Distinctions among types of explanations of research findings are made. Four types are identified: sticking with the data, substantiated explanation, alternative hypothesis generation, and unsubstantiated speculation. Using a sample of 82 articles from the 1960, 1970, and 1980 issues of the Journal of Marriage and the Family, the authors found that unsubstantiated speculation is the norm in family science and that its usage has not changed over time.

Major theory construction efforts continue to have an important impact on family science (e.g., Burr, 1973; Burr, Hill, Nye and Reiss, 1979). Nevertheless, much of the theorizing about families takes place within the bounds of research reports in the course of discussion of research findings. A variety of factors—the paradigms we hold, our values, or even our guesses as to what is going on— influence those explanations. To the extent to which the discussion of research results is influenced by these factors, it is fair to say that there is researcher bias. Someone else with a different point of view might not arrive at the same conclusions.

While researcher bias is to a greater or lesser degree an inevitable part of research, higher quality reports can be distinguished from lower quality ones in part by the way possible sources of researcher bias are handled. Of particular interest in this report is the use of unsubstantiated speculation in which the authors latch on to one possible explanation without documenting that such an explanation is reasonable or that it is superior to other possible explanations. The bias may be that the authors are using their data to support their personal opinions through the post hoc arguments.

Mainstream social science tends to take the position that while researcher bias cannot be entirely avoided it is something to be minimized and, if used at all, it should be labeled as such (Babbie, 1979: 34; Kerlinger, 1969).
The Publication Manual of the American Psychological Association (1983) urges writers to, "avoid polemics, triviality, and weak theoretical comparisons in your discussion. Speculation is in order only if it is (a) identified as such, (b) related closely and logically to empirical data or theory, and (c) expressed concisely" (p.18, italics added).

In reading the family literature we have found a degree of regularity in the reports of research findings. The discussion section usually restates and summarizes the findings. Researchers vary in the way they deal with the explanation of their findings. We have found that they take one of the following four alternatives:

(1) Stuck with data. They can stick with the data and not make an attempt to go beyond it. The authors make a detailed examination of the relationships which emerge from the data. They make no references to related research or theory, but merely summarize the findings in the discussion. For example, the discussion could be of the following form: "In this study we found that variable X was related to variable Y, even when controlling from variable Z." Period.

(2) Substantiated explanation. They can put forth an explanation which they ground in previous research or theory related to the issues being investigated. For example, "In this study we found that variable X was related to variable Y, even when controlling for Z. This finding is consistent with studies A, B, and C and lends further support for Doe's theory of regulatory indulgence." The key here is linkage and documentation.

(3) Alternative hypothesis generation. They can offer various alternative hypothesis as to causal factors and explicitly recognize that further research is necessary to select among the competing hypothesis. For example, "In this study we found that variable X was related to variable Y, even when controlling for Z. Two alternative hypothesis are consistent with those findings: (1) McCord (1990) may be right and variable A may be an unaccounted factor, or (2) the findings are limited to population B. A study which did this and that would help us to sort out those various possibilities." No assumption of undocumented explanations is made.

(4) Unsubstantiated speculation. They can speculate that the empirical relationship is due to one or more factors, but no reference is made to literature documenting that interpretation. Authors using unsubstantiated speculation may offer only one explanation rather than several alternatives and imply that the explanation derived from the proceeding analysis has been tested and supported. The form of the speculation is frequently as follows: "In this study we found that variable X is related to variable Y, even when controlling for Z. This shows that A is true." No documentation or linkage is made.

Sample

Because of the loose nature of the science, the journal's researches are published through the use of literature that each year. Between 1960 and in a total of the pool from the pool of papers for 1960 total of articles for 1960.

Coding

The distinction between the articles on samples of the Family Science Review November, 1987
We offer the following hypothetical example to demonstrate the point further: "Therefore, males use more negative nonverbals when communicating with females than do females with males. This clearly shows that males have weaker egos than females." While it may in fact be true that males have weaker egos, the author who engages in unsubstantiated speculation does not document the fact that they do or demonstrate that ego weakness has anything to do with negative nonverbals.

We consider types 1, 2, and 3 to be empirically oriented explanations. Type 4, unsubstantiated speculation, is the level of explanation we deem undesirable and to be avoided. Speculative explanations are guided only by the researcher's experiences and biases, not by any scientific guidelines or procedures.

It is our position that family science should be characterized by empirically oriented explanations, not by speculation (cf. Babbie, 1979; Kerlinger, 1973; APA, 1983). Previous overviews of the field (Atkinson & Gecas, 1978; Hodgson & Lewis, 1977; Klein, Calvert, Garland & Poloma, 1969; Ruano, Brice & McDermott, 1969) have not looked at this issue. The previous overviews have concentrated upon issues such as the sophistication of the research designs or data analysis techniques used. However, having better datasets and better analyzed datasets may not be ultimately useful unless researchers are using types of explanation which contribute to theory building or are attempting to link their research efforts to those of others. The present study was designed to examine family science over the time period 1960 to 1980 to determine the characteristic type of explanations used and to see if there were any trends over time in the use of explanations.

METHODS

Sample

Because of its central role as the principal archival journal in family science, the Journal of Marriage and the Family was chosen as the data base. The years targeted were 1960, 1970, and 1980. All of the research reports (not literature reviews or theoretical works) for each year were numbered and through the use of a random number table a random sample was drawn for each year. Because of the limited number of appropriate articles available for 1960 and in order to keep cell sizes roughly equal, 30 articles were drawn from the pool for each year. This resulted in a sample of 25 articles from 1960 (total of pool for that year), 28 articles for 1970 (62 percent), and 29 articles for 1980 (53 percent).

Coding

The distinctions made in our introduction above were used to classify the articles on their level of explanation. Those distinctions were pretested on samples of articles from 1959, 1969, and 1979 issues of Journal of Marriage and the Family and the classification refined (a codebook is available from

November, 1987

FAMILY SCIENCE REVIEW

43
the authors). Based on the successful results of the pretesting, the target sample of articles was coded. The general procedure was to read the findings, discussion, and conclusions sections and to note any explanations of findings. If no attempts were made to go beyond the data, the article was coded as sticking to the data. If other forms of explanation were noted, the article was coded according to the level which was most common numerically. If there was a tie, an operational decision was made to code it as the least preferable level. For example, if there was one speculation and one substantiated explanation, the article was coded as speculation.

A coding sheet was developed which contained questions regarding the coder, the article, the journal issue, the sex of the first author, the number of authors, the research design, the source of the data (e.g., questionnaire, interview, etc.), sample size, the subject matter area (categories taken from *The Inventory of Marriage and Family Literature*: Olson & Markoff, 1983), the family member(s) who served as the source of the data, and the type of data analysis technique used (univariate, bivariate, or multivariate). The two authors, both professors at a large university and experienced with content analysis, served as the coders.

Because of the low frequency of articles coded as alternative hypothesis generation (5 articles) and stuck with data (6 articles), as well as the relatively low frequency of substantiated explanations (19 articles), those categories were collapsed into a category labeled empirically oriented explanations for purposes of analysis.

**FINDINGS**

The first issue to be addressed was intercoder agreement. Due to the fact that simple percentage agreement statistics can be inflated by agreement on high frequency codes, it is preferable to use a statistic which takes chance agreement into account (Hartmann & Gardner, 1981). Phi has been suggested as an appropriate index of intercoder agreement in such cases (Fleiss, 1975; Hartmann, 1977). Gelfand and Hartmann (1975) have suggested that Phi coefficients for intercoder agreement should exceed 0.60. In the present study, the Phi coefficient between the two coders was 0.64, indicating satisfactory agreement. The first coder’s classification was used for the data analysis.

Table 1 shows the cross tabulation of issue of the journal JMF with the typical level of explanation of each article. Overall 70 percent of the articles were characterized by unsubstantiated speculation in the explanation of their findings. There was no significant variation among the journal years 1960, 1970, and 1980 (Chi-square = 0.64 with 2 degrees of freedom, p = .72). The lack of significant variation indicated that a fairly consistent level of speculation has and does characterize family science research.

Level of explanation was not significantly related to sex of first author (Chi-square = .14 with 1 df, p = .70), number of authors (Chi-square = 3.43 with 3 df, p = .13, 2 degrees of freedom, p = .41 with 3 df, p = .19), level of measurement area (Chi-square = .14 with 1 df, p = .70), number of author (Chi-square = .14 with 1 df, p = .70), number of articles (Chi-square = .14 with 1 df, p = .70).

The present study engages in unsubstantiated speculation of findings. Creative flights of fancy are not being characterized by creative flights of fancy. Creative flights of fancy are the mediators of the mediating variables in the analysis of marriage and family relations.

**Unsubstantiated speculation**

<table>
<thead>
<tr>
<th>Level of explanation</th>
<th>Empirically oriented explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 articles</td>
<td>19 articles</td>
</tr>
</tbody>
</table>

The literature link is the following:

FAMILY SCIENCE REVIEW

November, 1987

Table 1. Cross

<table>
<thead>
<tr>
<th>Findings</th>
<th>Empirically-oriented explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>70 articles</td>
<td>19 articles</td>
</tr>
</tbody>
</table>
Table 1. Cross Tabulation of Level of Explanation with Volumes of *Journal of Marriage and the Family*

<table>
<thead>
<tr>
<th></th>
<th>JMF 1960</th>
<th>JMF 1970</th>
<th>JMF 1980</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Unsubstantiated speculation</td>
<td>17</td>
<td>68%</td>
<td>21</td>
</tr>
<tr>
<td>Empirically-oriented Explanations*</td>
<td>8</td>
<td>32%</td>
<td>7</td>
</tr>
</tbody>
</table>

Chi-square = 0.64 with 2 df, p = 0.72
*Includes the categories of stuck with data, substantiated explanation, and alternative hypothesis generation.

with 3 df, p = .32), research design (Chi-square = .69 with 1 df, p = .41), level of measurement (Chi-square = 2.92 with 3 df, p = .40), subject matter area (Chi-square = 2.92 with 9 df, p = .33), or data analysis technique (Chi-square = .41 with 2 df, p = .81).

**DISCUSSION AND CONCLUSION**

The present findings suggest that family scholars have a tendency to engage in unsubstantiated speculation when they interpret their research findings. Conversely, they have a low rate of substantiated explanation or alternative hypothesis generation. While we would not discourage the truly creative flights of fanciful thought which might open new vistas for family science exploration, the heavy reliance on speculation is regrettable given the standards outlined in social science methodology textbooks (e.g., Babbie, 1979; Kerlinger, 1973) and publication manuals (APA, 1983). It is also interesting that this tendency toward unsubstantiated speculation is not linked to possible mediating variables such as research design, level of measurement, or data analysis technique used.

It is our opinion that a fundamental path through which knowledge grows is the cumulative linking of current research efforts with past ones (Gross, 1959; Marx, 1968; Popper, 1960). We would implore family scholars to pay particular attention to possible linkages with other bodies of knowledge when interpreting findings. In our hypothetical example given above of males being characterized by nonverbal negatives and the interpretation being offered that it is due to weak male egos, the problem of unsubstantiated speculation could have been turned into substantiated explanation by citing literature linking nonverbal negatives to weak egos and that males have both.
In our coding of the studies we did not find that family scholars took that step of documenting their particular explanation.

In light of our findings, we would suggest that family scholars, editors of family journals, members of review panels, and readers of family science journals pay more attention to the types of explanations that are provided for research findings. Specifically, we would like to see authors do that extra amount of legwork involved in documenting their particular interpretation. It is a relatively simple form to change unsubstantiated speculation into substantiated explanation, i.e., find literature which supports the linkage the author wishes to make. If the linkage is not in the literature, authors may wish to state their explanations in a more tentative manner.

REFERENCES


