of three main factors describing: Verbal (ACI- V) (5 items), Direct nonverbal (ACI-DNV) (8 items) and – Indirect Nonverbal (ACI-INV) (5 items) (Floyd, 2002). Verbal expressions occur when siblings express, through statements, their liking and loving for one another. Nonverbal expressions identified through nonverbal communication, such as touch and space behaviour. Finally, social supportiveness is conveyed through, "compliments, self-disclosure, or praise" (Rittenour et al., 2007, 172). ACI consists of 18 items. Responses are scored on either a 7-point scale ranging from 1 to 7 (rated on a seven-point Likert scale, ranging from 1 for "never or almost never" up to 7 for "always or almost always"). The ACI has been found to be internally consistent, Cronbach's α= 0,88 for Verbal, α= 0,87 for Direct nonverbal and α= 0,86 for Indirect Nonverbal (Rittenour et al., 2007).

The questionnaire *ASRQ-SF* was constructed by Walęcka-Matyja (2016). It assesses the person's relationship with adult siblings with respect to three dimensions: Warmth (W), Conflict (C) and Rivalry (R). The psychometric properties of ASRQ are satisfactory, with Cronbach's α for the individual dimensions ranging from 0,91 to 0,96. In the original version of ASRQ, Cronbach's α was in the range of 0,88 –0,97 (Stocker et al., 1997). The ASRQ-SF was used only in the Study 2.

Empathic Sensitiveness Scale (ESS) is a multidimensional tool measuring the empathy level in adult people. There were three scales in the questionnaire: *Empathic Concern, Perspective Taking* and *Personal Distress*. The reliability of all the scales ranging from 0,74 to 0,78. It is similar to the original version of ESS (Davis, 1980). The scale reliabilities in the author's study were respectively from 0,73 to 0,75 for women and from 0,68 to 0,77 for men.

The presented tool is characterized with a good criterion and construct validity (Kaźmierczak, et al., 2007). The EES was used only in the Study 2.

2.3. Procedure

The psychological study was carried out in 2018, based on the questionnaire method. The data were collected in 2016 – March 2019 in two studies, in independent samples. During the study, a direct contact between the respondents and the researcher was guaranteed. The participants were informed about the aim of the study, anonymity of responses and use only for research purposes. The study was conducted with the permission of the Scientific Council of the Institute of Psychology of the University of Łódź.

2.4. Data analysis

Statistical analyses were carried out using SPSS (version 25). Initially, confirmatory factor analysis (CFA) was then used to test the latent structure of ACI. The exploratory factor analysis was applied to the original version of ACI. Second, the internal consistency was assessed with Cronbach's alpha coefficient. Pearson's correlation coefficient was applied to assess the external validity, namely the relations of ACI with ASRQ-SF (Warmth, Conflict, Rivalry) and empathy (Empathic Concern, Perspective Taking and Personal Distress).

3. Results

3.1. Confirmatory factor analysis of the Affectionate Communication Index (ACI)

In order to verify the factor structure of the results obtained by means of the ACI questionnaire (Study 1), first of all a confirmatory factor analysis was carried out. The starting point for the analysis was the key to the original version of the tool. Figure 1 shows the assumed factor structure that was verified.

No optimal match of results was obtained while comparing the results to the verified factor structure model, $\chi^2(132)=677{,}83$, $p<0{,}001$. The affinity index values were following: *CFI* = 0,80, where the recommended threshold value is at least 0,95, *RMSEA* = 0,14, where the maximum threshold value is not higher than 0,05, *NFI* = 0,76, where the minimum threshold value is 0,90. Table 1 shows the obtained factor loadings. All the factor loading values were statistically significant on the level of $p<0{,}001$.

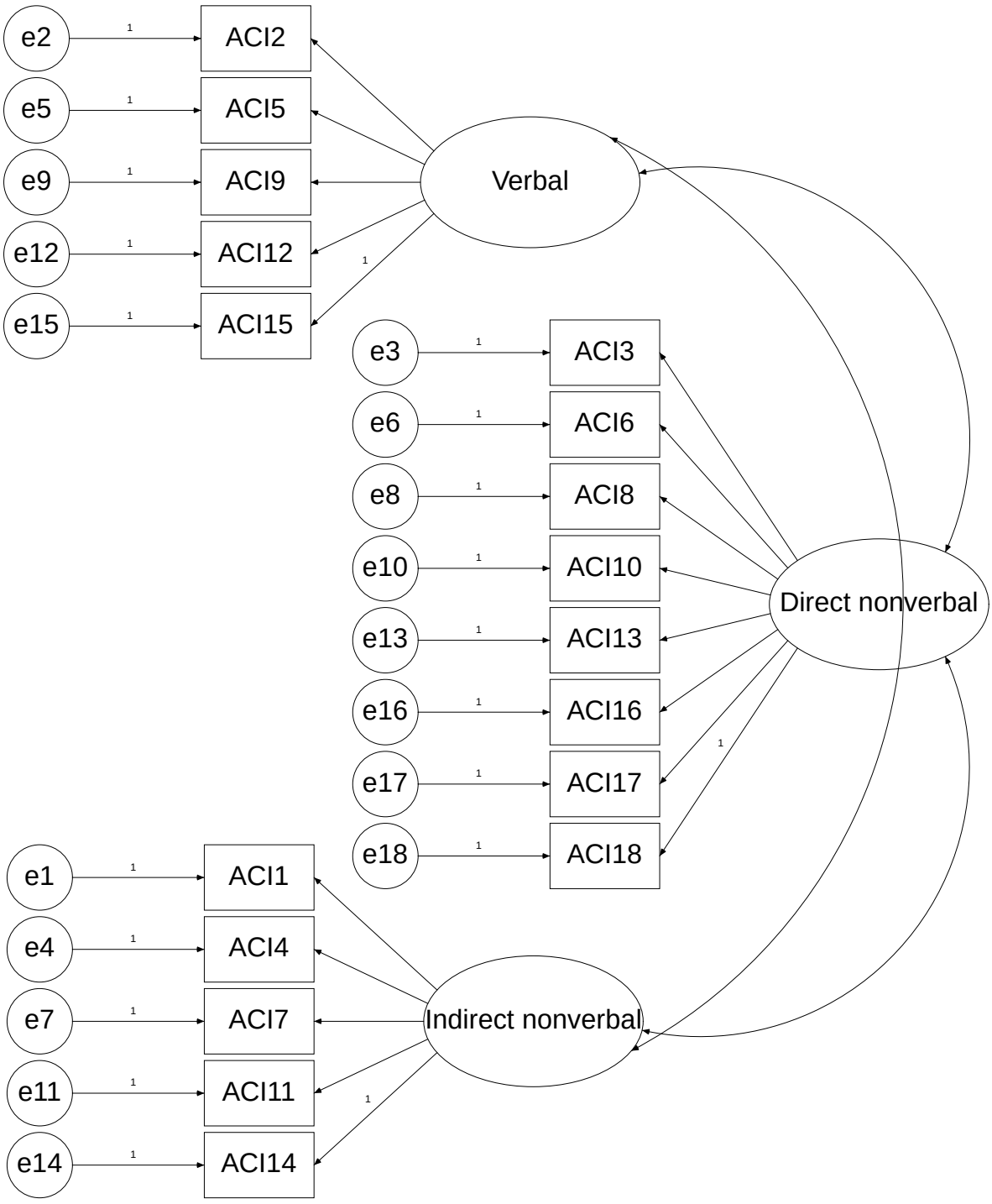

Figure 1. Verified factor structure of the tool.

Table 1. Factor loading values obtained in confirmatory factor analysis

Item no.		**Scale**	Loading
ACI15	<---	Verbal	0,82
ACI12	<---	Verbal	0,80
ACI9	<---	Verbal	0,68
ACI5	<---	Verbal	0,75
ACI2	<---	Verbal	0,77
ACI14	<---	Indirect	0,71
ACI11	<---	Indirect	0,63
ACI7	<---	Indirect	0,71
ACI4	<---	Indirect	0,52
ACI1	<---	Indirect	0,74
ACI18	<---	Direct	0,82
ACI17	<---	Direct	0,61
ACI16	<---	Direct	0,53
ACI13	<---	Direct	0,74
ACI10	<---	Direct	0,72
ACI8	<---	Direct	0,78
ACI6	<---	Direct	0,84
ACI3	<---	Direct	0,50

Also, some statistically significant positive correlations were obtained between the scales of the questionnaire. All of them had a very high estimate value of r=0,99, p<0,001.

Due to the lack of match between the assumed factor structure of the tool and the obtained results, the confirmatory factor analysis was supplemented with exploratory analysis.

3.2. Exploratory analysis of main components

Figure 2 shows the scree plot obtained in the exploratory analysis of the main components.

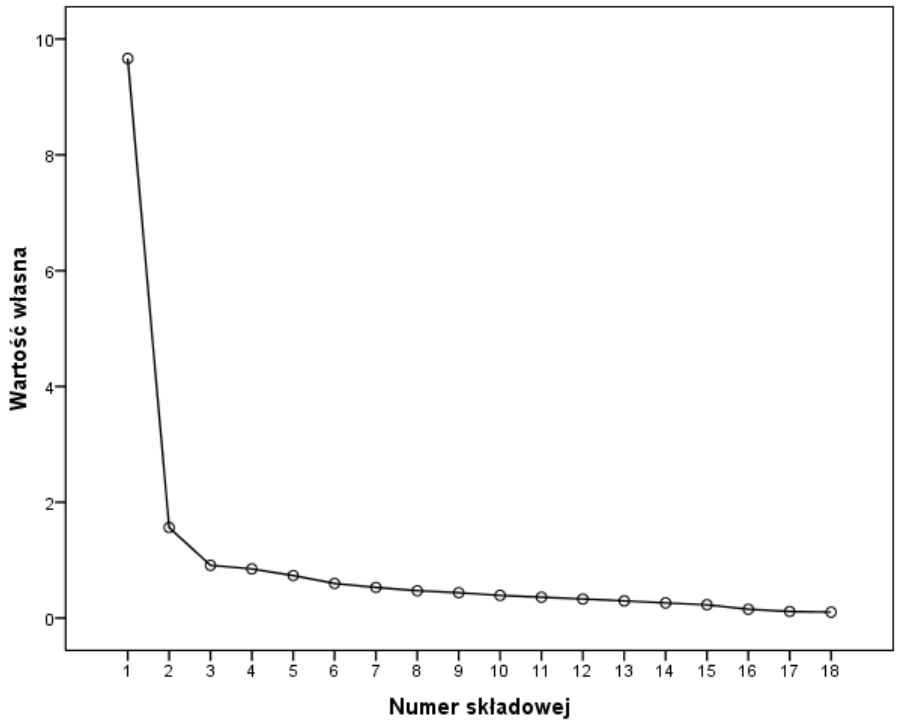

Figure 2. Scree plot obtained in the analysis of the main components

Based on the Kaiser's criterion two dimensions were isolated. The Oblimin oblique rotation was implemented. Table 2 shows the obtained factor loading values. The factor values lower than 0,30 were skipped. The items were sorted according to the factor loading values from the highest to the lowest.

Table 2a. The model matrix shows the factor loading values higher than 0.30

Item no.	Factor 1	Factor 2
ACI16	0,84	-
ACI15	0,83	-
ACI6	0,81	-
ACI2	0,76	-
ACI18	0,74	-
ACI14	0,73	-
ACI17	0,70	-
ACI5	0,70	-
ACI11	0,67	-
ACI7	0,66	-

Table 2b. The model matrix shows the factor loading values higher than 0.30

Item no.	Factor 1	Factor 2
ACI1	0,55	-
ACI3	0,36	-
ACI9	-	0,92
ACI12	-	0,89
ACI10	-	0,79
ACI8	-	0,74
ACI13	-	0,62
ACI4	-	0,58

Due to some content inconsistencies, in the next analysis we deleted item 11 from the first isolated factor and items 4 and 8 from the second isolated factor, obtaining, in this way, a dimension of support and nonverbal communication (factor 1) and a dimension of verbal communication (factor 2). The analysis was repeated after excluding the three questionnaire items mentioned above. The Oblimin oblique rotation was implemented again. The obtained factor loading values are presented in table 3.

Table 3. The model matrix shows the factor loading values after deleting items 4, 8 and 11

Item no.	Factor1	Factor 2
ACI16	0,83	-
ACI15	0,83	-
ACI6	0,82	-
ACI2	0,75	-
ACI18	0,74	-
ACI14	0,73	-
ACI5	0,72	-
ACI17	0,69	-
ACI7	0,69	-
ACI1	0,53	0,33
ACI3	0,33	-
ACI9	-	0,91
ACI12	-	0,89
ACI10	-	0,81
ACI13	-	0,67

The results confirmed the factor structure obtained before excluding items 4, 8 and 11. The first isolated dimension explained 55,3% of variance in results and the second one – 9,5% of variance in results.

3.3. Reliability of ACI

The internal consistency reliability of the unidimensional ACI was computed with Cronbach's α. The α coefficient for the first isolated dimension Support and nonverbal communication was high and amounted to 0,93. And, for the second isolated dimension Verbal communication the α coefficient was also high and amounted to 0,89. The coefficient was highly satisfactory and similar to those obtained by Wallace (2012) in the ACI, in which Cronbach's α was highly reliable 0,92 (Rittenour et al., 2007).

3.4. Gender effects

The means and standard deviations of the score representing one scale of ACI are presented in Table 4.

Table 4. Means and standard deviations of scores in the scale of ACI as a function of gender along with t-test values (n=106)

ACI Scale	Women *n*=72		Men *n*=34		*t*	*p*
	M	*SD*	*M*	*SD*		
Factor 1	41,8	15,04	34,5	12,54	0,460	0,016
Factor 2	11,0	6,03	9,9	5,14	0,941	0,349

Factor 1- Support and nonverbal communication, Factor 2- Verbal communication

As shown in Table 4, the *t*-test applied to test gender differences in the scores of the two scale of ACI revealed statistically significant differences. Women obtained higher mean scores in respect of the dimension of Support and nonverbal communication than men. The effect size measured by Cohen's d calculator was 0,53. That indicates the occurrence of medium-sized correlations between the analysed variables.

3.5. Concurrent and discriminant validity

To assess the external validity of ACI, the correlations between the two dimensions of ACI, ASRQ-SF, and EES were computed. The correlations are given in Table 5.

Table 5. Pearson r correlations of ACI scales and ASRQ-SF and EES (n =106)

Scales	Factor 1	Factor 2
Warmth	0,696**	0,610**
Conflict	-0,254**	-0,321**
Rivalry	0,128	0,194
Perspective Taking	0,228*	0,085
Empathic Concern	0,305**	0,185
Personal Distress	0,024	-0,012

*$p < 0,05$; ** $p < 0,01$

Factor 1- Support and nonverbal communication, Factor 2- Verbal communication

As shown in Table 5, two of the scales of ACI correlated with the scales of ASRQ-SF. The dimensions of Support and nonverbal communication and Verbal communication were related to the dimension of Warmth in interpersonal relationships of adult siblings. The observed correlation was positive and strong. The abovementioned dimensions of affectionate communication were correlated negatively, though weakly, with the scale of Conflict, which describes unfriendly relationships of adult siblings. No statistically significant correlations were observed between the interpersonal relationship dimension, Rivalry, and the studied dimensions of affectionate communication. Furthermore, we analysed correlations between the dimensions of Support and nonverbal communication and Verbal communication and the scales of empathy. It was found out that there were some positive, though weak correlations between the dimension of Support and nonverbal communication and Empathic Concern and Perspective Taking, i.e. the dimensions of empathy indicating good social adaptation. The dimension of Personal Distress was not correlated in a statistically significant way with the factors of Affectionate Communication Index. All the obtained correlations were in the expected direction.

4. Conclusion and discussion

The results of the study suggest that the Polish version of the Affectionate Communication Index (ACI) is a tool that allows a multidimensional measurement of the quality of affectionate communication in terms of Support and nonverbal communication and Verbal communication. Confirmatory factor analysis confirmed the two-factor structure. All factor loadings and covariances were statistically significant. However, it needs to be pointed out that ACI in the Polish version contains fewer items (15) than ACI in the original version (18). It has been noticed that the two-factor solution obtained in the author's own

study is different from the one in the original version of the scale, which enables determining three factors of emotional communication (comp. Morman, Floyd, 1998). This shows that hypothesis 1 was not verified positively in the own study.

In order to assess the external validity of the ACI, the correlations between the scales of the questionnaire with ASRQ-SF and EES scales were examined. The factor of Warmth was positively and strongly correlated with the dimensions of Support and nonverbal communication and Verbal communication. Therefore, the second hypothesis was conformed in the author's own study. There were statistically significant negative correlations between the factors of Conflict and Support and nonverbal communication and Verbal communication. This result proves the correctness of the third hypothesis. On the other hand, the fourth hypothesis was not confirmed in the author's own study since no statistically significant correlations were observed between the dimensions of emotional communication and the factor of Rivalry in sibling relationships. It was found out that some positive, though weak correlations were observed between the dimension of Support and nonverbal communication and Empathic Concern and Perspective Taking, i.e. the dimensions of empathy indicating good social adaptation. The obtained correlations between the analysed variables had the expected direction and confirmed the validity of hypotheses 5 and 6. The above findings confirmed the external validity of ACI. I think that there is still a need to examine the external validity the ACI.

The obtained results, in general, are consistent with the findings of other researchers indicating a connection between positive, affectional communication and quality of life, on the one hand, and warm, kind social relationships with other people (Czapiński, 2004; Dąbrowski, 1996; Floyd, 2002, 2019; Hindman, Riggs & Hook, 2013; Ro & Clark, 2009; Stocker et al., 1997).

Furthermore, ACI in the Polish version is characterized by high internal consistency (Cronbach's α for the individual scales ranged from 0.89 to 0.93), similar to the results obtained by the other authors of ACI, in which Cronbach's alphas ranged from 0,92 (Rittenour et al., 2007).

This study had satisfactory group size (N=430), but not age diversity (participants represented only early adulthood). However, there is still the limitation of self-reports in the study of adult sibling relationships. My findings could be enriched in the future by interview or focus group research.

Despite this limitation, the Polish ACI has good psychometric properties and can be a valuable self-report tool. Further use of ACI in research will make it possible to compare it with other measures and its potential for a deeper understanding of close relationships in adulthood. This questionnaire ACI contributes to the development of diagnostic methods in Poland. ACI will facilitate a broader diagnosis of the phenomenon of affectionate communication in Poland. It is a short, easy-to-use scale that can be a useful tool for

psychologists and psychotherapists working with young people, who have a communication problem.

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