Title: The Couple Versus the Spouse as the Unit of Analysis in Marital Research. Revised.

Abstract: Traditionally the unit of analysis in marital research has been the individual spouse. More recently the marital relationship has often been defined as a process of interaction and dynamic exchanges such that spouses have autonomous needs as well as corporate needs for interdependence. Thus modern systems theory heightens the importance of both individuals. A structural analysis of the marital dyad consists of two types in which the aim is to determine whether relationships found at the group level are the same or different from relationships within separate group components. The problem in the analysis is the treatment of the couple's score so that the couple's score is not merely a high/low spouse score in which sex effects are unaccounted for. Scores may be summed for the husband and wife and divided by two (summation score), or scores may be calculated to take into account the differences between each spouse's individual scores (dispersion scores). Using both these scores as the unit of analysis in a study of marital happiness and communicator images among 40 married couples, it is evident that the dispersion score can reveal an effect for the degree of a couple's agreement on marital happiness and not the level of happiness. In short, a reliance solely on individual or couples' analyses excluded some information. Therefore, the reporting of individual and couples' scores when a couple's analysis is used is often needed in order to give a full picture of the couple's agreement on the criterion variable and their rank on the criterion. However, in some situations depending on the exact research question, a summation score or dispersion score may solely be used. (HOD)
THE COUPLE VERSUS THE SPOUSE AS THE UNIT OF ANALYSIS
IN MARITAL RESEARCH

James M. Honeycutt*
University of Illinois

Robert W. Norton**
Purdue University

August 26, 1982

*Department of Speech Communication, The University of Illinois, Lincoln Hall, Urbana, Illinois 61801.

**Department of Communication, Purdue University, Heavilon Hall, West Lafayette, Indiana 47907.
Traditionally the unit of analysis in marital research has been the individual spouse. In their review of the seventies on the quality of marital relationships, Spanier and Lewis (1980) mention how there is some interest in finding ways of looking at the couple as the unit of analysis as opposed to the individual. For example, joint interviews and observational techniques of data collection have been used (Gottman, Markman, and Notarius, 1977). Yet as Spanier and Lewis have further elaborated, "Much of today's research implies an analysis of the marriage, when it is really the individuals who reside in the marriage who are being studied" (1980:836).

The state of the art in relational research has been criticized for using a monadic orientation as individuals have been extensively studied at the expense of the relationship (Wiemann and Krueger, 1980). In essence, the couple as a separate unit of analysis in marital research has unique characteristics separate from the respective spouses. Davis (1973) has metaphorically referred to this as "coupling" in which relational partners or spouses symbolically fuse their personalities. This article will outline the theoretical foundations for using the couple as a unit of analysis along with the individual spouse such that a complete social system analysis emerges. Examples using a derived couple's score as the independent variable will be presented along with the information gained and lost by using a computed couple's score based on summation (central tendency) or dispersion (difference scores).
The concern here will be with the mathematical coalescing of individual spouse scores such that a couples' score has emerged which takes into account the individual differences within the dyadic unit. In actuality, this can never be done without measurement error and variability since elements of information are lost in the process of transferring from one level of analysis to the other. Metaphorically, we might say that degrees of freedom are inevitably lost. For example, we will see how the subject population will be smaller when couples are the unit of analysis, compared to using the spouses as the sole unit of analyses.

However in terms of the actual object of analytic orientation, the spouse is in a sense, the ultimate center of attention. If the couples are conceived of as a functioning system, then the system can be further subdivided into subsytems (Hall and Fagen, 1975). Spouses would be conceptualized as subsystems in a general systems perspective to marital research. Thus when we speak of a systemic entity, we are keeping in mind that subsystemic elements form the foundation for the system. Similarly, when we speak of the couple as a unit of analysis, this reflects individualistic orientations but with the intent of simultaneously keeping track of both spouses' reports.

The next section of this paper will go into more detail on the theoretical rationale for using the couple as a type of analytic unit in marital research. Subsequently, operational procedures will be presented to assess the couple as a unit of analysis and contrasted with results when the individual spouse is the sole unit of analysis.
Theoretical Rationale for the Couple as a Unit of Analysis

The marital relationship has often been defined as a process of interaction and dynamic exchanges (e.g., Karlsson, 1973; Morton, Alexander, and Altman, 1976) such that spouses have autonomous needs as well as corporate needs for interdependence (Jacob, 1975). Modern systems theory heightens the importance of both the individual and the system since individuals are deemed responsible to the system as contributors and responders. A system can be defined as a complex of components in mutual interaction (Bertalanffy, 1966). In the marriage, spouses are the components with the relationship existing as a function of mutual interaction between the partners.

Thus according to Watzlawick, Beavin, and Jackson (1967), relational partners are like other systems in that they are different than the sum of their parts. In order for family and marital researchers to get a more accurate picture of a relationship, it is necessary to focus on the interdependencies of the relational partners. This is similar to Simmel's notion of the "super-individual unit" which was the third element in a relationship (Wolff, 1950). The relational partners were two foundational elements while the super-individual unit was a distinct element that evolved out of the interaction among partners.

Similarly, in his theoretical focus on problem formation in studying family power and process, Sprey makes a reference to the discreteness of marital partners when he writes:

"In the real world of marriages and families, no discrete or separate entities exist. Individuals occupy their respective positions only by virtue of their belonging to joint relationships. In other words, the status of 'husband' is meaningless without that of 'wife,' and vice versa. Whatever discreteness
does exist regarding the positions of husbands and wives, parents and children, relatives and strangers, is confined to the minds of social scientists only, and designed to serve the purpose of analysis" (1975:67).

Along the systems perspective, familial and marital research has been criticized for heavy reliance on linear causal models rather than constructing mosaic or circular causality models (Riskin and Fuance, 1972; Kantor and Lehr, 1975; Alexander, 1973; Wiemann and Krueger, 1980). Riskin and Fuance summarized the criticisms well when they wrote:

"The influence of traditional models such as the emphasis on individuals as the primary unit of the medical model of illness has been in need of replacement. In substantive areas, there has been too much focus on pathology and not enough on healthy family functioning. Systems analysis is being applied more frequently to conceptualization of family interactions, as contrasted with the traditional linear causality model" (1972:404-405).

According to Kantor and Lehr (1975), individuals seek and negotiate for their place in the system in order that their personality may be affirmed by the family in ways that are compatible with their own needs and optimally, with the goals of the system. With these goals in mind, individuals consciously develop personal strategies in response to system strategies. Thus, individual and systems analysis would appear to complement each other. A macroscopic view of systematic behavior neglects the subsystem elements and observes only the behaviors (or reports) of the system as a whole. A microscopic analysis looks in detail at individual subsystems such as the husband and wife (Hall and Fagen, 1975).

As far back as the early 60's, there have been attempts to bridge the systems theory perspective with the pragmatics involved
in operationalizing it. Riley (1963) described a social system framework analysis in which a complete social system included group, individual, contextual, and structural partial analyses. Group analysis involved analyzing a couple on a criterion without controlling for the sex of the spouses. Individual analysis independently examined each spouse's score on the criterion variable. The contextual analysis is where the focus was on the individual but with explicit reference to the group context.

The structural analysis of the marital dyad consisted of two types in which the aim was to determine whether relationships found at the group level were the same or different from relationships within separate group components. In a within-group structural analysis, differences between elements across groups were compared (e.g., male/female scores are contrasted as well as differences between distressed/nondistressed spouses). In a segmental structural analysis, each element of the same group was compared across different types of groups. For example, same-sex comparisons could be carried out across marital adjustment levels. Table 1 presents the basic elements of analysis used in a social system framework analysis.

---

Insert Table 1 about here.

---

The problem in the analysis is the operationalization of the couple's score such that the couple's score is not merely a high/low spouse score in which sex effects are unaccounted for. For example in a 2 x 2 factorial design assessing for sex differences and
marital adjustment, the main effect for adjustment is often reported in terms of differences between adjusted/less adjusted couples rather than spouses. The main effect for adjustment does not account for sex differences. Thus the "couples" at a given level of adjustment may be skewed, with a lot of male or female spouses. The individual is still the actual unit of analysis. It becomes a complex matter when spouse scores are mathematically coalesced so that the unit of analysis is the couple. Any derived couple score will exclude some pertinent information depending on its mathematical properties.

**Summation versus Dispersion Scores**

When looking at a couple's score on any given variable, the derived score can be calculated in various ways depending on what the researcher's needs are in relation to the phenomenon being investigated. A summation score may be developed, \( \frac{1}{2} \sum_{i=1}^{n} x_{ij} \) where \( x_{ij} \) is the score for a given item on a marital measure for a spouse. Thus, scores may be summed for the husband and wife and divided by two which is the number of spouses in the relationship. The summation score is based on central tendency as the average score between partners is used. The problems associated with this score will be discussed in detail later.

A variation of the summation score may also be calculated which takes into account dispersion or the differences between each spouse's individual scores, \( \sum_{i=1}^{n} (|x_{ij} - x_{ij'}|) \) where the absolute value of item score differences between spouses are summed. If one is interested in the average couple difference per item,
then the dispersion formula must take into account the degrees of freedom for the number of items or comparisons in the measure \( k \), \( \bar{\Delta} = \sum_{i=1}^{n} \frac{(x_{ij} - \bar{x}_{ij})}{k-1} \). The summation and dispersion procedures as described above can be used in their present form only when the items on the measure have the same ranges. Item scores must be standardized using z-scores when there are different ranges. For example a total marital happiness score based on three items would take the following form:

- **Hap1**: Happiness item 1 (range 1-5)
- **Hap2**: Happiness item 2 (range 1-7)
- **Hap3**: Happiness item 3 (range 1-10)

**M**: Male
**F**: Female
**Z**: Standardized scores

**Totl**: Couples' summation score
**Diff**: Couples' dispersion score

\[
\begin{align*}
MZHap &= \frac{((M_{Hap1}-M_{x1})/\sigma_{M1}+(M_{Hap2}-M_{x2})/\sigma_{M2}+(M_{Hap3}-M_{x3})/\sigma_{M3})}{2} \\
FZHap &= \frac{((F_{Hap1}-F_{x1})/\sigma_{F1}+(F_{Hap2}-F_{x2})/\sigma_{F2}+(F_{Hap3}-F_{x3})/\sigma_{F3})}{2} \\
TotlZHap &= (MZHap+FZHap)/2 \\
DiffZHap &= (|MZHap-FZHap|)
\end{align*}
\]

Dispersion scores approaching zero would indicate more relational agreement on the degree of happiness in the relationship. Yet, the dispersion score would not distinguish between levels of agreement. One couple could agree that they are not that happy while another could agree that indeed they are relatively happy. Thus, the dispersion score is a measure of agreement and does not permit identification of the couple in terms of the criterion.

On the other hand, summation scores that approach higher values above the expected value of zero on the standardized scale would be indicative of higher levels of expressed marital happiness. There are also problems with the summation score. Consider
the case where a ten point scale is used ranging from 1) "very unhappy" to 10) "perfectly happy" and two couples both score 11. In one case, Spouse 1A could respond with a 10 indicating he/she is perfectly happy while Spouse 1B indicates being very unhappy with the marriage. In the other case, Spouse 2A indicates a score of six while Spouse 2B reports a five.

Even though summation scores for the couples are equal, the dispersion scores would indicate the second couple is in relative agreement on the level of marital happiness while Couple #1 was not. Thus, using only the summation score as the couple's only indicant score for happiness would be capricious. However as the summation score increased in value, this would be less of a problem. Yet at some point, the researcher must instigate some decision rule for inclusion into a category. The nature of the decision rule will elucidate some information but other pertinent and revealing information may be obscured.

Figure 1 reveals a hypothetical distribution of responses for marital happiness based on the plotting of couples' agreement on marital happiness and the rank order of that agreement as revealed by the summation score. The resulting configuration of cases can be subclassified into quadrants on the criterion variable. For example in Figure 1, Quadrant 3 represents the most happily married couples and those who have the least variance on agreement of the extent of marital happiness as revealed by the pooled variance. The decision rule is a judgment that the researcher must use in order to decide cutoff points for inclusion or exclusion into a category. The clustering of the distribution of scores can
help to identify parsimonious classifications.

------------------------
Insert Figure 1 about here
------------------------

Thus by using the quadrant plotting procedure, the researcher is able to contrast couples on the basis of agreement on the criterion variable and on the basis of where the couple falls on the scale (i.e., rank order of marital happiness). If this is done, no data is lost since all couples are stratified throughout the sample on the basis of within-couple dispersion. From the hypothetical distribution in Figure (1, it would be possible to compare 1) less happily married couples who have high agreement on the extent of marital happiness, 2) couples who essentially disagree on the extent of marital happiness, and 3) most happily married couples who have high agreement on the extent of marital happiness.

If the researcher found low variance throughout the sample, then summation scores could be used to reflect a couple's score on the criterion variable since the plotting of the cases would reveal relatively low dispersion.

Another alternative similar to quadrant plotting would be to find the correlation between husband/wife scores and based on the intracorrelation coefficient, the researcher would have to decide if summation scores would be meaningful as well as parsimonious. For example consider the following data for a husband/wife on a four item scale with each item having uniform ranges from one to five.
From the data presented above, the correlation of .76 indicates relative stability between spouse's scores while the dispersion score of four indicates relative agreement between the spouses.

Thus looking at the intracorrelation between male/female scores provides an indicator of intracouple stability of scores. If the intracorrelations are low then couples may need to be stratified on the basis of summation plots against the pooled variances for each respective couple.

A Case Study: Marital Happiness and Communicator Image

In order to pragmatically apply the theoretical procedures discussed here, a pilot study example is presented in which the unit of analysis is the couple on the basis of derived dispersion and summation scores. Differences found on the basis of the two scores will be presented as well as plotting individual scores against the derived couples' scores. The criterion variable is couples' marital happiness. The dependent variable is communicator image as assessed in terms of the spouses perceiving themselves as being good communicators within the relationship.

Subjects. Forty couples comprised the sample population.
Spouses ranged in age from 18 to 72 with 33.61 being the average. The range for the duration of marriage was from two months to 47 years with 9.53 being the mean number of years married.

Procedure. Subjects voluntarily completed the Partner Communication Scale (Montgomery and Norton, 1980) on a midwestern university campus. Each spouse was directed to fill out the marital inventory without consulting their partner. Anonymity was guaranteed since a code numbering system was used to identify which form corresponded to that of the respective spouse.

Measures. In order to measure marital happiness, three items from the PCS marital happiness subscale were used. The first item (Hap1) read, "My relationship with my partner makes me happy." It was evaluated on a seven point scale ranging from "NO!" to "YES!". The second happiness item was originally adapted from the Locke-Wallace Marital Adjustment Scale (1959) and used a ten point scale ranging from 1) "very unhappy" to 10) "perfectly happy". This item (Hap2) read as follows:

"The middle point, 'Happy,' represents the degree of happiness which most people get from marriage. The scale gradually increases on the right side for those few who experience extreme joy in marriage and decreases on the left side for those who are extremely unhappy. On the scale below, indicate the point which best describes the degree of happiness, everything considered, in your marriage."

The third happiness variable (Hap3) used a seven point scale and read, "It is hard for me to imagine realistically being happy with another person as a partner."

The correlation between Hap1 and Hap2 was .76. The correlation between Hap1 and Hap3 was .51 while .63 was the correlation between Hap2 and Hap3. Thus, the stability of the cross-compari-
sons between spouses across the items is moderate. Using the previously described method of standardization across unequal range values for items, a total standardized happiness score for the couple was computed using the dispersion and summation procedures.

Communicator image was contrasted against the couples' happiness score. Previous research using the individual spouse as the unit of analysis has revealed that higher happily married females reported that being a good communicator described them more compared to their husbands while there were no significant differences between a lesser happily married husband and wife in perceiving themselves as being good communicators within the relationship (Honkycutt, Wilson, and Parker, 1982). In addition, both higher happily married husbands and wives believed they were better communicators within the marriage compared to general situations. Lesser happily married spouses revealed no such differences. Thus, individual analyses revealed effects for gender and the level of marital happiness.

Communicator image is the dependent variable in the communicator style construct with communicator style being "the way one verbally and paraverbally interacts to signal how literal meaning should be taken, interpreted, filtered, or understood (Norton, 1978:99). Communicator image is a gestalt assessment of the effectiveness of a person's perceived style of communicating. The item measuring communicator image used a five point Likert-type item ranging from 1) "does not describe me well" to 5) "describes me well" in reference to being a good communicator.
Results

Tukey's smoothing procedure (1978) for determining trends of central tendency was used in order to determine if the good communicator variable had a systematic relationship in relation to couples who were rank ordered on marital happiness. This involved finding the median score for every group of five couples in rank order out of the sample. Figure 2 shows the good communicator variable plotted against the summation happiness scores. No systematic trend appears to be in evidence. However, Figure 3 shows the dispersion scores revealing a trend for couples with moderate agreement indicating they are moderately good communicators (-.1). By the nature of least-squares solution, a best fit line can be drawn which reveals that as agreement on the level of marital happiness between spouses increases so does the self-perception that one is a good communicator.

Thus, the dispersion scores reveal a trend relative to relational agreement about marital happiness for the couple. However as Figures 4 and 5 reveal, the trend disappears for individual spouses when individual scores are plotted against the dispersion scores. The best line of fit would reveal a lot of deviation from individual scores.
Implications. The data in this simple pilot study clearly revealed that the unit of analysis produced changes in the results of variables being plotted against the unit of analysis. While the dispersion score produced systematic variance, the summation and individual scores did not. Thus, the dispersion score revealed an effect for the degree of a couple's agreement on marital happiness and not the level of happiness.

Yälsma (1980) found differences between spouses' scores in both happy and counseling marriages only when a couple's difference score was used which revealed that couples in counseling had significantly greater dissimilarity between spouses' perceptions of the verbal communication within the marriage and of their degree of marital adjustment. In short, relying solely on individual or couples' analyses will exclude some information. Therefore, the reporting of individual and couples' scores when a couples' analysis is used is often needed in order to give a full picture of the couples' agreement on the criterion variable and their rank on the criterion. However in some situations depending on the exact research question, a summation score or dispersion score may solely be used.

However, the researcher should not be misled. Individual analyses are often solely needed. For example, marital happiness
was used as a sample criterion variable here for illustrative purposes and because of the prevalence of marital happiness and related quality constructs as a criterion variable in marital research (see Spanier and Lewis, 1980, or a review of the 70's on marital quality research). However, some marital researchers could argue that marital happiness is intrinsically an individual feeling or experience and should be analyzed as such. On the other hand, symbolic interactionists argue that the self is essentially defined through our relations with others and that individualized feelings come to have meaning for the individual through interaction with others (i.e., Mead, 1934; Stryker, 1980; Blumer, 1969). For example, Blumer (1969) discusses how meaning does not emerge from the intrinsic makeup of the thing that has meaning or as arising through a combination of psychological elements within the individual. The meaning of something for an individual emanates out of the ways in which others act toward the person with regard to the thing and that the actions of the others operate to define the thing for the person. Marital happiness according to this view would be a result of the collective actions of both spouses and thus marital happiness would have dyadic properties in addition to individual feelings. Indeed, the findings of the pilot study revealed differences at a couple (dispersion) and individual level of analysis.

The interface between individual feelings and that system entity we call the "couple" is difficult and often impossible to analyze. However, even when purely individual analyses are called
for, one has to examine husbands and wives separately since otherwise the individual in the sample would not be independent of one another. Thus, one should not unduly usurp analysis of the individual spouse. Rather, empirical findings should clearly be qualified according to the context of the analysis. Along these lines, conclusions based on different units of analysis in marital research obviously limits the meaningfulness of cross-study comparisons.

Two common interpretative fallacies that have resulted from failure to restrict interpretations to the selected unit of analysis are an aggregative and psychological fallacy (Misher and Waxler, 1968; Jacob, 1976). An aggregative fallacy occurs when motivations are imputed to individuals to account for their behaviors on the basis of comparisons across groups. A psychological fallacy is an overinterpretation of individual psychological factors when fuller understanding actually requires knowledge of the group or social context of the individual's behaviors. A good example of psychological fallacies would be where the researcher uses division of labor, conflict, or decision-making power which are dyadic properties but often measured by individual assessments which are often reported at the level of the couple. By using individual spouses and the couple as respective units of analysis, interpretative fallacies such as these can further be eliminated.

It has been stated that the traditional unit of analysis in marital research has been the spouse. For one thing, larger subject pools are more quickly generated when counting a spouse as
the unit. Subsequently larger N's are needed for multivariate analyses such as factor analysis, discriminant analysis, and multiple correlations to name a few. To generate larger N's with couples as the unit of analysis is more costly and time consuming. However, marriage researchers may try to begin analyzing the couple as one of three primary units aside from common husband/wife designs. A complete social system analysis is only accomplished when the system (couple) is analyzed apart from its individual components (spouses). A social system analysis could reveal optimal information about spouses and their relationship in that more information is disseminated about that functioning within the relationship between partners and the functioning of the couple relative to suprasystem elements outside of the marriage.
REFERENCES


Locke, H. & Wallace, R. Short marital adjustment and prediction tests: Their reliability and validity. Marriage and Family Living, 1959, 21, 251-255.


### Table 1
Social System Elements of Analysis

<table>
<thead>
<tr>
<th>Couples Analysis</th>
<th>Within-Group Structural Analysis</th>
<th>Segmental Structural Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>$x_{c1}/x_{c2}$</td>
<td>$x_{m1}/x_{f1}$</td>
<td>$x_{m1}/x_{m2}$</td>
</tr>
<tr>
<td></td>
<td>$x_{m2}/x_{f2}$</td>
<td>$x_{f1}/x_{f2}$</td>
</tr>
</tbody>
</table>

- $c$: Couple as a systems unit $x_c = (x_m & x_f)$
- $m$: Males
- $f$: Females
- 1: Classification on some criterion variable (e.g., happiness)
- 2: Opposite classification on criterion variable
Figure 1

Less agreement on marital happiness

Quad 2
\( n = 16 \)

Quad 1
\( n = 20 \)

Quad 3
\( n = 14 \)

\( \Sigma \) for couple

(Decision Rule?)
Figure 2

- Good Comm.
- Z-scores

Rank order of Total Hap (Medians of five)

Least Happy Couples

Most Happy Couples

n=40
Figure 4

Rank order of DiffZHap (Medians of five)

n=40

Good Comm.
Z-scores
Figure 5

Good Comm. Z-scores

Rank order of DiffZHapp (Medians of five)
Figure Captions

Figure 1. Distribution of couples across couples' summation scores and pooled variances.

Figure 2. Good communicator/couples' summation happiness score.

Figure 3. Good communicator/couples' dispersion happiness score.

Figure 4. Good communicator for males plotted against couples' dispersion happiness score.

Figure 5. Good communicator for females plotted against couples' dispersion happiness score.