

THE ITALIAN ADAPTATION AND VALIDATION OF THE ADULT SIBLING RELATIONSHIP QUESTIONNAIRE (ASRQ) IN ITALIAN EMERGING ADULTS

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The aims of the present study were to provide a contribution to the validation of the Adult Sibling Relationship Questionnaire (ASRQ; Stocker, Lanthier, & Furman, 1997) with a population of Italian emerging adults. The ASRQ measures individuals' current perceptions of their own behavior and feelings toward their sibling, as well as their perceptions of their sibling's behavior and feelings toward him or her by assessing 14 fundamental dimensions (intimacy; affection; emotional support; instrumental support; knowledge; similarity; admiration; acceptance; dominance; competition; antagonism; quarreling; maternal rivalry; and paternal rivalry), combined in order to form three macro-dimensions: Warmth, Conflict, and Rivalry. The sample comprised 464 young adults (200 males and 264 females), aged from 18 to 28 years, living in central Italy. Confirmatory factor analyses showed a factorial structure with fourteen first-order factors and two second-order factors. The internal consistency coefficients (α) were satisfactory for each of the fourteen ASRQ dimensions and the ASRQ macro-dimensions. Further, the present study provided support for the convergent validity of the ASRQ, also within the Italian context.

Key words: Sibling relationships; Emerging adulthood; Self-report measure; Adaptation and validation study; Italian sample.

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INTRODUCTION

The sibling relationship is arguably one of the long-lasting and enduring bonds in people's lives. Siblings not only share a gene pool, but have also a long history of significant experiences in common (Cicirelli, 1991). For this reason these relationships are particularly central to individuals' social lives (Dunn, 2002). They promote personality development (Sulloway, 1996), cognitive (Azmitia & Hesser, 1993), social and emotional competence (Bedford, Volling, & Avioli, 2000; Lockwood, Kitzmann, & Choen, 2001; McHale, Updegraff, Helms-Erickson, & Crouter, 2001), and contribute to individuals' overall well-being over the lifespan (Noller & Feeney, 2006; Noller, Feeney, & Peterson, 2001). Furthermore, in Italy, 52.8% of individuals have at least one sibling (ISTAT, 2010).

Despite the importance and prevalence of sibling relationships, to date, developmental research has focused primarily on the study of sibling relationships in childhood (Dunn & McGuire, 1992; Steelman, Powell, Werum, & Carter, 2002), adolescence (Noller, 2005) and older adulthood (Cicirelli, 1980, 1989; Connodis, 1994; Fingerman, Hay, & Birditt, 2004). A substantial gap exists in the research on sibling bonds (Bedford, 1998; Cicirelli, 1996; Dunn, 2007) for the period of young adulthood, and sibling relationships are the least investigated within the nuclear family (Connodis, 2001; Eriksen & Gerstel, 2000).

Emerging adulthood is characterized by transformations in the life of young adults and their families (Arnett, 2000). Young adults start to move to a separate residence, invest in economic or educational endeavors and establish intimate romantic relationships. At the same time the intensity of interactions with family members decreases (White & Riedmann, 1992). Consequently, sibling relationships are transformed to address the developmental changes and the progress taking place at this stage of life (Aquilino, 2006).

Developmental studies on sibling bonds that have examined the nature and importance of sibling relationships, have identified positive and negative dimensions on which adult sibling relationships vary in early adulthood (Furman & Buhrmester, 1985; Stocker, Lanthier, & Furman, 1997). There is evidence of warmth or affection, conflict, and rivalry for parental attention and affection being the crucial characteristics of sibling relationships not only in childhood and adolescence (Dunn, 1993; Furman & Buhrmester, 1985; Lecce, Primi, Pinto, & de Bernart, 2005), but also during early adulthood (Stocker et al., 1997). Therefore, young people may still have ambivalent feelings of warmth as well as conflict or rivalry toward their sibling (Stocker et al., 1997).

As young adults achieve greater independence from their family of origin and acquire adult roles, sibling relationships become less central to daily life (Aquilino, 2005; Cicirelli, 1996). Due to life transitions that are commonly experienced by young adults (Mouw, 2005; Roisman, Masten, Coatsworth, & Tellegen, 2004), siblings spend less time together, share less everyday experiences and closeness, and contact with each other tends to decrease (Aquilino, 2006; Cicirelli, 1996; White, 2001). However, despite their limited physical proximity, it is incorrect to assume that, in emerging adulthood, siblings become peripheral to each other's lives (Scharf, Shulman, & Avigad-Spitz, 2005). Most siblings still continue to communicate, visit each other and share activities, and most individuals experience warmth with their siblings (Cicirelli, 1995; Scharf et al., 2005). In other words, as suggested by Goetting (1986), most sibling bonds provide emotional support and companionship over the entire lifespan. Siblings can therefore become a source of potential support and advice, despite the lower incidence of daily interaction (Scharf et al., 2005; Tucker, Barber, & Eccles, 1997).

Further, in emerging adulthood, the nature of sibling interaction becomes more voluntary rather than dictated by parental wishes or other external conditions (Stewart et al., 2001). Sibling pairs typically experience less conflict, rivalry and competitiveness with their siblings in early adulthood than they did during adolescence, due to reduced contact with siblings, and the greater symmetry and voluntary nature of sibling relationships which increasingly become bonds between equals (Cicirelli, 1991; Connodis, 2001; Lee, Mancini, & Maxwell, 1990; Stewart et al., 2001). However, other studies suggest that some adults still continue to experience some degree of childhood rivalry (Bedford, 1989; Ross & Milgram, 1982). From a theoretical point of view, these mixed findings on the emotional tone of sibling relationships during emerging adulthood highlight the necessity for future research in this area. Examination of sibling bonds of emerging

adults could then clarify, in greater depth, what form they take in this specific developmental phase of the life cycle.

From a methodological viewpoint, there is therefore a need for valid and reliable instruments that are able to identify and measure the fundamental dimensions that characterize the quality of sibling relationships in early adulthood. Initial studies have primarily used qualitative techniques, such as interviews, to measure sibling relationships (Bedford, 1989; Gold, 1989; Ross & Milgram, 1982). While the qualitative method may offer a wide range of information, authors think that a self-report measure can provide useful information on adults' perceptions regarding their behaviors and feelings toward their siblings. After all, as some researchers have suggested, subjective evaluations of relationships may have a stronger impact on individual adjustment than objective indices (Cunningham & Barbee, 2000; Furman, 1996). Further, self-report measures have the advantage of being economical and easy to administer, and of assessing the fundamental aspects of the subjective experience, while ensuring the respondent's privacy (Bonino, 2004).

Currently, among the existing self-report scales on sibling relationship quality, such as the Sibling Relationship Questionnaire (SRQ; Furman & Buhrmester, 1985) and the Lifespan Sibling Relationship Scale (LSRS; Riggio, 2000), the Adult Sibling Relationship Questionnaire (ASRQ; Stocker et al., 1997) appeared to be the most comprehensive instrument designed to measure the main dimensions of sibling relationships (Warmth, Conflict, and Rivalry) during early adulthood.

THE ADULT SIBLING RELATIONSHIP QUESTIONNAIRE (ASRQ)

The ASRQ is a self-report questionnaire that assesses qualitative dimensions of sibling relationships in early adulthood and beyond. In particular, this questionnaire measures individuals' current perceptions of their own behavior and feelings toward their sibling, as well as their perceptions of their sibling's behaviour and feelings toward them. The ASRQ was developed by Stocker and colleagues (1997) for young adults. Based on a conceptual analysis of prior studies on sibling bonds in childhood and adulthood (Bedford, 1989; Brody, Stoneman, & Burke, 1987; Cicirelli, 1982; Furman & Buhrmester, 1985; Stocker, Dunn, & Plomin, 1989; Stocker & McHale, 1992), the authors developed an initial pool of items concerning crucial qualitative features of sibling relationships that had been identified in previous studies. The ASRQ was developed as an age-appropriate extension of the Sibling Relationship Questionnaire (SRQ; Furman & Buhrmester, 1985), a self-report instrument assessing children's perceptions of sibling relationship qualities. The SRQ has excellent psychometric properties and has been employed in several studies on childhood and adolescence (Brody, Stoneman, & McCoy, 1992; Buhrmester & Furman, 1990; Stoneman & Brody, 1993).

The ASRQ measures 14 fundamental dimensions: 1) intimacy, which refers to the level of trust existing between sibling pairs; 2) affection, which refers to the subjective perception of the emotional involvement present within the relationship; 3) emotional support, which refers to the amount of emotional and psychological support that siblings receive and provide each other; 4) instrumental support, which refers to the amount of practical and concrete support received and provided from/to siblings; 5) knowledge, that is an awareness of the personality and beliefs of siblings, as well as of their social relationships; 6) similarity, or the degree of likeness among brothers and sisters; 7) admiration, or rather the level of reciprocal esteem and respect existing

among siblings; 8) acceptance, which refers to the reciprocal acceptance of siblings' personalities, ideas and lifestyles; 9) dominance, that is the amount of overpowering behavior among siblings; 10) competition, relative to the presence of jealousy and contention within the relationship; 11) antagonism, or the quantity of hostile and adverse behaviors between sibling pairs; 12) quarrelling, related to any disputes and contentions among siblings; 13) maternal rivalry, related to their mother's partiality in the treatment of the siblings; and 14) paternal rivalry, which refers to the father's partiality in the treatment of siblings.

The latent structure underlying the ASRQ has been investigated on two samples of US young adults (Colorado sample: $M_{\text{age}} = 20.60$ years, $SD = 2.15$; Indiana sample: $M_{\text{age}} = 19.30$, $SD = 1.46$), via a principal component analysis on the fourteen subscale scores. Results revealed a three-component solution, which accounted for 70% of the variance. The first component was labeled *Warmth* because it included all the subscales that refer to a positive emotional tone in sibling relationships (intimacy, affection, emotional support, instrumental support, knowledge, similarity, admiration, and acceptance). The second component was labeled *Conflict* because it encompassed the subscales that, on the contrary, refer to a negative emotional tone in sibling relationships (dominance, competition, antagonism, and quarreling). Finally, the third component was labelled *Rivalry* because it included all the subscales concerning parents' partiality in the treatment of their siblings (maternal rivalry, paternal rivalry). There were low correlations between factor scores: Warmth and Conflict, $r = -.19$; Warmth and Rivalry, $r = -.17$; and Conflict and Rivalry, $r = .23$. The ASRQ showed satisfactory internal consistency for all subscales, and high test-retest reliability across a 2-week period. Convergent validity was assessed by correlating respondents' reports with those of their siblings. Discriminant validity was investigated by examining cross-rater correlations between different factors and it was found to be satisfactory. Finally, the ASRQ has been used in several investigations of adult sibling relationship quality (Finzi-Dottan & Cohen, 2010; Fortuna, Roisman, Haydon, Groh, & Holland, 2011; Panish & Stricker, 2002). Regarding the German context, an adaptation of the ASRQ has been developed by Heyeres (2006), confirming the reliability and the validity of this self-report measure.

Overall, the ASRQ conceptual structure, psychometric characteristics, agility, and easy administration procedure make it a particularly useful and promising measure for the quality of sibling relationships in early adulthood. It is therefore worthwhile to validate, also for the Italian context, a reliable and valid instrument capable of measuring the distinctive positive and negative dimensions, such as warmth or affection, conflict and rivalry for parental attention, that characterize the nature of adult sibling relationships.

AIMS OF THE STUDY

The present study aimed to contribute to the validation of the ASRQ on a population of Italian emerging adults. The first goal of the research was to test the ASRQ factor structure. It was hypothesized that there would be a model with fourteen first-order factors and three second-order factors (see Figure 1). The second goal was to estimate the reliability of the ASRQ in terms of scale item homogeneity and internal consistency. A further aim was to verify the questionnaire's convergent validity, estimated by comparing its scores with those on the sibling version of

the Network of Relationships Inventory (NRI; Furman, 1996), one of the most frequently used instruments for measuring the quality of close relationships, which has been adapted for use with the Italian population (Guarnieri & Tani, 2011a).

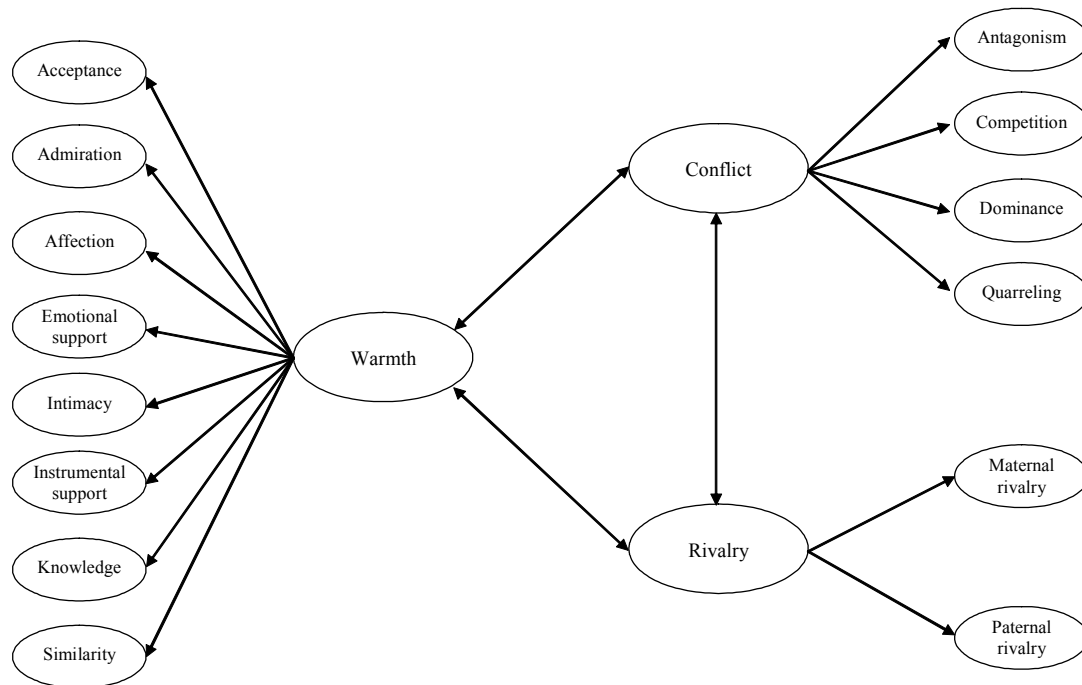


FIGURE 1
The hypothesized model of factor structure of the ASRQ
with fourteen first-order factors and three second-order factors.

METHOD

Participants

A total of 464 university students (200 males and 264 females), aged from 18 to 28 years ($M = 23.52$, $SD = 3.25$), participated in the study. Participants were recruited from the University of Florence. Of the undergraduates seeking degrees, 55% were psychology majors, followed by 24% as statistic majors, and 21% as educational majors. All participants were Italian students and came from upper-middle socioeconomic classes with more than 65% of their parents having a high school diploma or university degree. Sixty-three percent of the participants did not live with their siblings at the time of their participation in the study. A total of 411 participants (43% males), ranging in age from 18 to 28 years ($M = 23.38$, $SD = 3.34$), had complete data on both ASRQ and NRI.

Measures

Adult Sibling Relationship Questionnaire. This scale is a self-report measure consisting of 81 items spread over 14 subscales: intimacy, affection, emotional support, instrumental support,

knowledge, similarity, admiration, acceptance, dominance, competition, antagonism, quarreling, maternal rivalry, and paternal rivalry. More specifically, the ASRQ contains 76 dyadic relationship (couple) items (for example, item 21, “How much does this sibling accept your personality?”, and item 22, “How much do you accept this sibling’s personality?”) and five dyadic relationship (single) items (for example, item 1, “How much do you and this sibling have in common?”). All the items on the 14 scales were combined to form three higher-order factors: Warmth, Conflict, and Rivalry. If participants had more than one brother or sister, they were requested to fill in the ASRQ describing their relationship with the sibling they consider to be most important and closest to them. Participants were requested to respond to each item on a 5-point Likert scale ranging from hardly at all (1) to extremely (5). The exception to this general scoring strategy is that the rivalry scales are scored on a different 5-point Likert scale (1 = participant is usually favored; 2 = participant is sometimes favored; 3 = neither participant nor sibling is favored; 4 = sibling is sometimes favored; 5 = sibling is usually favored). Subscale scores are derived by averaging the items that make up each subscale. The three second-order factors can be computed by averaging the subscales that make up each factor. The resulting score for Warmth and Conflict ranges from 1-5 with higher scores indicating higher levels of the factor. The resulting scores for Rivalry range from 0-2 with 0 indicating an absence of rivalry and 2 indicating maximum rivalry.

ASRQ translation and adaptation. The ASRQ was translated into Italian using the back-translation procedure. Two native English bilingual translators worked autonomously: the first one translated the ASRQ into Italian and the second one translated the Italian translation back into English. The two translators then compared the two translations and found that there were no significant incongruities between them. In order to identify potential problems resulting from language translation or item ambiguity, a pilot study was conducted on a sample of 50 university students (47% males) ranging in age from 20 to 25 years ($M = 22.48$, $SD = 2.13$) participated in the study. Participants were recruited from the University of Florence. This pilot study revealed that many couple items were very highly correlated ($r > .80$). In order to reduce multicollinearity problems, we decided to reduce the original version of the ASRQ, by making all the couple items into single items. These items expressed participants’ reports about their behavior and feelings toward their sibling and participants’ reports about their sibling’s behavior and feelings at the same time. So, in the present study a version of the ASRQ was administered which comprised 43 items (see Table 1). The Italian translation of the scale is provided in the Appendix.

Network of Relationships Inventory. In order to assess the quality of sibling relationships, the Italian adaptation (Guarnieri & Tani, 2011a) of the sibling version of the NRI, developed by Furman and Buhrmester (1985) was administered. The NRI measured 11 dimensions, which are grouped under two macro-dimensions, namely: Social support, defined by companionship, instrumental aid, satisfaction, intimacy, nurturance, affection, admiration, and Reliable alliance, and Negative interaction, defined by conflict, punishment, and antagonism. The participants indicated how strongly each quality was experienced in the relationship with their siblings on a 5-point scale (ranging from 1 = *little or none*, to 5 = *the most*). Internal consistency coefficients (Rho) for Social support and Negative interaction with siblings were .94 and .89, respectively. For the present study, internal consistency coefficients (Cronbach’s alpha) were the following: .79 for companionship, .84 for instrumental aid, .87 for satisfaction, .87 for intimacy, .83 for nurturance, .84 for affection, .82 for admiration, .90 for reliable alliance, .85 for conflict, .75 for punishment, and .75 for antagonism.

TABLE 1
Reduced version of the ASRQ used in the present study.
In the first column the number of the original ASRQ items is reported

Original items	Subscale	New items
ASRQ1	Similarity	1. How much do you and this sibling have in common?
ASRQ2_ASRQ3	Intimacy	2. How much do you and this sibling talk about things that are important to each other?
ASRQ4	Quarreling	3. How much do you and this sibling argue with each other?
ASRQ5_ASRQ6	Affection	4. How much do you and this sibling think of each other as good friends?
ASRQ7_ASRQ8	Antagonism	5. How much do you and this sibling irritate each other?
ASRQ9_ASRQ10	Admiration	6. How much do you and this sibling admire each other?
ASRQ11_ASRQ12	Maternal rivalry	7. Do you and this sibling think your mother favors one of you more?
ASRQ13_ASRQ14	Emotional support	8. How much do you and this sibling try to cheer each other up when one of you is feeling down?
ASRQ15_ASRQ16	Competition	9. How competitive are you and this sibling with each other?
ASRQ17_ASRQ18	Instrumental support	10. How much do you and this sibling go to each other for help with non-personal problems?
ASRQ19_ASRQ20	Dominance	11. How much do you and this sibling dominate each other?
ASRQ21_ASRQ22	Acceptance	12. How much do you and this sibling accept each other's personality?
ASRQ23_ASRQ24	Paternal rivalry	13. Do you and this sibling think your father favors one of you more?
ASRQ25_ASRQ26	Knowledge	14. How much do you and this sibling know about each other?
ASRQ27	Similarity	15. How much do you and this sibling have similar personalities?
ASRQ28_ASRQ29	Intimacy	16. How much do you and this sibling discuss your feelings or personal issues with each other?
ASRQ30_ASRQ31	Quarreling	17. How often do you and this sibling criticize each other?
ASRQ32_ASRQ33	Affection	18. How close do you and this sibling feel to each other?
ASRQ34_ASRQ35	Antagonism	19. How often do you and this sibling do things to make each other mad?
ASRQ36_ASRQ37	Admiration	20. How much do you and this sibling think that the other has accomplished a great deal in life?
ASRQ38_ASRQ39	Maternal rivalry	21. Do you and this sibling think your mother supports one of you more?
ASRQ40_ASRQ41	Emotional support	22. How much can you and this sibling count on each other to be supportive when one of you is feeling stressed?
ASRQ42_ASRQ43	Competition	23. How much do you and this sibling feel jealous of each other?
ASRQ44_ASRQ45	Instrumental support	24. How much do you and this sibling give each other practical advice?
ASRQ46_ASRQ47	Dominance	25. How much are you and this sibling bossy with each other?
ASRQ48_ASRQ49	Acceptance	26. How much do you and this sibling accept each other's lifestyle?
ASRQ50_ASRQ51	Paternal rivalry	27. Do you and this sibling think your father supports one of you more?
ASRQ52_ASRQ53	Knowledge	28. How much do you and this sibling know about each other's relationships?
ASRQ54	Similarity	29. How much do you and this sibling think alike?
ASRQ55_ASRQ56	Intimacy	30. How much do you and this sibling really understand each other?

(table 1 continues)

Table 1 (continued)

Original items	Subscale	New items
ASRQ57_ASRQ58	Quarreling	31. How much do you and this sibling disagree with each other about things?
ASRQ59_ASRQ60	Affection	32. How much do you and this sibling let each other know you care about each other?
ASRQ61_ASRQ62	Antagonism	33. How much do you and this sibling put each other down?
ASRQ63_ASRQ64	Admiration	34. How much do you and this sibling feel proud of each other?
ASRQ65_ASRQ66	Maternal rivalry	35. Do you and this sibling think your mother is closer to one of you?
ASRQ67_ASRQ68	Emotional support	36. How much do you and this sibling discuss important personal decisions with each other?
ASRQ69_ASRQ70	Competition	37. How much do you and this sibling try to perform better than each other?
ASRQ71_ASRQ72	Instrumental support	38. How likely is it you and this sibling would go to each other if you needed financial assistance?
ASRQ73_ASRQ74	Dominance	39. How much do you and this sibling act in superior ways to each other?
ASRQ75_ASRQ76	Acceptance	40. How much do you and this sibling accept each other's ideas?
ASRQ77_ASRQ78	Paternal rivalry	41. Do you and this sibling think your father is closer to one of you?
ASRQ79_ASRQ80	Knowledge	42. How much do you and this sibling know about each other's ideas?
ASRQ81	Similarity	43. How much do you and this sibling lead similar lifestyles?

Procedure

In accordance with the American Psychological Association guidelines for the ethical treatment of human participants, prior permission to participate was obtained from participants. After young adults had agreed to participate in the study, data were collected anonymously at University during class time.

Plan of Data Analysis

In order to analyze the latent structure underlying the ASRQ, a series of factor analyses was performed. Preliminarily, an exploratory factor analysis (EFA) was employed because this is the first study examining the structure of the Italian ASRQ. A principal axis factoring was performed on the 43 items, and the extracted factors were rotated obliquely via the oblimin algorithm (Norusis, 1994). In addition, a confirmatory factor analysis (CFA) was conducted by using maximum likelihood estimation procedures of EQS 6.1 (Bentler, 2006). Robust statistics were used in order to account for the multivariate non-normality of variables (Mardia coefficient = 4.56, $p < .001$); robust statistics included the Satorra-Bentler χ^2 ($SB\chi^2$) test statistic and robust comparative fit index (CFI_{robust} ; Satorra & Bentler, 1994), both of which adjust standard errors to calculate parameter estimates in situations where multivariate normality cannot be assumed. On the basis of previous considerations (Stocker et al., 1997), we hypothesized a hierarchical model with 14 first-order factors and three second-order factors (see Figure 1). To gauge the fit of the

model, the following fit indexes were used: the Satorra-Bentler robust χ^2 , normed chi-square (i.e., $NC = \chi^2/df$), the CFI_{robust} , the standardized root mean squared residual (SRMR), and the root-mean-square error of approximation (RMSEA). Acceptable values for NC range from 1.0 to 3.0 (Kline, 1998); the index is useful for comparing various models of the same data. The CFI indicates the difference in fit of the null and target models relative to the fit of the null model. A CFI value greater than or equal to .90 indicates reasonable fit (Rigdon, 1996). The RMSEA was chosen following the recommendations of Browne and Cudeck (1993) and Rigdon (1996) to indicate the fit of the empirical and population variance-covariance matrices, with values less than .05 indicating excellent fit and values less than .08 indicating reasonable fit (Rigdon, 1996). The SRMR is a measure of the average of the standardized residuals between the hypothesized model and the sample data. Values at or below .05 indicate acceptable fit (Byrne, 1998), as the model explains the data to within an average error of .05 or less.

An item-scale partial correlation analysis was conducted to examine ASRQ subscale item homogeneity, and Cronbach's alpha coefficient was calculated to examine the internal consistency of the subscales. Finally, convergent validity was assessed by computing Pearson product-moment correlation coefficients between scores on ASRQ and those on NRI.

RESULTS

Exploratory Factor Analysis

Preliminarily, an EFA was performed on the 43 variables defined earlier. Based on the scree test, only four factors were retained. The rotated pattern matrix is reported in Table 2. The solution explained 43.41% of the variance. The first factor was defined by loadings for the items of the subscales acceptance, admiration, affection, emotional support, instrumental support, intimacy, and knowledge; the second factor was defined by loadings for the items of the subscales antagonism, competition, dominance, and quarreling; the third factor was defined by the loadings for the items of the subscale paternal rivalry; finally, the fourth factor was defined by loadings for the items of the subscale maternal rivalry. Factor scores were minimally associated: correlations ranged from $-.22$ to $.19$.

Confirmatory Factor Analysis

A CFA was performed on the 43 variables to test the hierarchical model with 14 first-order factors and three second-order factors reported in Figure 1. The model did not evidence a good fit to the data (see Table 3). So three other models were tested: (a) a hierarchical model with 14 first-order factors and just two second-order factors (Warmth and Conflict), in which paternal rivalry and maternal rivalry first-order factors did not load on any higher-order factor; (b) a model with fourteen correlated factors; (c) a model with four correlated factors as evidenced by EFA results. Only the hierarchical model evidenced a good fit to the data (see Table 3). Standardized parameter estimates are reported in Figure 2. The examination of factor loadings showed that estimates were substantial, robust standard errors were small and t -values were high and significant. The two second-order factors, namely Warmth and Conflict, were negatively and significantly correlated; moreover these factors resulted uncorrelated with maternal and paternal rivalry.

TABLE 2
Loadings on factor in EFA performed on forty-three variables, and eigenvalues

Subscale		F1 11.34	F2 4.52	F3 2.49	F4 2.39
Acceptance	Item 12	.47			
	Item 26	.42			
	Item 40	.40			
Admiration	Item 6	.59			
	Item 20	.47			
	Item 34	.58			
Affection	Item 4	.66			
	Item 18	.70			
	Item 32	.60			
Emotional support	Item 8	.74			
	Item 22	.69			
	Item 36	.72			
Instrumental support	Item 10	.62			
	Item 24	.49			
	Item 38	.40			
Intimacy	Item 2	.83			
	Item 16	.79			
	Item 30	.76			
Knowledge	Item 14	.78			
	Item 28	.65			
	Item 42	.74			
Similarity	Item 1	.40			
	Item 15	.41			
	Item 29	.52			
Antagonism	Item 43	.42			
	Item 5		.61		
	Item 19		.63		
Competition	Item 33		.69		
	Item 9		.55		
	Item 23		.44		
Dominance	Item 37		.56		
	Item 11		.40		
	Item 25		.67		
Quarreling	Item 39		.62		
	Item 3		.61		
	Item 17		.66		
Paternal rivalry	Item 31		.41		
	Item 13			.73	
	Item 27			.81	
Maternal rivalry	Item 41			.76	
	Item 7				.75
	Item 21				.74
	Item 35				.75

Note. Factor loadings < .40 are not reported.

TABLE 3
Goodness of fit indices for CFA models

	$SB\chi^2$	df	$SB\chi^2/df$	CFI_{robust}	SRMR	RMSEA
Model with 14 first-order factors and three second-order factors	2040.51***	843	2.42	.86	.06	.05
Model with 14 first-order factors and two second-order factors	1468.27***	842	1.74	.91	.05	.05
Model with 4 correlated factors	2180.11***	854	2.55	.84	.06	.05
Model with 14 correlated factors	2019.34***	769	2.62	.86	.06	.05

Note. $SB\chi^2$ = Satorra-Bentler χ^2 ; CFI_{robust} = robust comparative fit index; SRMR = standardized root mean squared residual; RMSEA = root mean square error of approximation.

*** $p < .001$.

Item-Scale Correlations and Internal Consistency of the ASRQ

An item-scale correlation analysis was conducted to examine ASRQ subscale items homogeneity. Table 4 presents the results. The item-scale correlations ranged from .38 to .80.

Cronbach's alpha coefficient was calculated to examine the internal consistency of the scale considered in its 14 dimensions. Results showed satisfactory internal consistency for all subscales (see Table 5). Moreover, for Warmth alpha was .90, and for Conflict it was .81.

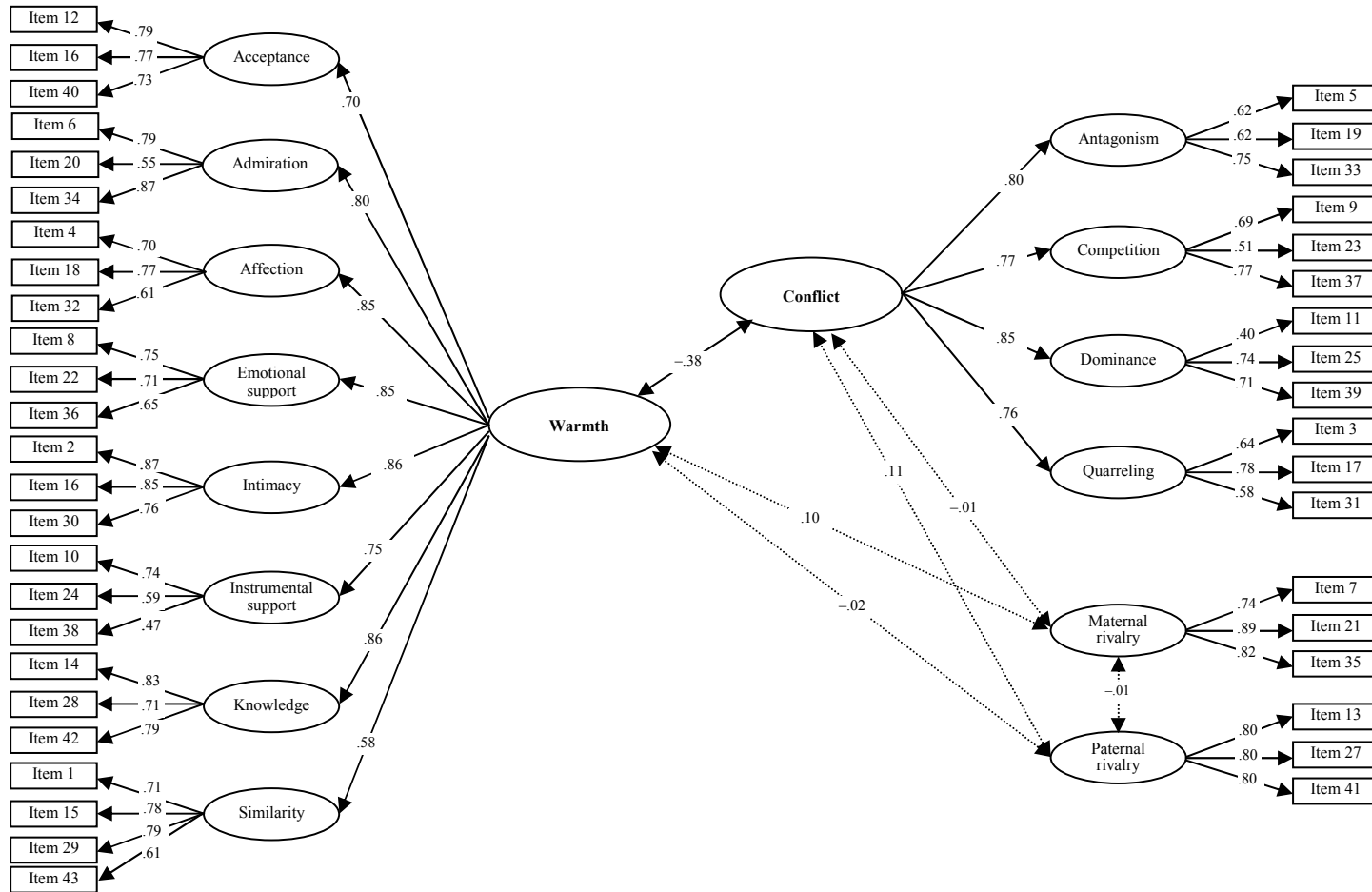
Descriptive Statistics for the ASRQ Scores

Means and standard deviations of the ASRQ individual and global dimensions are reported in Table 5.

Relations between the ASRQ and NRI Scores

Correlations between the ASRQ and the NRI scores were computed for both the global and individual dimensions of the two scales. Regarding the interrelations between the global dimensions, the ASRQ Warmth was positively correlated to the NRI social support ($r = .87, p < .001$) and negatively correlated to the NRI negative interaction ($r = -.28, p < .001$); the ASRQ Conflict was negatively correlated to the NRI social support ($r = -.35, p < .001$) and positively correlated to the NRI negative interaction ($r = .65, p < .001$).

The correlations between the ASRQ and NRI subscale scores are reported in Table 6. Results showed positive significant associations between subscales assessing similar dimensions. In order to synthetically describe these associations, a median correlation was computed; it was given by the median value of the obtained coefficients. For the NRI social support dimensions and the ASRQ Warmth dimensions, the median correlation was .50; for the NRI negative interaction dimensions and the ASRQ conflict dimensions, the median correlation was .37. Both paternal and maternal rivalry were uncorrelated with any individual dimensions of the NRI.



Note. Measurement errors are not reported.

FIGURE 2
The statistical model of factor structure of the ASRQ with 14 first-order factors and two second-order factors. Standardized solution is reported. All parameters are significant at $p < .05$, except those represented with dashed lines.

TABLE 4
Corrected item-scale correlations and Cronbach's alpha of the ASRQ individual dimensions

Acceptance	Item 12	.65
$\alpha = .81$	Item 26	.68
	Item 40	.65
Admiration	Item 6	.66
$\alpha = .78$	Item 20	.50
	Item 32	.70
Affection	Item 4	.54
$\alpha = .73$	Item 18	.62
	Item 32	.50
Intimacy	Item 2	.80
$\alpha = .85$	Item 16	.78
	Item 30	.63
Emotional support	Item 8	.60
$\alpha = .74$	Item 22	.59
	Item 36	.51
Instrumental support	Item 10	.39
$\alpha = .60$	Item 24	.46
	Item 38	.38
Knowledge	Item 14	.66
$\alpha = .81$	Item 28	.63
	Item 42	.72
Similarity	Item 1	.62
$\alpha = .81$	Item 15	.68
	Item 29	.67
	Item 43	.55
Antagonism	Item 5	.59
$\alpha = .72$	Item 19	.55
	Item 33	.48
Competition	Item 9	.52
$\alpha = .69$	Item 23	.44
	Item 37	.55
Dominance	Item 11	.32
$\alpha = .64$	Item 25	.55
	Item 39	.48
Quarreling	Item 3	.49
$\alpha = .69$	Item 17	.59
	Item 31	.46
Maternal rivalry	Item 7	.70
$\alpha = .83$	Item 21	.70
	Item 35	.70
Paternal rivalry	Item 13	.68
$\alpha = .85$	Item 27	.77
	Item 41	.72

TABLE 5
Means and standard deviations of the ASRQ individual and global dimensions

		<i>M</i>	<i>SD</i>
Individual dimensions	Acceptance	3.34	0.70
	Admiration	3.52	0.67
	Affection	3.21	0.76
	Intimacy	2.88	0.81
	Emotional support	3.15	0.76
	Instrumental support	2.42	0.60
	Knowledge	3.31	0.75
	Similarity	2.54	0.76
	Antagonism	1.92	0.74
	Competition	1.89	0.67
	Dominance	1.80	0.58
	Quarreling	2.86	0.69
	Maternal rivalry	.91	0.56
	Paternal rivalry	.90	0.59
Global dimensions	Warmth	3.04	0.56
	Conflict	2.12	0.54

DISCUSSION AND CONCLUSIONS

The aim of the present study was to provide a useful contribution for the validation, in the Italian context, of a self-report measure that is able to assess the quality of sibling relationships in early adulthood.

Firstly, given the very high correlations between the dyadic items of the ASRQ, we decided to reduce the original version of the ASRQ, by making all the dyadic relationship (couple) items into single items. These items expressed participants' reports about their behavior and feelings toward their sibling, and participants' reports about their sibling's behavior and feelings at the same time.

In spite of the changes made to the Italian version of the ASRQ, we strongly consider that the scale still accurately measures the fundamental dimensions that characterize sibling relationships in early adulthood.

Our results have partially replicated the multidimensional structure of the ASRQ which was suggested by its authors (Stocker et al., 1997). The Italian version of the scale showed that sibling relationships in early adulthood are characterized by two main macro-dimensions: Warmth and Conflict. More specifically, adult pairs of siblings expressed their feeling of affection for their siblings, and were still inclined to take care of, help, and share experiences and personal points of view with them. Furthermore, they provided emotional and material support, expressed praise and acceptance of their brothers and sisters, and had deep knowledge of them. In other words, Warmth continued to be a salient dimension of sibling relationships in adulthood as well. On the other hand, adult siblings had periodic conflicts and disputes or at least perceived some kind of antagonism, competitiveness and absence of balance within the relationships with their siblings. Therefore, Conflict was still an important relationship dimension. Perceptions of conflict were also related negatively to perceptions of warmth in the Italian context.

TABLE 6
Correlations between the ASRQ and NRI individual dimension scores ($n = 411$)

ASRQ	NRI										
	COM	INA	INT	NUR	AFF	ADM	RAL	SAT	PUN	CON	ANT
Acceptance	.44***	.38***	.32***	.39***	.38***	.53***	.29***	.59***	-.28***	-.42***	-.42***
Affection	.66***	.52***	.56***	.64***	.63***	.55***	.25***	.71***	-.15*	-.30***	-.32***
Admiration	.47***	.44***	.37***	.49***	.53***	.56***	.34***	.60***	-.19**	-.32***	-.33***
Emotional support	.65***	.65***	.69***	.64***	.52***	.50***	.25***	.67***	-.02	-.17*	-.27***
Instrumental support	.42***	.46***	.49***	.45***	.23***	.30***	-.01	.38***	.15*	.04	.00
Intimacy	.70***	.62***	.79***	.61***	.53***	.50***	.20**	.71***	-.02	-.19**	-.25***
Knowledge	.62***	.59***	.61***	.51***	.51***	.36***	.23***	.66***	-.07	-.12	-.20**
Similarity	.52***	.41***	.44***	.34***	.25***	.42***	.12	.44***	-.03	-.22***	-.27***
Antagonism	-.15*	-.15*	-.04	-.13	-.28***	-.27***	-.27***	-.38***	.49***	.43***	.44***
Competition	-.15*	-.18*	-.09	-.12	-.23***	-.12	-.16*	-.32***	.36***	.37***	.37***
Quarreling	-.19**	-.19**	-.08	-.04	-.26***	-.29***	-.17*	-.36***	.34***	.66***	.59***
Dominance	-.15*	-.24***	-.08	-.18**	-.38***	-.27***	-.24***	-.43***	.44***	.49***	.51***
Paternal rivalry	.00	-.01	-.01	-.01	-.09	-.01	.04	-.07	.04	.05	.02
Maternal rivalry	.08	.02	.07	-.03	.02	-.04	-.04	.01	.11	.07	.11

Note. COM = Companionship; INA = Instrumental aid; INT = Intimacy; NUR = Nurture; AFF = Affection; ADM = Admiration; RAL = Reliable alliance; SAT = Satisfaction; PUN = Punishment; CON = Conflict; ANT = Antagonism.

* $p < .05$. ** $p < .01$. *** $p < .001$.

However, the macro-dimension of parental rivalry did not emerge in our analyses. This finding can be explained by the cultural specificity of the Italian families with young adults. Unlike what happens in the US, where emerging adults may live further away from their families limiting time spent together, an increasing number of Italian young adults remain in the homes of their nuclear families during this developmental stage (ISTAT, 2010). The daily interactions and contacts between Italian emerging adults and their parents may reflect in relationships characterized by greater involvement (Guarnieri & Tani, 2011b), where the relationships with their mother and father are differentiated. Therefore, our findings appear to suggest that in the Italian context parental rivalry is no longer a fundamental dimension of sibling relationships during adulthood. Furthermore, perceptions of maternal and paternal rivalry were not related to perceptions of warmth and conflict. This result suggests that worry about mother or father's attention is probably not a principal cause of conflict or of absence of warmth among adult siblings. One possible explanation may be that the greater autonomy of emerging adults, as well as their greater emotional and cognitive skills, and the presence of other significant relationships, appears to facilitate the elaboration of parental favoritism that, at this stage, no longer interferes with the levels of warmth or conflict among siblings.

In spite of these differences, on the whole, the Italian version of the ASRQ showed satisfactory psychometric properties and adequate reliability and validity. More specifically, our data show that all the dimensions and macro-dimensions of the ASRQ had good internal consistency. Finally, the significant and high positive correlations between similar dimensions measured by the ASRQ and NRI demonstrated the convergent validity of the scale.

On the basis of the results about the multidimensionality and hierarchical structure of the ASRQ, we suggest two different ways to use the ASRQ. When the author's interest is on a synthetic measure of the siblings' relationship, we suggest making reference to the two macro-dimensions of Warmth and Conflict, and the two dimensions of paternal and maternal rivalry. Whereas when the author is interested in the contribution of the specific aspects of the sibling relationships, we suggest the use of the 14 subscale scores.

The above discussion of the current study must be considered in light of a number of limitations. First, our sample included only university students. Future research might attempt to provide a further contribution to the validation of the Italian version of the ASRQ, replicating these findings on a sample of Italian working emerging adults. Moreover, we only used young adults' self-report. To improve the investigation of the ASRQ validity, it would be of value to include other relevant sources of information, such as real sibling couples. Finally, gender differences were not investigated. Additional studies are needed to examine whether the perception of sibling relationships significantly varies among males and females during emerging adulthood.

In conclusion, the ASRQ appears to be an accurate and reliable measure for the assessment of early adult siblings' current perceptions of the quality of their relationships in the Italian context, despite the above mentioned limitations.

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APPENDIX

The Italian adaptation of the reduced ASRQ

Subscale	New items
Somiglianza [Similarity]	1. Quanto avete in comune tu e tuo/a fratello/sorella? [How much do you and this sibling have in common?]
Intimità [Intimacy]	2. Quanto tu e tuo/a fratello/sorella parlate di cose che sono importanti per l'uno/a l'altro/a? [How much do you and this sibling talk about things that are important to each other?]
Litigare [Quarreling]	3. Quanto litigate tu e tuo/a fratello/sorella? [How much do you and this sibling argue with each other?]
Affetto [Affection]	4. Quanto spesso tu e tuo/a fratello/sorella pensate che l'altro/a sia un buon/a amico/a? [How much do you and this sibling think of each other as good friends?]
Antagonismo [Antagonism]	5. Quanto tu e tuo/a fratello/sorella vi irritate l'uno/a l'altro/a? [How much do you and this sibling irritate each other?]
Ammirazione [Admiration]	6. Quanto tu e tuo/a fratello/sorella vi ammirate l'uno/a l'altro/a? [How much do you and this sibling admire each other?]
Rivalità materna [Maternal rivalry]	7. Tu e tuo/a fratello/sorella pensate che vostra madre abbia una preferenza per uno/a di voi? [Do you and this sibling think your mother favors one of you more?]
Supporto emotivo [Emotional support]	8. Quanto tu e tuo/a fratello/sorella vi tirate su di morale quando uno/a di voi si sente giù? [How much do you and this sibling try to cheer each other up when one of you is feeling down?]
Competizione [Competition]	9. Quanto tu e tuo/a fratello/sorella vi sentite in competizione l'uno/a con l'altro/a? [How competitive are you and this sibling with each other?]
Supporto strumentale [Instrumental support]	10. Quanto tu e tuo/a fratello/sorella vi aiutate a vicenda in caso di problemi non personali? [How much do you and this sibling go to each other for help with non-personal problems?]
Dominanza [Dominance]	11. Quanto tu e tuo/a fratello/sorella tendete a dominare l'uno/a sull'altro/a? [How much do you and this sibling dominate each other?]
Accettazione [Acceptance]	12. Quanto tu e tuo/a fratello/sorella accettate le personalità l'uno/a dell'altro/a? [How much do you and this sibling accept each other's personality?]
Rivalità paterna [Paternal rivalry]	13. Tu e tuo/a fratello/sorella pensate che vostro padre abbia una preferenza per uno/a di voi? [Do you and this sibling think your father favors one of you more?]
Conoscenza [Knowledge]	14. Quanto tu e tuo/a fratello/sorella vi conoscete l'uno/a l'altro/a? [How much do you and this sibling know about each other?]
Somiglianza [Similarity]	15. Quanto tu e tuo/a fratello/sorella avete delle personalità simili? [How much do you and this sibling have similar personalities?]
Intimità [Intimacy]	16. Quanto tu e tuo/a fratello/sorella parlate l'uno/a con l'altro/a dei vostri sentimenti o problemi personali? [How much do you and this sibling discuss your feelings or personal issues with each other?]
Litigare [Quarreling]	17. Quanto tu e tuo/a fratello/sorella vi criticate a vicenda? [How often do you and this sibling criticize each other?]
Affetto [Affection]	18. Quanto tu e tuo/a fratello/sorella vi sentite vicini? [How close do you and this sibling feel to each other?]
Antagonismo [Antagonism]	19. Quanto tu e tuo/a fratello/sorella fate delle cose che vi fanno infuriare a vicenda? [How often do you and this sibling do things to make each other mad?]
Ammirazione [Admiration]	20. Quanto tu e tuo/a fratello/sorella pensate che l'altro/a abbia raggiunto obiettivi importanti nella vita? [How much do you and this sibling think that the other has accomplished a great deal in life?]
Rivalità materna [Maternal rivalry]	21. Tu e tuo/a fratello/sorella pensate che vostra madre supporti maggiormente uno/a di voi? [Do you and this sibling think your mother supports one of you more?]

(appendix continues)

Appendix (continued)

Subscale	New items
Supporto emotivo [Emotional support]	22. Quanto tu e tuo/a fratello/sorella potete contare sul sostegno dell'altro/a quando vi sentite stressati? [How much can you and this sibling count on each other to be supportive when one of you is feeling stressed?]
Competizione [Competition]	23. Quanto tu e tuo/a fratello/sorella siete gelosi l'uno/a dell'altro/a? [How much do you and this sibling feel jealous of each other?]
Supporto strumentale [Instrumental support]	24. Quanto tu e tuo/a fratello/sorella vi date dei consigli pratici? [How much do you and this sibling give each other practical advice?]
Dominanza [Dominance]	25. Quanto tu e tuo/a fratello/sorella siete prepotenti l'uno/a nei confronti dell'altro/a? [How much are you and this sibling bossy with each other?]
Accettazione [Acceptance]	26. Quanto tu e tuo/a fratello/sorella accettate i vostri rispettivi stili di vita? [How much do you and this sibling accept each other's lifestyle?]
Rivalità paterna [Paternal rivalry]	27. Tu e tuo fratello pensate che vostro padre supporti maggiormente uno di voi? [Do you and this sibling think your father supports one of you more?]
Conoscenza [Knowledge]	28. Quanto tu e tuo/a fratello/sorella siete a conoscenza delle relazioni che ha l'altro/a? [How much do you and this sibling know about each other's relationships?]
Somiglianza [Similarity]	29. Quanto tu e tuo/a fratello/sorella la pensate in modo simile? [How much do you and this sibling think alike?]
Intimità [Intimacy]	30. Quanto tu e tuo/a fratello/sorella vi comprendete veramente? [How much do you and this sibling really understand each other?]
Litigare [Quarreling]	31. Quanto spesso capita che tu e tuo/a fratello/sorella siate in disaccordo su qualcosa? [How much do you and this sibling disagree with each other about things?]
Affetto [Affection]	32. Quanto tu e tuo/a fratello/sorella fate in modo che l'altro/a sappia che tenete a lui/lei? [How much do you and this sibling let each other know you care about each other?]
Antagonismo [Antagonism]	33. Quanto tu e tuo/a fratello/sorella vi sminuite a vicenda? [How much do you and this sibling put each other down?]
Ammirazione [Admiration]	34. Quanto tu e tuo/a fratello/sorella vi sentite fieri l'uno/a dell'altro/a? [How much do you and this sibling feel proud of each other?]
Rivalità materna [Maternal rivalry]	35. Tu e tuo/a fratello/sorella pensate che vostra madre sia più vicina ad uno/a di voi? [Do you and this sibling think your mother is closer to one of you?]
Supporto emotivo [Emotional support]	36. Quanto tu e tuo/a fratello/sorella discutete insieme prima di prendere decisioni personali importanti? [How much do you and this sibling discuss important personal decisions with each other?]
Competizione [Competition]	37. Quanto tu e tuo/a fratello/sorella provate ad essere migliori l'uno/a dell'altro/a? [How much do you and this sibling try to perform better than each other?]
Supporto strumentale [Instrumental support]	38. Quanto è probabile che tu e tuo/a fratello/sorella ricorriate l'uno/a all'altro/a se avete bisogno di un aiuto economico? [How likely is it you and this sibling would go to each other if you needed financial assistance?]
Dominanza [Dominance]	39. Quanto tu e tuo/a fratello/sorella vi comportate in modo da sembrare superiori all'altro/a? [How much do you and this sibling act in superior ways to each other?]
Accettazione [Acceptance]	40. Quanto tu e tuo/a fratello/sorella accettate le idee l'uno/a dell'altro/a? [How much do you and this sibling accept each other's ideas?]
Rivalità paterna [Paternal rivalry]	41. Tu e tuo/a fratello/sorella pensate che vostro padre sia più vicino ad uno/a di voi? [Do you and this sibling think your father is closer to one of you?]
Conoscenza [Knowledge]	42. Quanto tu e tuo/a fratello/sorella conoscete le idee l'uno/a dell'altro/a? [How much do you and this sibling know about each other's ideas?]
Somiglianza [Similarity]	43. Quanto tu e tuo/a fratello/sorella avete uno stile di vita simile? [How much do you and this sibling lead similar lifestyles?]

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