# How Close is Close: The Structure of Family Contact within Adult Dyads

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## Abstract

Confirmatory factor analysis was used to examine the factor structure of a seven-item family contact scale within familial dyads and to test invariance of the accepted solutions. Zip codes were employed to calculate and control for physical distance, measured in miles, separating relatives. Subjects were parents and adult offspring and adult sibling pairs who participated in the Seattle Longitudinal Study (SLS). The sample included a total of 592 pairs of first-degree relatives, consisting of 407 parent-offspring pairs ($\underline{Age}_{Parent}$=44-90; $\underline{Age}_{Offspring}$=22-65) and 185 sibling pairs ($\underline{Age}_{Siblings}$=25-88). A two factor model provided the best fit to the data. Measurement invariance was established for parent/offspring and sibling pairs independently, and within-dyad comparisons using latent mean modeling procedures were examined. A configural invariance model was accepted as best fitting for the parent/offspring dyads. Tests of invariance for the siblings revealed that the factor loadings could be constrained to be equivalent within dyads. Latent mean analyses indicated no significant differences in reported feelings of closeness or frequency of contact for parent/offspring dyads, while differences were noted for both factors for sibling pairs.



# How Close is Close: The Structure of Family Contact within Adult Dyads.

The current study's purpose was to examine structural properties of the Family Contact scale within adult dyads. This was accomplished by testing the dimensionality of the latent structure of family contact items in a total sample of 592 family dyads consisting of parent-adult offspring and adult sibling pairs. Measurement invariance of the factor structure was tested to determine the degree of similarity in factor structure of the Family Contact scale within these dyads. Models included structural regressions for age, gender, and education as these demographic characteristics were expected to be significantly related to responses on the contact scale. A unique aspect of the current study is the inclusion of a physical distance variable, derived by computing the distance separating relatives as determined by their zip codes.

Models were also extended to examine differences in perceived closeness as well as the frequency of contact at the latent mean level. These analyses allowed for comparisons within the parent/offspring and adult sibling pairs to better understand the nature of family contact within adult dyads. Is the factor structure of family contact the same within dyads or do generational differences exist which require different factor structures to define the construct?

## Literature Review

There is a common perception that demands in today's society have led to families being separated by job requirements, increasing ease of mobility, and often the desire to experience life in distant places. Is this perception true, and if so, what impact does separation have on the degree of closeness felt within families? There are numerous studies which have examined the issue of familial contact in general, and a growing body of literature addressing this topic with specific concern about aging families. Hareven (1995) suggested that examining how consistent and continuous the support from non-resident children or other kin to aging parents has been in the United States is a topic quite open to future research. Questions remain about the behavior characteristics, for example, the forms of contact and communication, and how they vary across cohorts and generations. One question remaining unanswered is whether a strong sense of familial interdependence exists in younger cohorts as it did in older cohorts (Hareven, 1995).

Hareven (1986; 1995) suggested that it has not been a change in family structure that has led to familial separation, but a transformation of family function. The role of the family as a support system is still important. Even decreased coresidence of offspring living with parents does not automatically imply less family interaction occurs. Patterns of reciprocal support have been shown to characterize older people and their children (Mancini & Bliezner, 1989). Even with reciprocity, the method of collecting this information may lead to differing results. Correlations for contact between parents and offspring range from .45 to .75, based upon reports of one generation responding about the amount of contact with other generations (Mangen & Miller, 1988). This implies substantial discrepancies may exist when relying on only one generation to report familial information (Mangen, 1995).

So what concerns exist when one attempts to understand familial contact? It appears that at minimum, two members of the family should be recruited to allow for comparisons of concordance and discordance of responses. Also, it is useful to address multiple relationships within the family structure since different patterns of frequency and perception of contact have been noted for parents and offspring versus sibling pairs. Of particular concern for the measurement of family contact are important characteristics like age, gender, education and physical distance separating family members.

Age

The age of offspring has been noted to effect the quality of parent-child relations with maturational changes likely to reduce differences between parents and their adult children (Suitor, Pillemer, Keeton & Robison, 1995). Research by Cicirelli (1981), Aldous, Klaus and Kleen (1985), and Hagestad (1986) has shown increases in the quality of relationship with older offspring and also improvement as offspring age. Adult siblings have also been noted to provide support and tend to remain the most active ties in network analysis of families. Parent-offspring



relationships followed ties between siblings in order of importance (Wellman & Wortley, 1989; Bedford, 1995).

Gender

Gender of family members and its relationship to family contact has also been extensively examined with mixed results. Gender of both parent and offspring influences intergenerational relationships, and is a key factor for sibling relations as well. A review by Bedford (1995) suggests that there may be a differential age by gender effect with gender being more important in earlier adulthood and less important in old age. Differences exist in reported closeness as mothers report more positive affect with daughters and daughters report greater closeness with mothers (Rossi & Rossi, 1990). Less conflict is reported in mother-son and father-daughter pairs while more conflict has been reported in father-son pairs (Suitor, et. al., 1995). Daughters are also more likely to have greater frequency of contact with parents than are sons (Connidis, 1989). A similar trend is found for sibling pairs as sisters tend to be closer than all other sibling relations (Goetting, 1986). Usually, same sex relations report closer feelings about one another than do different-sex siblings.

Distance

The majority of older people see at least one of their children on a regular basis. Older working class parents are more likely than middle class parents to have a child living in the same city (Rosenthal, 1987; Hays, 1984). As expected, offspring living farther away are more likely to be in contact with parents by telephone and letter writing than in person (DeWit, Wister, & Burch, 1988), yet those living closer together also are in contact by phone more often (Frankel & DeWit, 1988). Distance may have an even greater impact on siblings than it does on parent-offspring relations. Large distances lead to reduction in contact and feelings of closeness (Connidis, 1989). So it becomes apparent that numerous demographic characteristics influence familial contact.

How does one measure the degree of contact maintained between family members? Frequency of contact alone is not a good indicator of qualitative aspects of familial relationships as contact may be high for various reasons. An older individual might need frequent help and thus require more contact. Both the quantitative and qualitative nature of this interaction differs from that of casual conversation and visits. Frequency of contact between siblings has been shown to decline as the arrival of children occurs, but then increases after children are grown (Gold, 1990). Amount of contact between siblings is also significantly higher when they live near to one another (Connidis, 1989). Even so, the amount of contact alone does not reveal much about the nature of sibling ties.

It would appear that any study examining the issue of family contact should address both the manner and frequency of staying in touch, as well as the degree of closeness felt between family members. Asking more than one family member to report on the relationship is also critical. Physical distance separating family members as well as gender and age of subjects are expected to help answer questions about family contact.

Mangen (1995) suggested that he is heartened by the increased emphasis that researchers studying the aging family have given to issues of measurement. The opportunity to test the comparability of measurement models across relationships exists when data are extended across multiple family members (Mangen, 1995). Many of the models described by Mangen are directly related to concerns about measurement invariance. The same constraints applied to equivalence of test items or opinion scales between groups may be applied to test the nature of relationships within familial relations. Given a measured attribute, a <u>reciprocated relationships model</u> as suggested by Mangen (1995), would test whether both parties use the same relative emphasis for tasks. Furthermore, in a <u>congeneric model</u>, no equality constraints are imposed and differences are expected within familial dyads, but the important question is whether these differences are significant. Following is a discussion about the issue of measurement equivalence and the importance of this topic to the current study.



<u>Concern about Measurement Equivalence</u>

The present study tested measurement equivalence within familial dyads. Measurement equivalence should not be assumed within dyads unless rigorous methodological assessments provide confirmation of its existence. If conditions of invariance are not satisfied, then observed variables define different concepts in different populations, or in the current study within family dyads, and the profiles of loadings are open to distinct interpretations (McDonald, 1995).

Confirmatory Factor Analysis (CFA) enables researchers to systematically test proposed relationships using covariance structures. Even so, there is still some debate about the appropriate use of these techniques to establish measurement equivalence. Thurstone (1947) is credited with the idea that the same factors should be found in different sets of items sampled from an unique domain of variables. Cunningham (1991) described the basic concept of invariance as the logical opposite of change--the consistency of results across subjects and variables. Two basic levels of invariance were defined by Thurstone: metric and configural. Metric invariance of factor loadings occurs when the values of the factor solution are invariant in location and magnitude. In Mangen's framework, this would equate to a test of reciprocated relationships. Configural invariance provides a less constrained test and requires that the simple structure of the factor pattern remain the same when applied across groups or samples. Thus, configural invariance models would equate to a congeneric model as defined in Mangen's work (Mangen, 1995). Thurstone regarded factor pattern invariance as more important than factor loading invariance.

Meredith (1964a, 1964b, 1993) argued that the common factor pattern should be invariant across groups, but that common factor variances and covariances should vary under selection from a populations. Horn, McArdle, and Mason (1983) suggest that the expectation of factor loading equivalence across studies may not be likely even when reasonable scientific beliefs infer that factor patterns should be invariant. This suggests that configural invariance is often not to be expected, while metric invariance is rare. Horn (1991) suggested that invariance of the factor pattern across groups is needed to support the assumption that common factors actually measure the same attributes in different groups.

Given differences in definitions and labels, the current study heeds the advice of Widaman (1995) as a basic concern: while many parameters may vary freely across groups, the one common thread of measurement equivalence is that the common factor pattern must remain invariant. Group differences of latent variables are meaningless if invariance of the factor pattern, as a minimum requirement, is not demonstrated.

The current study tests configural, weak, beta constrained, and strong invariance of the Family Contact scale. Table 1 describes the constraints placed upon each model to define these levels of measurement invariance.

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Insert Table 1 about here

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The following questions were addressed:

(1) How many factors are required to describe the Family Contact Scale?

(2) At what level of invariance does the factor model fit for parent-adult offspring and for adult sibling dyads?

(3) What effects are noted for the influence of age, gender, and education on the family contact factors?

(4) How does the physical distance between family members, measured in miles, influence family contact factors?

(5) What latent mean differences exist for family contact factors within parent-adult offspring and adult sibling pairs?



## Methods

### Subjects

Subjects for this study consist of a subset of the sample followed by Schaie and his associates in the Seattle Longitudinal Study (SLS). The SLS has been fully described elsewhere (Schaie, 1996). The adult membership of a Health Maintenance Organization (HMO) serves as the sampling frame. This community dwelling population represented a wide range of occupational, educational and economic backgrounds.

Between 1989-1991, a family study was conducted which collected data from the adult siblings and offspring of the SLS members who participated in the 1984 data collection. Subgroup descriptions follow:

Parent-adult offspring pairs. Pairs are matched to include a parent and a single offspring. There are a total of 407 parent-offspring pairs ($M_{AgeP}$=68.11, $SD_{AgeP}$=9.28; $M_{AgeO}$=38.78, $SD_{AgeO}$=8.59). Age range for parents is from 44 to 90 years, offspring range from 22 to 65 years. Mean education level for parent-offspring pairs ($M_{EducP}$=14.52, $SD_{EducP}$=2.89; $M_{EducO}$=15.64, $SD_{EducO}$=2.43). Of all possible matched pairs, there are 160 Parent/Son pairs and 247 Parent/Daughter pairs.

Adult sibling pairs. One hundred eighty five pairs of siblings who are close in age ($M_{AgeL}$=60.95, $SD_{AgeL}$=12.77; $M_{AgeS}$=59.42, $SD_{AgeS}$=12.97), and similar in education ($M_{EducL}$=14.81, $SD_{EducL}$=3.22; $M_{EducS}$=14.61, $SD_{EducS}$=2.81) exist. Of these, 71 brothers of longitudinal members are present, while 114 sisters completed the test battery.

### Measures

Measures used for the current study include the Family Contact Scale (FCS), The Life Complexity Inventory, a demographic information form (LCI; Gribbin, Schaie & Parham, 1980), and a measure of distance.

Family Contact Scale (FCS). The Family Contact scale was added to the SLS battery for the family study, and was used to assess the closeness of relationship felt toward a specified family member, and the frequency of different types of contact with that person. The FCS is comprised of 7 items including:

1) Do you live with this person now?
2) How would you describe the nature of your relationship with this family member now?
3) How many years did you and this person live together in the same home?
4) How often do you see this family member now?
5) How often do you talk on the telephone with this family member now?
6) How often do you currently have contact by letter with this person?
7) How often do you now hear about this person from another family member or friend?

Item 1 was not used in the current analyses as the majority of adult members (98%) do not live in the same household. Item 2 was measured using a 5-point Likert scale with responses: 1=very close, 2=somewhat close, 3=in between, 4=not close, and 5=not at all close. Item 3 responses included: never, 1-4 years, 5-8 years, 9-12 years, 13-16 years, and 17-20 years. Items 4 through 7 all used 6-point Likert scales with responses: 1=daily, 2=every week, 3=every month, 4=every year, 5=hardly ever, and 6=never. All items were scored so that higher values indicate closer feelings or more frequent contact.

The Life Complexity Inventory (LCI). The Life Complexity Inventory (LCI) was developed to gather demographic information and to examine a broad range of adult activities and interests (Gribbin, Schaie, & Parham, 1980). Additional information gathered included age, education, income, occupation, number of children, life satisfaction, job satisfaction, and other variables.



Distance Measurement. The current zip code for each family study participant was obtained. Latitude and longitude measurements were derived for each zip code, and the difference between each pair of coordinates for family dyads was converted into distance in miles. Parent/offspring dyads distance ranged between one to almost twenty-five hundred miles, with an average distance within dyads of 271.43 miles (SD=597.16). Sibling dyads had a range from one to twenty-three hundred sixty one miles, with a mean value of 436.99 miles (SD=615.87) within dyads. The natural log of miles was calculated to eliminate skewness and kurtosis of the data and to approximate the scale of the other family contact items for structural modeling. This resulted in values of distance between zero and 7.822 (M=3.183, SD=2.26) for parent/offspring, and a range of zero to 7.767 (M=4.45, SD=2.18) for sibling dyads.

## Analytic Strategies

LISREL software was used to develop and test the factor structure the FCS. Invariance testing of the models was conducted within familial dyads for both parent/offspring and siblings. Conceptual definitions of the constraints for each level of invariance tested are: (a) configural invariance implies that factor patterns remain the same while differences in factor loadings (lambda) within dyads are permitted; (b) weak invariance implies no differences in the factor loadings (lambda) within dyads; (c)beta constrained allow no differences between the factor loadings patterns while constraining the betas for regressions of covariates between groups, and (d) strong invariance adds the constraint of equality of variable intercepts (Tau-Y) within dyads to test for differences in factor means.

### Comparative Fit Statistics

Models were tested at all three levels of invariance and multiple fit indices compared to determine the best fitting models. The following fit indices were used to select the best fitting models: (a) chi-square which is sensitive to sample size and departures from normality (James, Muliak, & Brett, 1982); (b) Goodness of Fit Index (GFI; Jöreskog & Sörbom, 1981); (c) Nonnormed Fit Index (NNFI; Bentler & Bonnett, 1980), (d) Comparative Fit Index (CFI; Bentler, 1990); (e) Root Mean Square Error of Approximation (RMSEA; Steiger, 1990, Steiger & Lind, 1980); and (f) Z-Ratio ( $\chi 2/df$; Bollen, 1989). Values of the GFI, NNFI, and CFI all range between 0-1, with higher values considered better. The RMSEA has a lower limit of 0 which indicates perfect fit, while values less than or equal to 0.08 are considered a good fit of the model relative to its degrees of freedom (Browne & Cudek, 1993). Finally, the Z-Ratio assesses how large the chi-square estimate is compared to the expected value (the degrees of freedom) (Bollen, 1989). Smaller ratios indicate better fit. The $\chi^2$ difference test (Jöreskog & Sörbom, 1989) is used for comparing invariant, nested models. If the chi-square variate is large compared to the degrees of freedom and evaluated against the critical value of chi-square one can reject the null hypothesis of no significant differences between models. The critical values used for all comparisons was $p<.05$.

Latent Mean Extensions

Variable means were included in the measurement models so that tests of latent mean differences could be examined. Once the level of measurement invariance was accepted, the best fitting covariance structures were extended to test for latent mean differences to answer questions about differences in within- dyad family contact.

LISREL allows users to designate a reference group to estimate differences in latent construct means. Within group variation is tested by setting alpha values (mean deviation values) for all estimated factors to zero for the reference group. Scores for the remaining (comparison) groups, found in the alpha matrix, represent deviations from the reference group's latent mean scores. Intercept values, found in the tau matrix of LISREL, are allowed to estimate for the reference group and held invariant for the subsequent comparison group.

Actual level information (size of latent means) is irrelevant as the scale of the mean will be determined by the observed variable chosen to scale each latent factor. Instead, models are tested



for equivalence of regression intercepts and the deviation values indicate the differences in latent means within dyads.

Results

A two factor model of family contact was accepted as best fitting. The two family contact factors were: perceived closeness (items=2,3), and frequency of contact (items=4,5,6,7). Since subjects were first-degree relatives (parent-adult offspring and adult sibling pairs), models were specified to acknowledged the lack of independence within the data. LISREL 8 was used to specify a repeated measures design with familial dyads treated as a within-subject factor. By correlating the errors between the measures of the parent and offspring, or sibling pairs, the dependent nature of these data was addressed. This method is analogous to autocorrelating errors in a repeated measures design.

Measurement Invariance Testing

Separate models were developed to test for configural, weak, beta constrained, and strong invariance. Results for the covariance structures are reported first for the parent-adult offspring pairs, followed by the adult sibling models.

Parent-Adult Offspring. The configural model of family contact for parent-adult offspring dyads resulted in: $\chi^2[110]=401.22$; GFI=.90. The weak invariance model constrained the elements of the LY matrix to be equivalent within dyads. Fit for this model was: $\chi^2[114]=429.91$; GFI=.90. The beta constrained model added the additional constraint of equality of regression coefficients in the structural model: $\chi^2[122]=463.86$; GFI=.89. A delta chi-square ($\Delta\chi^2$) test was used to determine which model best fit the data for the parent-adult offspring pairs with the configural invariance model accepted as best fitting. Results are reported in table 2.

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Adult Sibling pairs. The configural invariance model of family contact for sibling dyads resulted in: $\chi^2[110]=311.21$; GFI=.85. The weak invariance model showed: $\chi^2[114]=321.51$; GFI=.85. Finally, the beta constrained invariance model for siblings: $\chi^2[122]=343.09$; GFI=.84. The $\Delta\chi^2$ showed the weak invariant model of fit best for sibling pairs (see table 2). The standardized loadings and factor correlations for the accepted parent/offspring and sibling models are presented in Tables 3, 4, and 5.

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insert Tables 3, 4, and 5 about here

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## Regression Results

Age, gender, education level, and physical distance were regressed onto the respective contact factors for each member of the family dyads. Regression coefficients, standard errors, and t-values are produced by LISREL for interpretation.

Parent/Offspring. Regression results are reported in Table 6. No significant results were noted for age. Gender analyses revealed that mothers reported stronger feelings of closeness but no difference in the type of contact. More highly educated parents reported more frequent contact with offspring while the opposite was true for offspring (higher education indicated less frequent contact). Finally, physical distance was significantly related to frequency of contact for parents and offspring, with greater distance leading to less contact. Physical distance was also important for the feelings of closeness for offspring with children living farther away feeling less close to parents. Interestingly, parents did not have a similar finding for the closeness factor.



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## Regression Results-Adult Siblings

The same structural regressions were performed for the sibling models as in the parent/offspring analyses (see Table 7). Age was found to have a similar effect for both siblings as older siblings reported greater feelings of closeness. No effect of age was found for the frequency of contact. The only significant gender effect was found for the family siblings (rather than the target-SLS siblings), where sisters were more likely to report greater feelings of closeness than brothers. No education differences were noted for sibling dyads. Finally, distance did not have a statistically significant effect on the degree of closeness reported, but was important for the frequency of contact. In this case, siblings who lived farther away reported less frequent contact with one another.

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## Latent Mean Results

Once the level of measurement invariance of the covariance structures was determined for the dyads, the vector of means was constrained and the model modified to examine latent mean differences within dyads. Results are reported for parents-adult offspring, followed by the adult sibling findings.

Parent-Adult Offspring Means. The configural invariance model of family contact for parent-adult offspring dyads was extended to test for latent mean differences between parents and their adult offspring. The means model resulted in: $\chi^2[114]=452.79$ GFI=.90. The alpha values, standard errors, and t-values are reported in table 8. Table 9 contains the input means and the intercept (Tau) values for these models. Arguments have been made that latent means should not be examined unless, at minimum, a weak invariant model is accepted as best fitting. To test whether differences exist if the weak invariant model had been accepted as best fitting the data, latent means were tested and the results showed the same pattern of significance for both the configural and weak invariance models with means. No statistically significant latent mean differences were noted for the family contact factors. Results for latent mean comparisons of age, gender, and education show expected results of offspring as younger in age, and more highly educated than their parents, while no gender difference was noted.

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insert Tables 8 & 9 about here

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Adult Sibling Means. The weak invariance model of family contact for sibling dyads was tested with means. The model resulted in: $\chi^2[118]=324.88$ GFI=.85. The alpha values, standard errors, and t-values are reported in table 10. Input means and intercept values for the sibling means model are provided in Table 9 along with the parent/offspring values. Differences were noted for both family contact factors, thus siblings show discordance in their perception of closeness of contact as well as in their reports about frequency of contact.

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## Discussion

The current study reports preliminary analyses examining the covariance and latent mean structures of a family contact scale within adult familial dyads. Results indicate that the use of a repeated measures design strategy to model non-independent familial data is useful to understanding these data. The measurement models for parent-adult offspring and adult sibling



pairs showed differences in the equality constraint of the factor loadings. Parent/offspring data required factor loadings to be different within dyads, while sibling factor loadings could be constrained to be equal. Therefore, the relationship of the observed variables to the latent factors was similar within sibling pairs who were much closer in age. Generational differences, as reflected by the greater discrepancy in age between parents and offspring, most likely contribute to the lack of equality of factor loadings for those models. Most discussions of measurement invariance suggest that configural invariance serves as the minimum determination of measurement equivalence. The current results meet or exceed this minimum requirement to further support the similar nature of contact within these family dyads.

The addition of latent mean information to the models revealed differences within dyads for siblings but not parent/offspring dyads. It appears that parent/adult offspring dyads report their contact with one another more similarly than do adult sibling pairs. This result was found for both the closeness of contact and the frequency of contact factors. To address the concern about modeling latent means at different levels of invariance, the current study tested latent means at both the configural and weak invariance levels for parent/offspring dyads. Results from these analyses show an identical pattern of significant and non-significant findings. While the configural model was selected as best fitting the data, the selection of a weak invariant model (constraining factor loadings within dyads) would not have changed the latent mean results.

These results indicate that adult familial dyads respond similarly to questions about family contact. While the sibling data seem to indicate a more stable covariance structure, latent mean differences were noted that did not exist in the parent/offspring data. Additional analyses would be required to determine whether this degree of similarity is influenced by familial relatedness or whether age, cohort, or generational differences are being observed.

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Table 1. **COMPARISON OF MODEL CONSTRAINTS FOR WITHIN DYAD ANALYSES**

| Model | LAMBDA Dyad* | BETA Dyad* | MEANS Dyad* |
|---|---|---|---|
| **Configural Invariance** | | | |
| M1 | FR | FR | FR |
| **Weak Invariance** | | | |
| M2 | IN | FR | FR |
| **Beta Constrained** | | | |
| M3 | IN | IN | FR |
| **Strong Invariance** | | | |
| M4 | IN | IN | IN |

Note. * equivalence constraints are within dyads (eg. parent/offspring or siblings).

Table 2.
Comparisons of Family Contact Models

| **Group** | DFs | $\chi^2$ | *p* | GFI | RMSEA | NFI | NNFI | CFI | ECVI | NCP | Z Ratio |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Parent-Offspring** | | | | | | | | | | | |
| *M1-Configural | 110 | 401.22 | .001 | .90 | .080 | .80 | .75 | .84 | 1.38 | 291.21 | 3.64 |
| M2-Weak Invariant | 114 | 429.91 | .001 | .90 | .082 | .78 | .74 | .83 | 1.43 | 315.91 | 3.77 |
| M3-Beta Contrained | 122 | 463.86 | .001 | .89 | .083 | .77 | .73 | .81 | 1.48 | 341.86 | 3.80 |
| **Siblings** | | | | | | | | | | | |
| M1-Configural | 110 | 311.21 | .001 | .85 | .090 | .75 | .70 | .81 | 2.56 | 201.21 | 2.82 |
| *M2-Weak Invariant | 114 | 321.51 | .001 | .85 | .090 | .74 | .70 | .80 | 2.57 | 207.51 | 2.82 |
| M3-Beta Constrained | 122 | 343.09 | .001 | .84 | .090 | .72 | .70 | .79 | 2.60 | 221.09 | 2.81 |

Note. GFI = Goodness of Fit Index, RMSEA = Root Mean Square Error of Approximation, NFI = Normed Fit Index, NNFI = Non-Normed Fit Index, CFI = Comparative Fit Index, ECVI=Expected Cross Validation index, NCP = Estimated Non-Centrality Parameter, Z Ratio = $\chi^2$/df.
*Accepted model.

**Table 2 (con't). Family Contact Factor Model - Parent/Offspring Pairs**

| Model | Chi-square | GFI | Delta |
|---|---|---|---|
| *Configural: | $\chi^2[110]=401.22$ | .90 | 4 df=28.69, p<.001 |
| Weak Invariant: | $\chi^2[114]=429.91$ | .90 | 8 df=33.95, p<.001 |
| Beta Constrained | $\chi^2[122]=463.86$ | .89 | |

**Family Contact Factor Model - Adult Sibling Pairs**

| Model | Chi-square | GFI | Delta |
|---|---|---|---|
| Configural: | $\chi^2[110]=311.21$ | .85 | 4 df=10.3, p<.04 |
| *Weak Invariant: | $\chi^2[114]=321.51$ | .85 | 8 df=21.58, p<.006 |
| Beta Constrained | $\chi^2[122]=343.09$ | .84 | |

*accepted model

Table 3.
Standardized Solution for Family Contact Analyses

| Factor/Variables | Parents | Offspring | Siblings |
|---|---|---|---|
| | | Factor Loadings | |
| <u>Perceived Closeness</u> | | | |
| Question 2* | .60 | .23 | .77 |
| Question 3 | .33 | .18 | .43 |
| <u>Frequency of Contact</u> | | | |
| Question 4* | .84 | .76 | .83 |
| Question 5* | .72 | .50 | .83 |
| Question 6* | -.30 | -.37 | -.25 |
| Question 7* | .39 | .31 | .40 |

* Reverse coded to indicate positive response. All loadings significant ($p$<.05).

Table 4.
Factor Correlation Matrix for Parent-Offspring Family Contact Analyses.

| Factor | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 1. Parent Perceived Closeness | -- | | | |
| 2. Parent Frequency | .42* | -- | | |
| 3. Offspring Perceived Closeness | .21 | .18 | -- | |
| 4. Offspring Frequency | .09 | .23 | .40* | -- |

* Indicates significant p<.05.

Table 4 (cont).
Factor Correlation Matrix of Covariates for Parents-Offspring Models.

| Factor | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| 1. Parent age | 1.00 | | | | | | |
| 2. Offspring age | .78* | 1.00 | | | | | |
| 3. Parent gender | -.22 | -.07 | 1.00 | | | | |
| 4. Offspring gender | -.05 | -.05 | .09 | 1.00 | | | |
| 5. Parent education | -.02 | -.15 | -.21* | -.11 | 1.00 | | |
| 6. Offspring education | .13 | .07 | -.09 | -.13 | .26* | 1.00 | |
| 7. Distance | .04 | .02 | -.05 | -.01 | .14 | .23 | 1.00 |

* Indicates significant p<.05.

Table 5.
Factor Correlation Matrix for Sibling Family Contact Analyses.

| Factor | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 1. Target Perceived Closeness | -- | | | |
| 2. Target Frequency | .53* | -- | | |
| 3. Family Perceived Closeness | .21 | .27 | -- | |
| 4. Family Frequency | .06 | .23 | .43* | -- |

* Indicates significant $p<.05$.

Table 5 (cont).
Factor Correlation Matrix of Covariates for Sibling Models.

| Factor | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| 1. Target age | 1.00 | | | | | | |
| 2. Family age | .84* | 1.00 | | | | | |
| 3. Target gender | -.02 | .05 | 1.00 | | | | |
| 4. Family gender | -.02 | -.04 | -.07 | 1.00 | | | |
| 5. Target education | -.15* | -.16* | -.08 | -.01 | 1.00 | | |
| 6. Family education | -.12 | -.20* | -.05 | -.12 | .27* | 1.00 | |
| 7. Distance | .02 | .01 | .04 | -.06 | .01 | -.03 | 1.00 |

* Indicates significant $p<.05$.

Table 6.
Unstandardized regression coefficients, standard errors, t-values, and squared multiple correlations for Parent/Offspring covariates.

| Factor | Age | Gender | Education | Distance | Squared Multiple Correlation |
|---|---|---|---|---|---|
| ***Parents*** | | | | | |
| **Perceived Closeness** | .0014 | .3166* | .0131 | -0.021 | 9% |
| S.E. | (.0043) | (.0810) | (.0136) | (.0179) | |
| t-value | .325 | 3.91 | .961 | -1.17 | |
| **Frequency of Contact** | -.0069 | .1409 | .0300* | -.1191* | 16% |
| S.E. | (.0042) | (.0785) | (.0133) | (.0184) | |
| t-value | -1.64 | 1.79 | 2.26 | -6.47 | |
| ***Offspring*** | | | | | |
| **Perceived Closeness** | .0024 | .0613 | .0321 | -.0458* | 57% |
| S.E. | (.0046) | (.0800) | (.0166) | (.0185) | |
| t-value | .520 | .766 | 1.93 | -2.47 | |
| **Frequency of Contact** | -.0039 | .0647 | -.0200* | -.1189* | 46% |
| S.E. | (.0025) | (.0428) | (.0090) | (.0146) | |
| t-value | -1.56 | 1.52 | -2.23 | -8.17 | |

* significant $p<.05$

Table 7.
Unstandardized regression coefficients, standard errors, t-values, and squared multiple correlations Sibling covariates.

| Factor | Age | Gender | Education | Distance | Squared Multiple Correlation |
|---|---|---|---|---|---|
| ***Target Sibling*** | | | | | |
| **Perceived Closeness** | .0130* | .0553 | -.0207 | -.0027 | 8% |
| S.E. | (.0049) | (.1248) | (.0193) | (.0288) | |
| t-value | 2.64 | .443 | -1.07 | -.093 | |
| **Frequency of Contact** | .0031 | .1537 | -.0273 | -.0929* | 8% |
| S.E. | (.0053) | (.1360) | (.0210) | (.0310) | |
| t-value | .587 | 1.13 | -1.29 | -2.99 | |
| ***Family Sibling*** | | | | | |
| **Perceived Closeness** | .0104* | .5016* | -.0001 | -.0022 | 24% |
| S.E. | (.0041) | (.1074) | (.0187) | (.0241) | |
| t-value | 2.52 | 4.67 | -.0075 | -.089 | |
| **Frequency of Contact** | .0002 | .1641 | .0180 | -.1767* | 35% |
| S.E. | (.0037) | (.0979) | (.0172) | (.0235) | |
| t-value | .057 | 1.68 | 1.04 | -7.52 | |

* significant $p<.05$

Table 8.
Mean Deviation Values, Standard Errors, and t-values for Parent-Offspring Family Contact Analyses

| **Group** | **Perceived Closeness** | **Frequency of Contact** | **Age** | **Gender** | **Education** |
|---|---|---|---|---|---|
| <u>Offspring</u> | | | | | |
| Alpha | -.066 | .028 | -29.31* | .033 | 1.12* |
| S.E. | (.152) | (.076) | (.289) | (.032) | (.162) |
| t-value | -.432 | .370 | -101.32 | 1.01 | 6.91 |

* indicates significant latent mean difference. Parents used as reference category.

Table 9.
Intercepts and Input Means for Parent-Offspring Contact Means Model

| Variable | Input Mean-Parents | Input Mean-Offspring | Tau |
|---|---|---|---|
| Contact Q2 | 4.418 | 4.290 | 4.428 |
| Contact Q3 | 5.619 | 5.899 | 5.869 |
| Contact Q4 | 4.000 | 4.243 | 4.051 |
| Contact Q5 | 4.484 | 4.541 | 4.508 |
| Contact Q6 | 2.280 | 2.167 | 2.266 |
| Contact Q7 | 3.872 | 4.174 | 3.990 |

Table 9 (con't).
Intercepts and Input Means for Sibling Contact Means Model

| Variable | Input Mean-Target | Input Mean-Family | Tau |
|---|---|---|---|
| Contact Q2 | 4.270 | 4.135 | 4.284 |
| Contact Q3 | 5.146 | 4.834 | 5.080 |
| Contact Q4 | 3.773 | 3.438 | 3.771 |
| Contact Q5 | 4.157 | 3.832 | 4.161 |
| Contact Q6 | 2.292 | 2.395 | 2.290 |
| Contact Q7 | 3.859 | 3.649 | 3.845 |

Table 10.
Mean Deviation Values, Standard Errors, and t-values for Sibling Family Contact Analyses

| Group | Perceived Closeness | Frequency of Contact | Age | Gender | Education |
|---|---|---|---|---|---|
| <u>Offspring</u> | | | | | |
| Alpha | -.178* | -.333* | -1.53* | .016 | -.200 |
| S.E. | (.073) | (.079 | (.533) | (.053) | (.269) |
| t-value | -2.43 | -4.18 | -2.87 | .302 | -.743 |

* indicates significant latent mean difference. Target Sibling used as reference category.