INFANT CARE CONCERNS OF PRIMIGRAVIDA MOTHERS AND NURSING PRACTICE: TWO MODELS

C. J. FILLMORE AND K. W. TAYLOR*

Pre-natal instruction programs to primigravida mothers would appear to be an excellent situation for imparting the information necessary for successful infant care practices. In Winnipeg, however, we found that only a minimum of instruction time in these courses was alloted to infant care topics, while the majority of time was devoted to pregnancy and delivery topics. What and how much infant care information could be dealt with in pre-natal instruction programs? What were the effects of pre-natal courses on the infant care concerns of those attending? These specific questions oriented our research into the more general question: what are the correlates of infant care concerns of primigravida mothers?

Prior research on the infant care concerns of first time mothers has not raised directly the question of the general correlates of concerns. Brown (1967) hypothesized that nurse visits to first-time mothers at home reduce both the number and intensity of infant care concerns, while Adams (1963) compared the infant care concerns of normal weight and premature infant primigravida mothers. Both of these studies were based on what may be referred to as the "anxiety" model of concerns — a model that assumes that concerns play a negative role in the mother-child relationship and are consequently something that should be removed. For example, Brown's (1967) measure of nurse visitation effectiveness is the reduction in the number and/or intensity of concerns.

Hypotheses. Using this "anxiety" model of concerns and the findings and speculations of the Brown and Adams research, the following hypotheses on the general correlates of infant care concerns of primigravida mothers were developed:

1. Mothers who attend pre-natal and/or child care courses will have lower concern scores than non-attenders.

2. Mothers who intend to breast feed their infants will have lower concern scores than mothers who intend to bottle feed.

* Catherine J. Fillmore is currently pursuing studies at the master's level in sociology; she was previously a lecturer in the School of Nursing, University of Manitoba, and a research associate in that university's Family Planning Project. Kenneth W. Taylor is an Assistant Professor, Department of Sociology, University of Manitoba.

15

3. Mothers in the modal first-child age category will have lower concern scores than mothers below and above the modal age category.

4. Amount of reading on child and infant care will be negatively correlated with concern scores.

5. Years of education will be negatively correlated with concern scores.

6. Experience with infant and child care will be negatively correlated with concern scores.

7. The amount of in-hospital demonstration of infant care practices will be positively correlated with concern scores.

8. Amount of assistance at home with the infant will be negatively correlated with concern scores.

9. The larger the number of sources of advice on infant care problems, the lower the concern scores.

STUDY DESIGN*

Interview schedules were completed by fifty-two primigravida mothers in the Woman's Pavillion of the Winnipeg Health Sciences Centre during February, March and April of 1973. Voluntary anonymous participation in the study was requested 3 to 5 days after delivery. There were no refusals. Data was obtained only from first-time mothers who had carried their pregnancy to full term, had experienced no complications with delivery, had given birth to apparently normal infants, were physically and mentally capable of caring for their infant, and were married and living with an employed spouse. Because of our interest in assessing the relationship of prenatal course attendance to infant care concerns, we attempted to get an equal number of attending and non-attending respondents. Thus the total sample of 52 mothers was composed of 26 attenders and 26 non-attenders.

The instrument employed to measure concerns was an adapted and pretested version of Brown's (1967) protocol. Six areas of infant care concern were measured -— feeding, crying, bathing, elimination, routine care and sleeping. Respondents were requested to express their degree of concern with specific infant behaviors in each of these areas. Area concern scores were obtained by scoring and

*The description below is, in the interests of space, much truncated, particularly with regard to pretesting, scale analysis and general data analysis. Interested readers may obtain a manuscript (28 pages) with a complete methodological description as well as a critique of the methods used by Adams and Brown from the authors for the price of duplication.

TABLE 1 — Multiple Correlation Coefficients

Concern (Dependent Variables)	R_c^{2*}	Number of Independent Variables entered into Regression Equation
Bathing	.29	24
Crying	.53	23
Feeding	.45	23
Elimination	.35	23
Routine Care	.47	23
Sleeping	.31	24
All Concerns	.45	23

* These coefficients incorporate a correction factor for the large number of independent variables in the regression equation relative to the number (52) of cases observed. See Loether, H. J. and G. McTavish (1974: 316).

averaging their replies to each set of questions. We then scale analyzed this data and deleted non-discriminating scale items. The summary measure called "all concerns" in the following tables was computed by averaging the six area concern scores.

Our independent variables were measured with conventional questions, with three exceptions: 1) a child care experience score was constructed by summing the responses to a series of questions on the recency, nature and number of experiences with caring for children, 2) a child care reading score was constructed from respondents' reports of their reading of infant and child care books, and 3) a "home assistance" score was obtained from responses to questions dealing with the number of people who would help the mother when she returned home.

FINDINGS

Multiple Regression Analysis. Multiple regression coefficients evaluate the degree to which the variation in the concern scores can be accounted for by all of the independent variables together. The coefficients are presented in Table 1 for each of the area concern scores.* The best result is for the crying concern score — all independent variables together account for 53% of the variation in the score. Another way of saying this is that 47% of the variation in the crying concern scores is unaccounted for. The situation for the other concern scores leaves an even larger portion of concern score variation "unexplained". We may conclude from all of this that our explanatory scheme for the concern scores is not highly effective. In the analysis below, then, we must keep in mind that there is much variation in the concern scores of those primigravida mothers that we cannot account for.

*All computations reported here were done with the *Statistical Package for the Social Sciences* (SPSS) versions 5 and 6. See Nie *et al.*, (1970, 1975).

TABLE 2 — Nominal Independent Variables by Partial Mean Concern Score Differences

Independent Variables	Bathing	Crying	Feeding	Elimination	Routine Care	Sleeping	All Concerns	Number of Respondents
Pre-natal Course								
Attended	2.30	2.85	2.11	2.28	2.45	2.45	2.38	26
Did not attend	1.79	2.71	1.93	2.10	1.94	1.89	2.04	26
Child Care Course								
Attended	1.96	2.92	2.08	2.28	2.25	2.23	2.28	24
Did not attend	1.85	2.59	1.90	2.12	2.14	2.01	2.15	28
Feeding Method								
Bottle	2.02	2.77	1.83	2.15	2.22	2.03	2.16	22
Breast	1.94	2.64	1.95	2.14	2.07	2.00	2.12	27
Both	3.07	3.43	3.98	2.92	3.08	3.70	3.36	3
Age in Years								
15-19	2.12	2.71	1.72	2.07	2.18	1.85	2.10	5
20-24	2.20	2.65	2.12	2.31	2.21	2.28	2.29	27
25-38	1.82	2.86	1.96	2.07	2.16	1.95	2.13	20

TABLE 3 — Concern Scores by Ordinal Independent Variables: Partial Correlation Coefficients

Independent Variables	Bathing	Crying	Feeding	Elimination	Routine Care	Sleeping	All Concerns
Reading Score B	-.20	-.01	-.24	-.07	-.40	-.24	-.22
C	-.02	-.06	.14	.05	.09	.07	.06
Years Education	-.18	-.17	-.21	-.16	-.33	-.12	-.22
Child Care Experience	-.14	-.09	-.03	-.16	-.11	-.10	-.12
Patient Demonstration	.15	.13	.23	.21	.30	.27	.24
Home Assistance	.14	.39	.09	.09	.03	.21	.19
Sources of Advice	.03	.25	.16	.33	.25	.33	.25

Partial mean difference analysis. Table 2 shows the partial mean differences between the nominal independent variables and concern scores. Hypothesis 1 is not supported: contrary to our expectations, course attenders had higher mean concern scores than non-attenders for every area of concern. On the other hand, this finding may be artifactual (that is, as much a product of the research procedures as of mothers' actual concerns) because it is in opposition to Adams' (1963: 76) report that "Mothers who had attended classes indicated less concern with bathing . . . crying . . . and care of navel and circumcision . . . Class attendance made little or no difference with regard to feeding and other concerns." However, Adams does not specify what type of classes she is referring to, nor precisely how she arrived at her conclusion.

The data is mostly supportive of hypothesis 2, in that breast feeding mothers have lower average concern scores than bottle feeding mothers. The exception to this is the feeding concern scores where the bottle feeding mothers have a lower average score. Again, these findings may be artifactual — Adams (1963: 75) states that ". . . method of feeding did not seem to be related to the number of questions expressed" but again she does not explain exactly how she arrived at this conclusion. The differences we found are small — so small as to "seem not to be related" unless the type of detailed analysis we have used is carried out.

Table 2 presents scores for a third group of first-time mothers who reported plans to use both feeding methods. This third group was separately classified when it became apparent that their responses were quite unique, and there was no logical justification for classifying them with either of the other two groups. While the "both feeding methods" group consists of only three respondents their average concerns scores are very high relative to the other two groups. This suggests that feeding method is very strongly related to concerns, particularly when the new mothers have not made a clear decision on which feeding method to use.

Our hypothesis 3 postulated that the modal age category* first-time mothers would have lower average concern scores than first-time mothers below and above the modal age. With the exception of the average score for crying concern, our hypothesis is not supported, and in fact, modal age category mothers have not the lowest but the highest concern scores of the three age category groupings.

*Age group 20-24 years is the modal age of first-time mothers in Canada according to the figures in Table 5.36 (page 222) of the 1973 *Canada Year Book*. Since the 15-19 and the 25-29 years age categories also have large numbers of first-borns, we would suggest that future research consider alternative age categorizations as well as the one employed here.

Partial correlation analysis. Table 3 shows the partial correlations between the ordinal or interval independent variables and concern scores for hypotheses 4 through 9. Hypothesis 4 postulated that amount of reading would be negatively correlated with concern scores and the data for reading score B supports this expectation, while the data for reading score C contradicts it with the exception of the bathing and crying concern correlations. Two reading scores are reported here because an analysis of the composition of the reading scores revealed that the B score, based on reported reading of *The Canadian Mother and Child* (1967) and *Up the Years* (1971), had negative correlations with concerns; while the C reading scores, based on reported reading of Spock's *Baby and Child Care* (1968) and "other books", had mostly positive correlations with concern scores. Consequently, we used the two reading scores in the analysis to avoid submerging the difference in a single score.

Hypotheses 5, 6 and 7 are supported by the coefficients in Table 3. Hypotheses 5 and 6 postulated negative correlations between concern scores and both years of education and child care experience. The finding regarding child care experience would appear to be factual (that is, more a result of the mothers' concerns than of research procedures) in that it agrees with Adams' (1963:76) finding that ". . . mothers with experience in caring for small infants before the births of their own infants had less anticipatory concerns. . . " Thus the relation between child care experience and concerns is independent of study design, sample, measurement and data analysis techniques.

Hypothesis 7 postulated a positive relation between concern scores and patient demonstration scores and the Data in Table 3 supports this expectation. Again, this finding appears factual in that it is similar to Adams' finding that "Mothers who cared for their infants in the hospital had more questions at two days about feeding, bathing and especially crying," (1963: 76) independently of the different study design, sample, measurement and data analysis techniques used in the two studies.

The last two sets of partial correlations are non-supportive of our hypotheses: we had expected negative relations between concerns and amount of home assistance and sources of advice, whereas all of the coefficients are positive in direction.

What are the most important infant care concerns of primigravida mothers? The data in Table 4 show that the ranking of the relative importance of the concern areas depends upon how the question is

TABLE 4 — Two Measures of the Relative Importance of Areas of Concern

Area of Concern	Mean Scores	Average Rankings
Bathing	2.03	2.74
Crying	2.73	4.75
Feeding	2.00	4.84
Elimination	2.19	3.72
Routine Care	2.18	2.34
Sleeping	2.10	2.67
All Areas	2.20	——

asked. The mean scores are from the area concern scores, while the average ranking scores were obtained from a single question requesting each respondent to list the six areas of concern in order of their importance. The different measures produces quite different impression of the relative importance of the different concerns. The mean scores suggest that crying is of greatest concern, followed by elimination and routine care. The average rankings imply that feelings is of greatest concern followed by crying then elimination. Where the mean scores show routine care among the top three concerns, the average rankings show it to be of least concern. Clearly these rankings are artifactual — a function of the techniques used to arrive at the rankings — and neither agrees with Adams' (1963: 74) finding that feeding and bathing concerns were most important with crying concern a poor second, or with Brown's (1967: 49) finding that crying concern ranked first and feeding concern ranked second.

In sum, the anxiety model of infant care concerns of primigravida mothers does not give much insight into this data. Not only is much of the variation in concern scores left unexplained, and the magnitude of the partial correlations and partial mean differences very small, but only about half of the hypotheses derived from earlier work using the anxiety model correctly predict the directions of the relationships between concern scores and independent variables. For these reasons we could not use the results of the research directly for purposes of planning the inclusion of infant care content in pre-natal instruction programs. Clearly an alternative model of concerns is needed.

DISCUSSION

A Two-component Model of Concerns. An alternative model of concerns would see a greater role for concerns than merely a negative one based on the assumption that concern equals anxiety. It

21

would postulate first that there are at least two components in concerns — interest and anxiety. To the degree that concern indicates interest in infant care, it would play a positive role in the mother-child relationship rather than a negative one. Second, a two-component model would see concerns as the changing outcome of developmental learning process. Initially based on early learning, concerns are changed by (1) later passive learning (reading, courses, etc.) ; (2) later active learning (practical application of information in infant and child care activities) ; (3) the infant's behavior (indicating successful or unsuccessful practice) ; (4) perceived contradictions in the information learned ; and (5) other influences (such as nursing interventions).

Third, the model would postulate that the anxiety and interest components of concern develop interdependently, each sometimes reinforcing, sometimes countering the other. Finally, the two-component model would have to allow for each area of concern to have a "career" in relation to other areas of concern, the development of the child, and the development of the mother-child relationship. Some *specific* concerns, such as concern over the adequacy of breast milk for the infant's diet, have a short career — they disappear when the infant is weaned. But the mother's *general* concern over her child's feeding and dietary behavior does not disappear as a concern. It develops in relation to the child's behavior and the mother's knowledge and insight into the many ways that sufficient or insufficient diet may be indicated in its behavior, and presumably continues over the entire length of time she has a relationship with the child.

This model would allow logical sense to be made out of almost all the findings of the present and earlier research on the infant care concerns of primigravida mothers. For example, the model would lead one to expect that the nursing visits to a group of mothers would perhaps cause anxieties to diminish, but interests to increase, and the change in the concern pattern for such a group would be different from that of a group of similar mothers without nurse visits. This is what Brown (1967) found. But her use of an anxiety model apparently led her to expect that all the concerns of the visited group would diminish. She never considered the possibility that the visitation program could have kept certain concerns alive or even increased their relative strength.

Next, consider some of the statements quoted by Adams (1963: 75) in her study. Some statements can be interpreted as expressing annoyed anxiety (e.g. "her crying drives me crazy. Nothing I do seems to help") while others can be interpreted as heightened interest

(e.g., "I'll sure be glad when I know what's bothering him. He just cries and cries" and "My most important question is if the baby is getting enough as I am breast feeding him.")

Now consider the present research findings. If we assume that the concern scales were measuring *both* anxiety and interest components in some unknown combination, we can offer logical explanations for nearly all of the findings. We would expect that child care experience, education and certain kinds of reading material would diminish the anxiety component of concerns and thus the negative correlations of these variables with concern scores. But we would also expect that patient demonstrations, child care course attendance, pre-natal course attendance and other kinds of reading material would increase the "interest" component of concerns, and thus the positive correlations of these variables with concern scores. Next, the two-component model would lead us to anticipate that mothers who have not yet decided what type of feeding method they are to use will have very high interest *and* high anxiety components to their concern scores as they go about evaluating all the pros and cons of either method, and thus the high average concern scores for this group.

Finally, the positive correlation of sources of advice with concern scores makes sense in terms of the two-component model. Those mothers with high interest and low anxiety will have expanded their sources of information on infant care while those mothers with high anxiety may find that many sources of information only serve to increase their anxiety and perhaps reduce their contact with potential sources in order to reduce it. In contrast, the positive correlation of home assistance with concern scores makes sense as a response to a high anxiety component in the concern. All of the above claims are, of course, speculative.

To go beyond such speculation we should have to design a research program that would measure each component of concern independently of the other components. This would require, at minimum, an "interest" questionnaire, an "anxiety" questionnaire, and an "infant care concerns" questionnaire, as well as a set of questions for evaluating ethnic, class, educational, child care experience, and family history background information. All of these questionnaires, with the exception perhaps of the anxiety questionnaire, could be easily used in ongoing pre-natal instruction and follow-up programs, and then cross-checked with survey and quasi-experimental studies.

Implication for nursing practice. Several implications of the present research for nursing practice are clear. The demonstrated weakness of the anxiety model means, first, that any assumption that con-

cerns play only a negative role in infant-mother relationships ought to be questioned. Second, nursing activities based on this assumption which attempt to reduce concerns may be counter-productive, even detrimental. Third, there is need for nurse practitioners in mother-infant care areas of work to participate in the development of an adequate model of mothers' concerns.

The logical and heuristic utility of the interest/anxiety model of concerns developed briefly above recommends its use as a working model, even though the present research cannot be said to have tested the model. The usefulness of the model would be greatly increased if it were further developed to include concepts of (1) patterns of concern change which indicate increasingly healthy mutual adaptations of mother and child to their conditions of life, and (2) patterns of concern change which indicate potentially unhealthy adaptations.

The patterns of change will be different for "conventional" and "special problem" concerns. The healthy development of conventional or normal concerns in the mother would ideally be along the lines of increasing knowledge about her child's health/sickness behavior and the variety of preventive and ameliorative responses. At a minimum, the healthy development of normal concerns ought not go below some minimum of health information — too much decrease in concern might indicate an unhealthy development pattern. At the same time, anxiety about normal development should diminish. In short, the interest component of concern ought to grow and develop along with the child's growth and development, but the anxiety component of concern ought to decrease.

On the other hand, for special problem concerns derived from congenital, genetic or social patterns of abnormal development, it is unlikely that the anxiety component of the concern will diminish except in relation to clear evidence in the child's behavior that the problem does not exist. The anxiety over these special problems is likely to affect the *general* levels of anxiety and interest in the pattern of changing concerns. It seems reasonable to suggest that in this situation, a low level of anxiety in the mother's concerns may be unhealthy and indicate a deteriorating mother-child relationship. The healthy pattern should show the rapid expansion of the mother's knowledge about the special problems, possible methods of monitoring their development and possible modes of coping, short of institutionalizing the child. In short, where special problems are affecting the mother's concerns, the interest component of concerns ought to grow and develop along with the child's growth and development, but the anxiety component is unlikely to diminish.

24

Conventional socio-medical research can contribute to the refinement and general testing of the model along these lines. But the most important test of any model lies in the ongoing records of applications and the evaluation of these applications — case reports. Thus the suitably oriented case reports of nurse practitioners will constitute an indispensable data base for both the further development and practical testing of the present theory.

References

Adams, Martha. "Early Concerns of Primigravida Mothers Regarding Infant Care Activities," *Nursing Research* 12:2 (1963), 72-77.

Brown, Louise S. "Effectiveness of Nursing Visits to Primigravida Mothers," *The Canadian Nurse* 63: 1 (January 1967), 45-50.

Canadian Mother and Child. Ottawa: Information Canada, 1967.

Loether, H. J. and G. McTavish. *Descriptive Statistics for Sociologists*. Boston: Allyn and Bacon, 1974.

Nie, N. H., C. H. Hull, J. G. Jenkins, K. Steinbrenner, and D. H. Bent. *Statistical Package for the Social Sciences*. New York: McGraw-Hill, 1975.

Nie, N. H., D. H. Bent, and C. H. Hull. *Statistical Package for the Social Sciences*. New York: McGraw-Hill, 1970.

Spock, Benjamin K. *Baby and Child Care*. New York: Pocket Books, 1968.

Statistics Canada. *Canada Year Book*. Ottawa, 1973.

Up the Years from 1 to 6. Ottawa: Information Canada, 1971.