ADULT SIBLING FAMILIAL RELATIONSHIP SCALE (ASFRS) - CONSTRUCTION AND PSYCHOMETRIC PROPERTIES: PRELIMINARY REPORT

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Abstract: The aim of this study was the construction and validation of the Adult Sibling Familial Relationship Scale (ASFRS). The study included 230 students of different majors of the University of Łódź . Sixty four percent were women (*n* = 148). Confirmatory factor analysis (CFA) was used. The CFA confirmed the hypothesized three-factor structure of ASFRS (Affective Commitment, Behavioural Commitment, Cognitive Commitment). The reliability analysis indicated that the ASFRS is characterized by high internal consistency (Behavioural commitment α = .814, Affective commitment α = .740, Cognitive commitment α = .684). The results suggest that the ASFRS is a reliable and valid multidimensional measure of relationships between siblings in adulthood.

Key words: Adult assessment, siblings, familial ties

INTRODUCTION

Sibling relationships are one of the possible family systems of interdependence and interactions. According to the systemic approach, family is defined as a complex structure consisting of interdependent groups of people. They are sharing history, experiencing emotional bonds. They are also implementing interaction strategies necessary for both individual family members and the family as a whole (Minuchin, 1988). Although siblings' interpersonal relationships are deemed important for the process of adaptation of a human being to their social surroundings, they received less research attention than other types of interactions in the family system, such as mother-

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child or parent-child relations. The sibling subsystem is one of the most complex and diversified systems in the family and at the same time the least studied (Myers & Goodboy, 2010).

A possible reason that could explain this situation is the fact that it is very difficult to find universal regularities of the family life. This is the result of the variability of the family micro-system, for example, in terms of size, birth order, age difference between siblings, gender, somatic or personality traits. Another reason may be the insufficient quality and number of instruments designed for examining adult sibling relationships. Those widely used include the Adult Sibling Relationship Questionnaire (ASRQ) by Stocker, Lanthier, and Furman (1997) and the Lifespan Sibling Relationship Scale (LSRS) by Riggio (2000).

ASRQ refers to the perception of the current, up-to-date relationships with adult siblings. It measures the perception of the respondents, their behaviours and feelings towards their siblings as well as the siblings' perception of their behaviours and the siblings' feelings towards the respondents. The questionnaire consists of 81 items, which form 14 scales: Affection, Knowledge, Intimacy, Emotional Support, Admiration, Similarity, Instrumental Support, Acceptance, Opposition, Domination, Quarrel, Competition, Maternal Rivalry, Paternal Rivalry. The ASRQ scales are grouped into three factors that characterize a sibling relationship: Warmth, Conflict, and Rivalry. The psychometric properties of ASRQ are good, and this facilitates research (Stewart, Belifuss, & Verbrugge, 1998).

LSRS is based on the assumption that sibling relationships in childhood have a major impact on these relationships in adulthood. There is a lot of empirical evidence confirming this assumption (Suitor & Pillemer, 1993; Tonti, 1988). The 48-item Lifespan Sibling Relationship Scale measures the sibling relationship from two aspects: the retrospective (in the period of childhood) and the present one (in the period of adulthood). It consists of six subscales, which measure affective relationships, beliefs about the siblings, and behaviours towards the siblings from the perspective of the child and the adult at the same time. LSRS is based on the commonly accepted tri-partite attitudinal model. The term *attitude* was adopted in accordance with the traditional approach, which distinguishes three constituent elements: the affective, the cognitive and the behavioural (Eagly & Chaiken, 1998).

The aim of the present study was to construct an instrument that can be an alternative for the above mentioned self-report instruments (ASRQ, LSRL). The Adult Sibling Familial Relationship Scale (ASFRS) is a measure of the attitude toward adult siblings. The reasons for developing a Polish instrument for the assessment of adult sibling relationships were the following. The first reason was theoretical and regarded the very nature of adult sibling relationships. There are findings suggesting

that sibling relationships in adulthood are rarely saturated with rivalry and conflict; rather much more frequently they are characterized by warmth (Buhrmester, 1992; Cicirelli, 1995; Martin, Anderson, & Rocca, 2005; Stocker, Lanthier, & Furman, 1997; Walęcka -Matyja, 2014). From middle childhood onwards sibling relationships are characterized by more egalitarianism, which is typical of adolescence and adulthood.

The second reason was methodological because it is difficult to measure sibling rivalry and conflict by means of self-report instruments. Actually, significant correlations have been found between sibling conflict items and social desirability (Stocker et al., 1997). To avoid this caveat the Adult Sibling Familial Relationship Scale does not include items referring to rivalry. It rather measures the effects of negative attitudes toward siblings, such as beliefs, emotions, and behaviours.

Another important issue pertains to the timeline in the assessment of the sibling relationship (e.g., Riggio, 2000; Stocker et al., 1997). Retrospective research has some value, and as Fellner, Holler, Krichler, and Schabmann (2007) admit, this way of formulating questions is justified in the context of Higgins' theory (Higgins, 1996). However, it is also pointed out that basing assessment on memories can significantly decrease its reliability due to the fact that it is a clearly indirect way of inference. The past to which the respondent refers usually only partially coincides with the real events. The remaining part involves adding own stories that mostly are unconscious reconstructions of the past events. The missing elements of past stories are sometimes filled in by what the respondents heard from other people talking about their experiences or about a similar situation. While reconstructing the family memories, people can use elements of stories from books they have read or films they watched and which somehow referred to similar events (Loftus & Ketcham, 1992; Zimbardo & Boyd, 2009). To avoid such inferences the aim of this study was to develop an instrument that tapped the current experiences with siblings in adulthood.

A further reason for undertaking this research on ASFRS was the fact that family specialists studying sibling relationships thus far have mainly focused on childhood (Dołęga , 2010; Dunn, 1983; Furman & Buhrmester, 1985; Grzankowska & Basińska , 2010; Stocker, 1993). This has undermined interest in developing instruments assessing sibling relationships in adulthood. In Poland, there is insufficient number of questionnaires of this kind.

Another drawback of the two extant instruments on sibling relationships is their length. A shorter instrument than, for example, ASRQ (81 items) or LSRS (48) has the potential to be used in research with older adults. Elderly people are often unwilling to participate in psychological tests they consider exhausting.

Summing up, the aim of the present study was to develop an alternative self-report measure of adult sibling relationships, focused on the actual, individual relationships with siblings in adulthood.

The present study

The design of the Adult Sibling Familial Relationship Scale (ASFRS) comprised three main objectives: (a) the conceptualization of *the adult sibling familial relationship*. The adult sibling familial relationship includes the emotions, behaviours and beliefs demonstrated between two or more persons who are siblings, have the same natural parents, and a specific attitude toward the shared experiences, beliefs and emotions of each other, from the moment of gaining self-awareness (Cicirelli, 1995). That is, a familial relationship toward a sibling represents a specific attitude[1] toward the sibling. Researchers of family problems, especially in the sibling subsystem, have shown that in adult sibling relationships a tri-partite attitudinal model can be identified (Cicirelli, 1991). The claim is that whereas experiencing emotions is characteristic of every human relationship, what deserves attention is their quality. In the case of the attitude toward sibling familial relationships the three components were defined as follows:

Affective commitment (AC) is defined as a person's emotional involvement in the experienced relationship with their adult siblings and his/her emotional response resulting from being a brother/sister of the siblings. The affective factor of the attitude captures the experience of events emotionally important for the siblings and showing interest in their feelings.

Cognitive commitment (CC) is defined as beliefs about the siblings and the relationships with them. It consists of thoughts, perceptions, or memories on the siblings.

Behavioural commitment (BC) is defined as the degree of interaction between the siblings, demonstrated in different occasions. Behavioural commitment represents specific behaviours demonstrating the respondent's interest in their sibling's situation and life matters.

(b) The second objective regarded the generation of questionnaire items. This was done based on the relevant literature (Stocker et al., 1997; Riggio, 2000) and discussions carried out with 4th year psychology students of family psychology classes. A set of 50 preliminary statements describing a person's attitude toward siblings in adulthood was created. Responses were given in a Likert-type scale ranging from 1 = *I absolutely agree*, 2 = *I rather agree*, 3 = *I rather disagree*, 4 = *I completely disagree*. It was assumed that the attitude could be positive (acceptance) or negative (rejection), so the answer "*I neither agree nor disagree*" was not included in the scale (Nowak, 1973). Next, the generated statements were analyzed in terms of language and content (Hornowska, 2007). The individual items were checked by an expert team (two psychologists and one

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[1] The term *attitude* is used in accordance with the traditional approach, which distinguishes three constituent elements: affective, cognitive, and behavioural (Eagly & Chaiken, 1998; Mądrzycki, 1977).

Polish teacher) to ensure that the used vocabulary was comprehensible, there was no pointless repetition and the statements were grammatically correct. As a result of the applied procedure, the number of statements included in the first version of the scale was reduced to 24. Next, the raters, who were five academics from the Institute of Psychology of the University of Łódź, carried out a content analysis of this instrument. They were asked to give an answer to the question whether the individual items of the preliminary version of the scale referred to the distinguished categories of commitment in the sibling relationship (i.e., affective, cognitive, behavioural).

Inter-rater agreement was estimated with Cohen's kappa. The obtained Cohen's kappa coefficients are presented in Table 1.

Table 1. Cohen's kappa coefficients

Raters	Cohen's K	p
1 - 2	.75	.001
1 - 3	.87	.001
1 - 4	.99	.001
1 - 5	.94	.001
2 - 3	.75	.001
2 - 4	.75	.001
2 - 5	.81	.001
3 - 4	.87	.001
3 - 5	.81	.001
4 - 5	.94	.001
Mean	.85	-

All the obtained values of the consistency coefficients were high and statistically significant. The mean kappa of the obtained results was .85 indicating high agreement between the raters. This finding supported the decision to keep all the 24 items of ASFRS.

(c) The last objective regarded the testing of the structure of the Adult Sibling Familial Relationship Scale and the determination of its reliability and validity.

METHOD

Participants

The sample comprised 230 students representing different majors of the University of Łódź (Department of Law and Administration, Department of Educational Sciences, Department of Mathematics and IT). Demographic and family data (respondent's age and gender, sibling's age and gender, whether the respondent had been raised with the siblings, living with siblings, sibling relationship type (biological sibling, twin, step sibling) structure of the family of origin (complete family, incomplete family, reconstructed family) birth order, place of residence, marital status, economic situation, professional activity).

Women represented 64% ($n = 148$) and men 36% ($n = 82$) of the respondents. The participants were young adults in the age range between 18 and 35 years ($M = 24.5; SD = 5.04$). The age of the respondents' siblings ranged between 18 and 38 years ($M = 26.5; SD = 5.097$). All the participants were raised with siblings, who were mostly their biological brothers and sisters (99.1%; $n = 228$). In the remaining cases, the siblings were referred to as non-biological or adopted. Most of the respondents came from full families (76.1%; $n = 175$), 23% ($n = 53$) of them were from monoparental families and .9% ($n = 2$) from reconstructed ones. With respect to birth order, the most frequently occurring position was that of the second child in the family (50.4%; $n = 116$), then the first child in the family (30.4%; $n = 70$). The position of the third child accounted for 14.3% ($n = 33$) and the fourth child for 4.3% ($n = 10$). One person was born as the fifth child of the family (.4%; $n = 1$). The participants lived mainly in urban areas (67.4%; $n = 155$) while 32.6% ($n = 75$) of the respondents lived in rural areas. Participants studying and working at the same time were 46.5% ($n = 105$) and those who only studied were 53.5% ($n = 122$). The marital status of the participants was to a great extent consistent with their age since the majority of them were single (46.5%; $n = 107$), 27.8% ($n = 64$) were in formal relationships and 13.5% ($n = 31$) of them were in informal ones. The rest of the participants declared they were single by choice (7.4%; $n = 17$). Eleven participants provided no data in this respect. As regards the frequency of telephone contacts with their siblings, the majority of the respondents had contact with their siblings often (25.7%; $n = 59$) and very often (11.7%; $n = 27$). The groups who rarely or never telephoned their siblings were respectively 35.7% ($n = 82$) and 13.9% ($n = 32$). The remaining participants did not respond to this question.

Measures

Adult Sibling Familial Relationship Scale (ASFRS)

The *Adult Sibling Familial Relationship Scale* (ASFRS) was designed to measure the attitude (i.e., feelings, beliefs and behaviours) towards one's siblings in adulthood (over 18 years of age) toward their adult siblings. ASFRS consists of 24 items that were assumed to form three factors: the affective, the behavioural, and the cognitive. Responses are given in a Likert-type scale ranging from 1: *I absolutely agree*, 2: *I rather agree*, 3: *I rather disagree*, 4: *I completely disagree*. Examples of items are the following: I consider the relationship with my brother / sister an important value in my life (*Affective Commitment*), I do many things together with my brother / sister (*Behavioural Commitment*), I think I'm the best friend of my brother / sister (*Cognitive Commitment*). Items 4, 8, 9, 13, 18, 20 need recoding. The final score of ASFRS is computed as the sum of the responses to the whole set of items. It is also possible to compute one sum score for each subscale. The lower the score, the stronger is the commitment to the sibling relationship in adulthood.

Adult Sibling Relationship Questionnaire (ASRQ)

ASRQ (Stocker et al., 1997) was adapted to Polish by Walęcka -Matyja (2014). It assesses the person's perception of their behaviours and their feelings towards their siblings as well as the siblings' perception of the respondent's behaviours and the siblings' feelings towards the respondent, e.g., *How much do you irritate this sibling? and How much does this sibling irritate you*? The questionnaire consists of 81 items, which form 14 scales: Affection, Knowledge, Intimacy, Emotional Support, Admiration, Similarity, Instrumental Support, Acceptance, Opposition, Domination, Quarrel, Competition, Maternal Rivalry, Paternal Rivalry. All the ASRQ items (except Rivalry) are assessed on a Likert scale, from "Hardly Anything" (1 point) to "Extremely Much" (5 points). The psychometric properties of ASRQ in the Polish version were good: Cronbach's α ranging from .87 - .97 in the subscales (Walęcka -Matyja, 2014). High internal consistency of ASRQ has also been reported in the original version of ASRQ, Cronbach's α ranged from .88 - .97, as well as in adaptations in other languages: in the German adaptation Cronbach's α ranged from .94 to .75 and in the Italian from .81 to .90 (Heyeres, 2006; Stocker et al., 1997; Tani, Guarnieri, & Ingoglia, 2013).

Procedure

The studies were carried out with the consent of the Scientific Council of the Institute of Psychology of the University of Łódź and the deans of the departments whose students took part in them. Participation was voluntary.

The participants were informed about the aim of the studies and were ensured about anonymity and that the study results would be used for scientific purposes only. Completing the whole set of questionnaires took about 20 minutes.

Data analysis

A number of statistical procedures were performed. Firstly, confirmatory factor analysis (CFA) was used to test the latent structure of ASFRS. Secondly, the internal consistency was assessed with Cronbach's α coefficient. Thirdly, the effect of gender was tested with Student's t-test. Finally, Pearson's correlation coefficient was applied to assess the construct and criterion validity.

RESULTS

Factorial structure of Adult Sibling Familial Relationship Scale

Confirmatory factor analysis was carried out to test the hypothesized structure of ASFRS. The theoretical model predicted three first-order factors representing the three facets of the attitude towards one's sibling (affective, behavioural, cognitive) and one second-order factor representing commitment to the sibling relationship.

Structural equation modeling (Byrne, 2010) was carried out with the use of Amos 22 software (Arbuckle, 2009). The analyses were conducted on a sample of 230 persons. While analyzing the factorial structure of ASFRS, two models were compared. Both hypothesized the existence of three first-order factors (latent variables): *Affective commitment, Behavioural commitment* and *Cognitive commitment* and one second-order factor (Commitment), (see model Figure 1). The models differed from each other by the number of items. Model A covered the full set of items (24). According to the key, the *Affective Commitment* subscale consisted of the following items: 2, 5, 8, 11, 14, 17, 20, 23. The *Behavioural Commitment* subscale included the items: 1, 4, 7, 10, 13, 16, 19, 22, and the *Cognitive Commitment* subscale the items: 3, 6, 9, 12, 15, 18, 21, 24. The items 4, 8, 9, 13, 18, 20 needed recoding.

Model B was based on a subset of items included in Model A. Four items that loaded the lowest (below 0.4) had been removed (Costello & Osborne, 2005). This process resulted in a shortened version of ASFRS consisting of 20 items, with item 20 removed from the *Affective commitment* subscale, item 18 removed from the *Cognitive commitment* subscale and items 4 and 13 removed from the *Behavioural commitment* subscale.

The parameter values of the models were estimated with the method of maximum likelihood. To assess the fit of the model four criteria were used: CFI (Comparative Fit Index), RMSEA (Root Mean Squared Error of Approximation), CMIN/DF (Chi square/degree of freedom ratio) and AIC (Akaike Information Criterion). For an acceptable model fit CFI should have values higher than 0.95. However, it is commonly accepted that values above 0.90 are sufficient (Byrne, 2010); RMSEA value should be closest to zero. Acceptable values are between 0.06 and 0.08 (Byrne, 2010). CMIN/DF should be as low as possible (Marsh & Hocevar, 1988), with a value up to 2 indicating a reasonable fit. The AIC index is a comparative measure of fit and it is meaningful only when two different models are estimated. Lower values indicate a better fit and so the model with the lowest AIC is the best fitting model (Byrne, 2010).
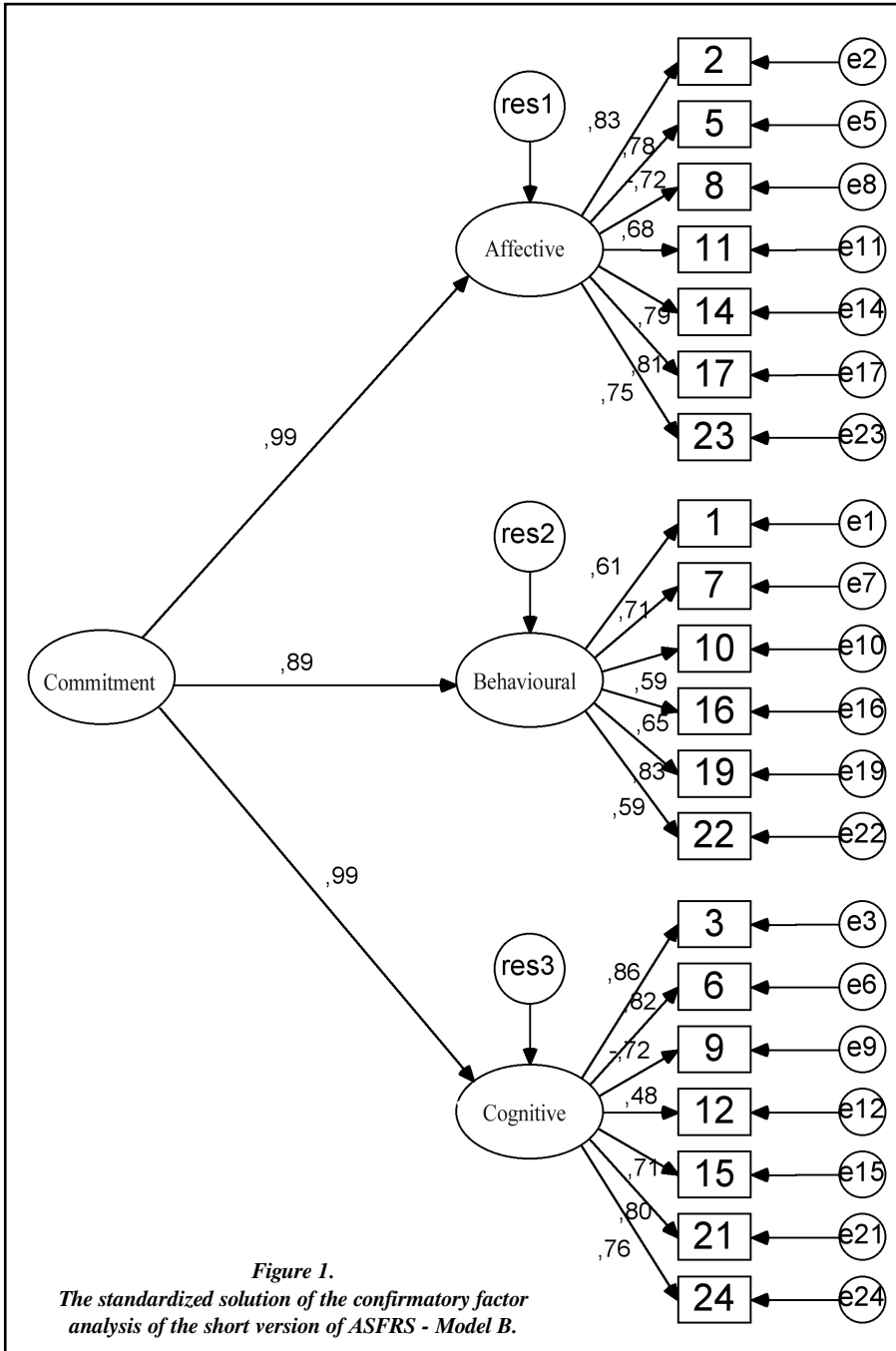
Table 2. Fit indices of the CFA models

Model	χ^2	df	p	CMIN/DF	CFI	RMSEA	PCLOSE	AIC
A	534.48	227	.001	2.35	.90	.08	.001	632.48
B	419.51	167	.001	2.51	.91	.08	.001	505.51

The structure of the 24-item version of ASFRS (Model A) had an acceptable fit to the data. The removal of four items (Model B) improved the fit. This improvement is reflected in the lower value of AIC for Model B in comparison to Model A (see Table 2). The two models differed significantly in terms of fit to the data, «$\chi^2(60) =$ 114.97, $p < .001$.

The results of the confirmatory factor analysis for ASFRS (Model B) are given in Figure 1. As shown in Figure 1, the three subscales constitute three independent factors which are explained by a second-order factor representing Commitment in the Sibling Relationship. The theoretical model concerning the nature of the attitude toward siblings was confirmed.

Reliability

Cronbach's alpha was used to assess the internal consistency of the subscales and the whole scale. The analysis showed high internal consistency both for the whole 20-item ASFRS ($\alpha = .895$) and for the subscale of Behavioural commitment ($\alpha = .814$). Affective commitment had acceptable internal consistency ($\alpha = .740$). The reliability of the Cognitive commitment subscale was marginal ($\alpha = .684$) (King & Minium, 2009).

Figure 1.
The standardized solution of the confirmatory factor
analysis of the short version of ASFRS - Model B.

Gender differences

The mean scores (*M*) and standard deviations (*SD*) of ASFRS scores of the three subcales and the whole scale are given in Table 4. Student's t test was applied on the whole scale score[2].

Table 4. Mean scores and standard deviation of the subscales of the Adult Sibling Familial Relationship Scale as a function of gender along with t-test values of gender comparisons

Gender/ ASFRS subscales	Women ($n = 148$)		Men ($n = 82$)					
	M	SD	M	SD	t	df	p	Cohen's d
Affective commitment	15.19	3.55	15.72	3.95	1.04	228	.298	-0.14
Behavioural commitment	13.43	3.88	14.54	3.85	2.07*	228	.039	-0.29
Cognitive commitment	15.74	3.55	16.18	3.52	0.92	228	.360	-0.12
Commitment in sibling relationship	44.36	10.08	46.44	10.50	1.48	228	.141	-0.20

* $p < .05$

The results showed that women did not significantly differ from men in their general commitment in the adult sibling relationship and neither did they differ in the subscales of Affective Commitment and Cognitive Commitment. They only differed in the Behavioural commitment subscale scores. Men had higher mean scores in this respect than women, yet the estimated effect size was small (Cohen's d = -0.29).

Concurrent and discriminant validity

In order to determine the validity of ASFRS, that is, the degree to which this instrument and its components (i.e., the Affective commitment, Behavioural commitment, and Cognitive commitment subscales) measure commitment to adult sibling familial relationships, the construct and criterion validity was tested (Hornowska & Paluchowski, 2004).

To test the internal validity of ASFRS, the correlations between the subscales of ASFRS were computed. Pearson's correlation coefficient (*r*) was applied. The results of the analysis are presented in Table 5.

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[2] The distribution of the variables was checked by means of the Kolmogorov-Smirnov test. The values suggested normal distribution: AC $p < .531$; BC $p < .357$; CC $p < .992$; Total Score $p < .447$.

As shown in Table 5, all correlation coefficients were statistically significant, which is in accordance with the theoretical assumptions (Bedford, 1989; Stocker et al., 1997; Riggio, 2000; Walęcka -Matyja, 2014).

Table 5. Pearson r coefficients between the ASFRS subscales (N = 230)

Subscales	CC	BC	AC
AC	.837**	.766**	1.0
BC	.722**	1.0	
CC	1.0		

AC- Affective commitment
BC- Behavioural commitment
CC- Cognitive Commitment
** $p < .01$

Furthermore, because of the satisfactory values of item-total correlations, the convergent validity of each subscale, i.e., the degree to which the items within a subscale measure the same unidimensional construct, was demonstrated.

Table 6. Descriptive statistics and convergent validity of the items making up
the ASFRS subscales (N = 230)

Items	M	SD	A	K	r_{it}
		Affective committment			
2	1.96	.819	.706	.186	.748
5	1.95	.938	.778	-.251	.655
8	3.60	.763	-1.980	3.229	-.686
11	1.77	.815	.877	.229	.627
14	2.08	.927	.608	-.410	.723
17	1.83	.787	.790	.358	.739
23	2.19	.854	.395	-.392	.669
		Behavioural committment			
1	2.52	.983	-.021	-1.005	.565
7	2.59	1.036	-.152	-1.127	.617
10	2.14	1.052	.513	-.944	.544
16	2.40	.745	.539	-.033	.552
19	2.52	.870	-.027	-.661	.772
22	1.66	.653	.764	.791	.463
		Cognitive committment			
3	2.04	.973	.553	-.731	.677
6	1.60	.813	1.293	1.037	.671
9	3.17	1.047	-.999	-.320	-.682
12	2.40	.933	.314	-.760	.452
15	2.69	.894	-.127	-.763	.617
21	1.80	.836	.879	.214	.739
24	1.57	.816	1.424	1.429	.635

A- Skewness; K- Kurtosis; r_{it}- correlation of position with the scale after the position removal (convergent validity).

Finally, the criterion (external) validity was tested, by computing the correlation of ASFRS scale and subscale scores with another measure designed to assess the adult sibling relationship. ASRQ was used as external criterion, constituting the basis for the validity assessment of ASFRS. It was expected that the correlation of the Commitment in the sibling relationship (general scale) score and its subscale scores (AC, BC, CC) with the factor of Warmth would be positive and with the factors of Conflict and Rivalry negative (see Table 7).

Table 7. Pearson correlation coefficients between the ASFRS subscales and the ASRQ factors

ASFRS/ ASRQ	Warmth	Conflict	Rivalry
Affective commitment	.-792**	.333**	.381**
Behavioural commitment	-.792**	.171**	.373**
Cognitive commitment	-.790**	.261**	.288**
Commitment in sibling relationship	-.859**	.275**	.378**

** $p < .01$

The results confirmed the relationships predicted. The correlations between ASFRS and its subscales with the ASRQ subscales were significant in many cases. The correlations between the ASFRS and ASRQ subscales were positive and high (e.g., the subscales of ASFRS with Warmth) but negative, low and moderate in the case of the ASFRS subscales with Conflict and Rivalry. Taking into account the reverse scoring, the correlation's sign should be interpreted inversely (see Table 7).

DISCUSSION

This study was a first systematic effort (a preliminary report) for the development of the Adult Sibling Familial Relationship Scale. ASFRS is a self-report instrument to measure the attitude of the respondent toward their siblings in the period of adulthood. It focuses on the general attitude toward adult siblings and an indicator of the level of commitment to this relationship. ASFRS consists of 20 items. CFA confirmed the three-factor structure of the scale, which consists of the following subscales: *Affective Commitment* (items 2, 5, 8, 11, 14, 17, 23), *Behavioural Commitment* (items 1, 7, 10, 16, 19, 22), *Cognitive Commitment* (items 3, 6, 9, 12, 15, 21, 24). The ASFRS general score is the sum of all the items but one can compute three scores for the respective subscales. The Cognitive commitment subscale, however, should be applied with caution because of the marginal reliability (α = .684).

The testing of gender differences did not reveal any differences in the general score and the affective and cognitive subscales. Men had higher mean scores than women in the subscale of behavioural committment toward siblings in adulthood, which means less behavioural commitment than women. Previous research examining the influence of sibling dyad sex composition has reported higher degree of closeness and emotional intimacy between sisters than between brothers or brothers and sisters (Cicirelli, 1991; Voorpostel & Van der Lippe, 2007).

The results on gender, however, are not unequivocal; some of the research showed that siblings of the same sex are closer to each other than siblings of different sex (Furman & Buhrmester, 1985; Walęcka-Matyja, 2014) whereas other research findings demonstrate quite opposite relations or none (Minnett, Vandell, & Santrock, 1983; Teti & Ablard, 1989).

The construct and criterion validity of ASFRS were satisfactory. The intercorrelations between the ASFRS scales were mostly moderate. The correlations between ASFRS scores and the sibling relationship scores of ASRQ were in the main significant and consistent with the predictions. The ASFRS (as well as its subscales) was strongly positively correlated with the factor of Warmth, which describes the relationship characterized by acceptance, closeness, perceiving similarity between each other, admiration, knowledge about each other, and support, both emotional and instrumental. On the other hand, there were weaker negative correlations between the general ASFRS score (and the subscales) and the factors of Conflict and Rivalry. This is understandable considering that ASFRS measures commitment to the sibling relationship.

Summing up, the evidence regarding the factorial structure, reliability and validity of ASFRS are in the main satisfactory. However, attention should be paid to some limitations of the study. The sample of the study comprised only university students; testing a more diversified population of Poles, for example, in terms of age and education would add to its validity. Construct validity should also be tested with measures other than ASRQ. Despite the limitations, the present evidence supports the claim that ASFRS has satisfactory psychometric properties and can, with some caution, be used in research attempting to describe adult sibling relationships.

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