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ABSTRACT

Two studies evaluated a technique for combining perceptions family members have of their families into measures of the family as a unit. Study 1 tested the reliability of an individually administered measure of family support and affiliation created to serve as a basis for aggregated family indices. Two existing family-assessment methods were adapted and administered to 71 subjects, mostly graduate and undergraduate students, who rated their own family relationships from a child or parent perspective. Across five subscales and four samples (parents, children, males, females), internal consistency ranged from .60 to .95, with an average of .88. In study 2, the instrument was administered along with the Family Environment Scale (FES) (Moos and Moos, 1986) to families in crisis, families in counseling, and community families (n=24 families). Indices based on agreement in family members' ratings (convergence) correlated positively with FES Cohesion and Expressiveness and negatively with FES Family Incongruence, supporting the notion of convergence as a measurable family trait. Discriminant analyses demonstrated a consistent superiority of agreement-based family indices over individual scores for predicting family criterion group membership. Appendixes contain the questionnaire and two clinical cases. (Contains 10 references and 5 tables.) (Author/SLD)

Preparing to Assess Families in Treatment: Reliability and Validity of a Family Affiliation Measure

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Running head: PREPARING TO ASSESS FAMILIES

Abstract

The purpose of this research was to evaluate a technique for combining family members' perceptions of their families into measures of the family as a unit. Study 1 tested the reliability of an individually administered measure of family support and affiliation created to serve as a basis for aggregated family indices. Two existing family assessment methods were adapted and administered to 71 subjects, mostly graduate and undergraduate students, who rated relationships in their own families from either a child or parent perspective. Across five subscales and four subsamples (parents, children, males, females), internal consistency ranged from .60 to .95, with an average of .88. Two-week test-retest reliability ranged from .89 to .95. In Study 2 the instrument was administered, along with the Family Environment Scale (FES; Moos & Moos. 1986), to three groups of families (families in crisis, families in counseling, and community families; N = 24 families) to validate the family indices derived from the research instrument. Indices based on agreement in family members' ratings (*convergence*) correlated positively with FES Cohesion and Expressiveness and negatively with FES Family Incongruence, supporting the notion of convergence as a measurable family trait. Discriminant analyses demonstrated a consistent superiority of agreement-based family indices over individual scores for predicting family criterion group membership.

Preparing to Assess Families in Treatment: Reliability and Validity of a Family Affiliation Measure

This research represents an attempt to establish and test a set of indices reflecting convergence of family members' cognitions concerning family relationships. Such indices of agreement within the family, based on similarity in individual family members' ratings, should prove indicative of overall systemic functioning and, consequently, useful for therapeutic evaluation, family treatment planning, and research on families.

Whereas family interventions are increasingly being seen as the treatment approach of choice, the use of objective assessment of the family as whole is extremely rare. Where assessment exists it often relies on poorly chosen instruments with no relation to treatment. Moreover, research on the effectiveness of family interventions, sparse as it is, is poorly developed and conceptually inadequate (Bednar, Berlingame, & Masters, 1988). These shortcomings need to be remedied. However, the appropriate target of evaluation needs to be the same as the focus of treatment, namely the family system.

Study 1

Method

The initial study tested the reliability of an individually administered measure of family affiliation. The scales of the measure were created to serve as a basis for aggregated family-

oriented indices. Self-report techniques have been used in studies of family therapy effectiveness (McLean & Craig, 1975; Slipp & Kressel, 1978). McLean and Craig (1975) suggested the use of an ordinal scale format in conjunction with an emphasis on the presenting problem as a way of measuring the impact of therapy. The present approach utilizes (ordinal) rating scales and a focus on perceptions of relationships within the family itself. It is built upon the notion of family structure with respect to affiliation and interdependence (Humphrey & Benjamin, 1986). The scales address support, closeness, and liking within the family as a whole and within specific subunits.

Two existing family assessment methods were adapted and administered to 71 subjects, mostly graduate and undergraduate students, who rated relationships in their own families from either a child's or a parent's perspective. The instruments adapted were the Family APGAR (Smilkstein, 1978; Smilkstein, Ashworth, & Montano, 1982) and a semantic differential (Osgood, Succi, & Tannenbaum, 1957) approach used by Stedman, Gaines, and Costello (1982) to evaluate families in therapy. The research instruments reproduced in Appendix A.

Results

Reliability results are presented in Table 1. Two-week test-retest reliability estimates for the family affiliation and support measures ranged from .89 to .95. Across five subscales

and four subsamples (parents, children, males, females), internal consistency coefficients ranged from .60 to .95, with an average internal consistency reliability of .88. Thus, these scales demonstrate acceptable reliability for various populations of family members.

Insert Table 1 about here

Study 2

Method

The second study involved administering the instrument along with the Family Environment Scale (FES; Moos & Moos, 1981) to three family groups (families in crisis, $N = 7$; families in counseling, $N = 8$; and families from the general community; $N = 9$) to test the convergent, divergent, and criterion-related validity of the family indices derived from the support and affiliation measures. The FES was chosen in part because of its *Family Incongruence* scale, an index based on family member difference scores that can be derived whenever multiple members of one family take the instrument. Table 2 presents internal consistency reliability data on the FES subscales.

Insert Table 2 about here

Two techniques were employed for constructing family indices for this research. For the support measure (Fam Support), item standard deviations for each family were summed to create a *variation index* (FSup Var). For the affiliation subscales a two-step process was employed to create *convergence indices*. First, family range for each item was subtracted from the maximum possible range. Second, for each relationship rated (family in general, marital, intergenerational, and sibling) these results were totaled into a corresponding index (Fam Conv, Mar Conv, P-C Conv, and Sib Conv). A global convergence index (Converge) was also constructed. Variation and convergence are conceptually (and inversely) related constructs. Each constitutes an objective index of the degree of similarity in the subjective ratings provided by family members. The research measures and their respective indices are summarized in Table 3.

Insert Table 3 about here

Hudson and Harrison (1986), although generally critical of attempts to measure the family, concede that aggregating individual judgements about the family may be a useful means of abstracting information regarding family attributes. Averages on the FES subscales, Fam Support, Fam Affil, etc. represent the most common method of aggregating individual ratings into family scores. FES incongruence and the research indices of variation

and convergence represent alternative approaches, all designed to measure a trait independent of the items on which the index is based.

Ideally, four-member families, consisting of two parents and two children, would be used for this study. However, early attempts to locate four-member families in therapy revealed that families of this size with children old enough to complete the surveys are rarely seen in clinical settings. So, two-parent families with at least one teenage child and single-parent families with two teenage children were targeted.

Family means for support and the affiliation measures, along with their corresponding family indices, were correlated with FES Family Incongruence. Expectations were that all of these correlations with Family Incongruence, except that with FSup Var, would be negative, and that variation and convergence indices would produce stronger correlations than would their family mean counterparts. Convergent and divergent validity was assessed by correlating the convergence indices with FES Family Incongruence and the FES subscales. By means of discriminant analysis, family aggregate indices were then compared with the individual-based scores on their ability to discriminate among the three family criterion groups. For this last evaluation individual family members for whom there was data for each family relationship rated on affiliation comprised the sample (N = 61), and appropriate family scores (FES ranges, FSup Var, and convergence indices) were

assigned to each individual.

Correlations of family scores (averages and variation indices) with FES Family Incong generally followed predicted patterns. (See Table 4). For the most part, however, mean scores produced higher correlations than did the family indices. Indices based on agreement in family members' ratings (convergence) correlated positively with FES Cohesion and Expressiveness and negatively with Family Incong (Table 5), supporting the notion of convergence as a measurable family trait.

Insert Tables 4 and 5 about here

A series of discriminant analyses consistently demonstrated a superiority of agreement-based family indices over individual scores for predicting family criterion group membership. For example, the FES subscale scores in combination reduced error in predicting group membership 41.0% (Wilk's lambda = 0.470), whereas the family ranges over the same scores reduced classification error by 85.2% (Wilk's lambda = 0.158). The combination of all the individual scores (Fam Support, Fam Affil, Mar Affil, P-C Affil, Sib Affil, and the ten FES subscales) only improved classification by 58.2% (Wilk's lambda = 0.348). Yet the combination of merely eight family-based measures (Sib Conv, P-C Conv, Fam Conv, plus range for FES Conflict, Organization, Independence, and Intellectual-Cultural Orientation) produced

perfect predictions of criterion group membership (Wilk's lambda = 0.059). Data were not cross-validated due to small sample size.

Limitations

Because of the comparative lack of attention to family-based empirical research, the present investigation was necessarily preliminary in nature. The overarching limitation of this research, consequently, is over the generalizability of its findings. The small family sample makes generalization even less certain.

Other questions of concern are the degree to which volunteer families accurately represent the criterion groups and the possibility of bias in the family data due to the existence of non-participant family members. Regarding the instruments, high face validity and the fact that ratings clustered toward the positive end of each scale suggest that a tendency to respond in a socially desirable fashion may hinder the interpretation of family agreement.

Conclusions

It is possible to extract meaningful data about a family--that goes beyond the information requested in the test items--by comparing patterns of family responses to these items. In short, family incongruence (as measured by the FES) and convergence in its various manifestations are traits. One possibility this

conclusion leads to is the development of screening measures for family therapy that are both meaningful and unobtrusive.

The attractiveness of rating scales for monitoring the course of change during family therapy is their balance between being structured and unstructured instruments. They are quick to complete and can be easily adapted to computer administration to allow for efficient tracking of movement across time and correlation of that with other indicators of progress. (See Appendix B for a methodological example of using the research instrument to evaluate change in two clinical families.)

Further development of both the affiliation and support instruments should focus on improving their discriminatory power. Also, larger studies with more diverse criterion groups are needed. Access to families is the crucial element in such research. The key to building a base of family research is individual agencies committing to fairly unobtrusive research programs over long periods of time. Promotion of the concept of psychological family research may ultimately produce its own rewards.

Family research in the field of mental health is uniquely challenging, yet increasingly necessary. Having the right tools for the job need not continue to be one of the obstacles.

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Appendix A

How I View My Family

Participant ID: ____

The following sets of questions are intended to improve our understanding of families, the people with whom we have the strongest emotional ties. Please try to answer all questions. Use the comment space if you wish to give additional information, or if you wish to discuss the way the question applies to your family.

Please indicate the following:

Your age _____ Your gender _____

Your role in the family you are rating: Parent ____ Child ____

Do you currently live with your family? Yes ____ No ____

How many children are in the family that you are rating? _____

Special circumstances, if any (e.g., blended family, child away at school, parents separated, etc.):

For each question below check only one box.

	Never	Hardly Ever	Some of the time	Almost Always	Always
I can turn to my family for help when something is troubling me.	☐	☐	☐	☐	☐
Comments:					
My family talks things over with me and shares problems with me.	☐	☐	☐	☐	☐
Comments:					
My family supports my wishes to take on new activities or directions.	☐	☐	☐	☐	☐
Comments:					
My family expresses affection.	☐	☐	☐	☐	☐
Comments:					
My family responds to my emotions, such as anger, sorrow, or love.	☐	☐	☐	☐	☐
Comments:					
My family and I have meaningful ways of spending time together.	☐	☐	☐	☐	☐
Comments:					

Please place an X on the line below to indicate how you would rate your family as a whole on each of the following scales.

accepting	¦------¦------¦------¦------¦------¦	rejecting
unfriendly	¦------¦------¦------¦------¦------¦	friendly
different	¦------¦------¦------¦------¦------¦	alike
happy	¦------¦------¦------¦------¦------¦	sad
hateful	¦------¦------¦------¦------¦------¦	loving
distant	¦------¦------¦------¦------¦------¦	close
comfortable	¦------¦------¦------¦------¦------¦	uneasy

Comments:

Now, please use an X to indicate below how you would rate the relationship between parents (husband and wife) in your family.

accepting	¦------¦------¦------¦------¦------¦	rejecting
unfriendly	¦------¦------¦------¦------¦------¦	friendly
different	¦------¦------¦------¦------¦------¦	alike
happy	¦------¦------¦------¦------¦------¦	sad
hateful	¦------¦------¦------¦------¦------¦	loving
distant	¦------¦------¦------¦------¦------¦	close
comfortable	¦------¦------¦------¦------¦------¦	uneasy

Comments:

Please indicate below how you would rate the relationship between parents and children in your family.

accepting	¦------¦------¦------¦------¦------¦	rejecting
unfriendly	¦------¦------¦------¦------¦------¦	friendly
different	¦------¦------¦------¦------¦------¦	alike
happy	¦------¦------¦------¦------¦------¦	sad
hateful	¦------¦------¦------¦------¦------¦	loving
distant	¦------¦------¦------¦------¦------¦	close
comfortable	¦------¦------¦------¦------¦------¦	uneasy

Comments:

If there are two or more children in your family, please rate the relationship between or among children.

accepting	¦------¦------¦------¦------¦------¦	rejecting
unfriendly	¦------¦------¦------¦------¦------¦	friendly
different	¦------¦------¦------¦------¦------¦	alike
happy	¦------¦------¦------¦------¦------¦	sad
hateful	¦------¦------¦------¦------¦------¦	loving
distant	¦------¦------¦------¦------¦------¦	close
comfortable	¦------¦------¦------¦------¦------¦	uneasy

Comments:

Appendix B

Use of Family Measurement to Assess Change: Two Clinical Examples

Having parallel data from different family members affords some unique possibilities for adding a quantitative dimension to the typically subjective clinical assessment process. In particular, the repeated measures ANOVA seems well suited as a technique for generating values which can be monitored for change over the course of therapy. Because two families (one single-parent and one two-parent) from the crisis family group elected to take the research instruments twice, I had the unanticipated opportunity to explore this potential use of the support and affiliation measures. The results were enlightening and not what I had expected.

F-ratios can be computed any time multiple family members complete the same instruments, using each item (rating scale) as a case and the family members as repetitions of each measure. In their simplest application, the magnitude of these values can be compared across various testing points. Of course, differences between individuals can be examined as well. With actual repeated testings included as an additional factor, differences in family averages across time can specifically be tested, along with the interaction of individual ratings with time of testing. Due to the structure of the affiliation measure, moreover, which itself has parallel sections rating the various family subunits, an alternative factor to include in an analysis based on this instrument is the type of family unit rated (which would have a maximum of four levels--three levels in both of the present examples).

Two ANOVAs were run per family on just the affiliation data. For the initial testing of the single-parent family (mother, teenage son, and teenage daughter) all of the *F*-ratios were less than zero. Means, then, across the affiliation items were similar. Mother's, son's, and daughter's average ratings, respectively, were: 15.76, 15.93, and 16.55. Their combined averages for the family in general, the parent-children relationship, and the relationship between siblings, respectively, were: 15.57, 17.33, and 15.33. After about six sessions of therapy there was a substantial difference, $F(2, 36) = 10.84$, $p < .01$, between the mother's perception of affiliation, which had improved ($x = 19.14$), and those of her children, which were comparatively unchanged ($x = 16.71$ and 15.83, respectively).

In a third analysis, incorporating both support and affiliation ratings (as cases) and time of testing as a factor, both the main effect (person doing the rating) and its interaction with time were significant: $F(2, 104) = 2.99$, $p < .05$, for rater; and $F(2, 104) = 6.79$, $p < .01$, for the interaction. The mean at the time of the first testing was 13.37 and, for the second testing, 14.24; for the mother (over both testings) it was 14.44, and for the children, 13.48 and 13.49.

The affiliation runs for the two-parent family (which included a single pre-teen daughter) produced a significant F-ratio for rater at the initial testing, $F(2, 36) = 4.69$, $p < .05$, and an even greater one after four weeks of family counseling, $F(2, 36) = 24.25$, $p < .01$. The change was due primarily to a drop in the daughter's ratings of affiliation, which went from a mean of 14.59 to 12.55. By way of comparison, the father's averages were 16.26 and 16.52 over the two testings, and the mother's were 13.66 and 14.81. The same factor (rater) was significant in the third ANOVA, $F(2, 104) = 23.69$, $p < .01$, though adding the support items actually stabilized the scores from the first to the second testing ($X = 12.36$ and 12.19, respectively), so that the interaction was not significant. Father, mother, and daughter respective average ratings across the two testings were 13.75, 12.18, and 10.90.

In both of the above examples the F-tests helped to identify where change was taking place within the family system, illuminating the significant impact of individual change. I believe this technique merits further exploration. It especially lends itself to the development of a series of N-of-one studies of families in treatment (e.g., using monthly administrations of the instruments over a six month period).

Table 1

Reliability Coefficients for Individually Administered Family Research Measures

Measure	Parents	Children	Females	Males	Test-Retest
FAM SUPP	.78 (n = 21)	.85 (n = 50)	.87 (n = 53)	.60 (n = 18)	.89 (N = 25)
FAM AFFIL	.86 (n = 21)	.88 (n = 50)	.87 (n = 53)	.86 (n = 18)	.93 (N = 25)
MAR AFFIL	.88 (n = 21)	.95 (n = 50)	.94 (n = 53)	.88 (n = 18)	.95 (N = 25)
P-C AFFIL	.90 (n = 21)	.91 (n = 50)	.91 (n = 53)	.85 (n = 18)	.93 (N = 25)
SIB AFFIL	.75 (n = 17)	.88 (n = 44)	.83 (n = 45)	.94 (n = 16)	.94 (N = 21)

Table 2

Internal Consistency Reliability Coefficients for the Family Environment Scale (FES)

	Norming Sample[a] (N = 1067)	Study Sample[b] (N = 77)
COHESION	.78	.81
EXPRESSIVENESS	.69	.42
CONFLICT	.75	.78
INDEPENDENCE	.61	.49
ACHIEVEMENT ORIENTATION	.64	.17
INTELLECTUAL-CULTURAL ORIENT	.78	.72
ACTIVE-RECREATIONAL ORIENTATION	.67	.66
MORAL-RELIGIOUS EMPHASIS	.78	.77
ORGANIZATION	.76	.64
CONTROL	.67	.59

Note. Data in column 1 are from the Family Environment Scale manual (2nd ed.), p. 8, by R. Moos & B. Moos, 1986, Palo Alto, CA: Consulting Psychologists Press. Copyright 1986 by Consulting Psychologists Press.

[a]Cronbach's alpha

[b]Kuder-Richardson 21

Table 3

Summary of Research Measures

Family Environment Scale (FES)

10 Subscales
(9 items each)

Indiv. scores:	Family scores:	Index:
Cohesion	Averages	Family
Expressiveness	Ranges	Incong
Conflict		
Independence		
Achievement Orient		
Intel-Cult Orient		
Activ-Rec Orient		
Moral-Rel Emphasis		
Organization		
Control		

Family Support

6 Items

Indiv. score:	Family score:	Index:
Fam Support	Fam Support (Family avg)	FSup Var (Avg sd)

Affiliation

28 Item Pairs (4 replications of 7 item-pair groups)

Indiv. scores:	Family scores:	Index:
Fam Affil	Fam Affil	Fam Conv
Mar Affil	Mar Affil	Mar Conv
P-C Affil	P-C Affil	P-C Conv
Sib Affil	Sib Affil	Sib Conv
		Converge

Table 4

Correlations of Family Means and Variation Indices for Support and Affiliation Measures With FES Family Incong

	INCONG w/VAR	INCONG w/Avg
FAM SUPPORT (N = 24 families)	.221 p = .299	-.645 p < .001
	INCONG w/CONV	**INCONG w/Avg**
FAM AFFIL (N = 24 families)	-.195 p = .362	-.582 p = .003
MAR AFFIL (N = 22 families)	-.420 p = .051	-.495 p = .019
P-C AFFIL (N = 24 families)	-.313 p = .137	-.519 p = .009
SIB AFFIL (N = 20 families)	-.416 p = .068	-.393 p = .087
TOT AFFIL (N = 24 families)	-.402 p = .051	-.637 p < .001

Table 5

Correlations Between Family Convergence Indices and Family Scores on the FES

	CONVERGE (N = 24)	FAM CONV (N = 24)	MAR CONV (N = 22)	P-C CONV (N = 24)	SIB CONV (N = 20)
FAM INCONG	-.402*	-.195	-.420*	-.313	-.416
COHESION	.486**	.393	.426*	.315	.497*
EXPRESSIVE-NESS	.411*	.352	.171	.483*	.438*
CONFLICT	-.313	-.338	-.314	-.186	-.331
INDEPEND-ENCE	-.003	-.117	-.244	.135	.409
ACHIEVEMENT ORIENT	.287	.302	.130	.199	.430
INTEL-CULT ORIENT	.269	.366	.042	.271	.431
ACTIVE-REC ORIENT	-.116	.108	-.173	-.101	.127
MORAL-REL EMPHASIS	.250	.255	.118	.324	.074
ORGANIZATION	.284	.390	.248	.264	.206
CONTROL	-.150	.038	.066	-.224	-.394

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