Brief Report

The Relationship Between Infant Illness and Family Functions

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It is by now established that an undeniable relationship exists between the family unit and manifestation of disease symptoms.[1,2] Families exhibit characteristic patterns of morbidity, transmission,[3] susceptibility to infectious agents,[4] and utilization of medical services.[5] Some families have a high frequency of disease, while others over the course of time experience relatively little disease.[6] A family system may influence the course and outcome of disease; it may constitute the conditions sufficient to precipitate illness; or it may act as a predisposing influence.[7,8]

However, as yet we do not have good information about the starting point of this process—the experience of first illness in a family's first infant. This exploratory investigation was intended to cast light on the question: Are there differences in family environment between families whose first infant contracts two or more illnesses requiring medical attention during the first six months of life and those families whose first newborn does not require medical contact during the same period? Based on existing literature,[9-12] we hypothesized that families whose infants did not become ill during the study period would be characterized by greater self-perceived positive attributes (cohesion, expressiveness) and lower self-perceived negative attributes (conflict).

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Method

Subjects were 25 mothers, who had delivered their first child during the period March 1982 to December 1982. All subjects were the wives of Marines at a naval base in Southern California, and had been married an average length of 1.8 years. The subjects were comparable in terms of age (early to mid-twenties), education (high school to some college), and income (with the majority of respondents being in the $10,000 to $14,000 range). Fifteen of the subjects were Anglo, and ten were Hispanic.

Two weeks after the birth of their first child, parents of the 25 infants born in the study period were given a 90-item, true-false, self-administered questionnaire to complete. All 25 mothers completed the questionnaires, as did 11 fathers. In the cases of the non-respondent fathers, they either declined to participate, were stationed overseas, or were currently absent from the home. These fathers were subsequently dropped from the data analysis because of the small number of responses. The instrument used measures various aspects of family functioning.[13,14] A subset of the original subjects (14 of the original mothers plus two additional mothers who agreed to be interviewed but did not complete the questionnaire) were also interviewed at six weeks and six months after the birth of the infant about various aspects of their family and personal life. It was decided not to interview fathers because of their relative inaccessibility (transfers, relocations, overseas assignments, lack of time), and because in all these families the mother was the primary caretaker. Those mothers whose infants had been ill two or more times during this six-month period responded to additional questions to determine specifics about the illnesses and their impact on the family unit. The interview was semi-structured and included both open- and closed-

*Thus, the "ill" concept in this study has a very limited definition. Because of limited access to our population, we were unable to keep health journals on the families to monitor frequency of illness episodes which did not receive medical attention. However, we did obtain records of illness-related phone contacts from the base family practice center. There were no significant differences between the groups in terms of health-related phone behavior. Thus, this study focused only on those illnesses serious enough (at least in the mother's perception) to warrant medical attention.

ended questions.

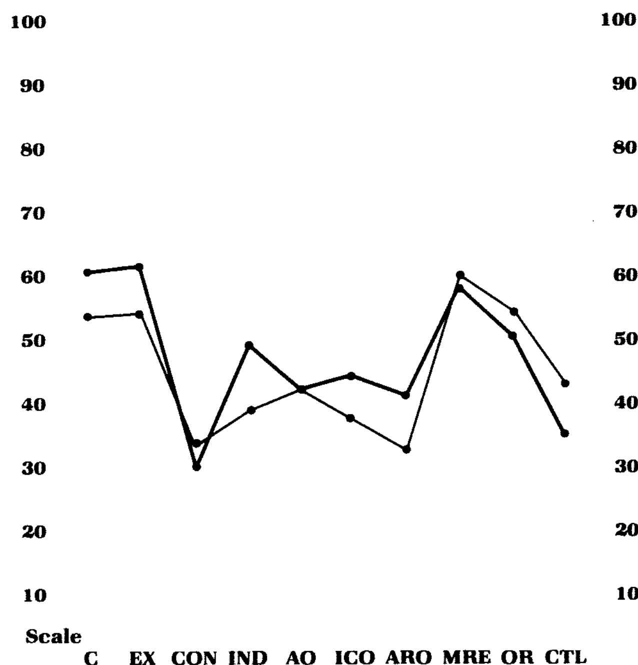
An infant was categorized in the ill group only if she/he were actually brought in by the parent to be seen by a physician in the base's family practice clinic two or more times in the first six months of life, for other than well-child visits.* Of the 16 babies whose mothers were interviewed, all except four had had at least one illness-related medical visit. In order to have two comparable groups, we defined the "well" condition as those infants having zero or one illness-related physician encounter. Applying these criteria, eight infants were classified as "healthy" and eight as "sick." Ill infants were diagnosed, according to mothers, as having had "colds" (2), ear infections (4), vomiting (2). These conditions were variously accompanied by symptoms of temperature, congestion, cough, sore throat, crankiness, sleeping problems, lack of appetite, and unusual crying. For the eight "ill" babies, the mean number of doctor visits for a "new" illness, i.e., a previously not-treated illness, was 3.25.

Data Analysis

Of the ten subscales on the family environment questionnaire, three were statistically analyzed using a Mann-Whitney U test comparing parents of well babies with parents of ill babies. Scales were selected on the basis of face validity for positive/negative evaluation: cohesion, expressiveness (considered as positive), and conflict (considered as negative). In addition, the well and ill baby mothers were compared statistically, again using the Mann-Whitney U, on perceived family stress attributed to infant social support, relationship with physician, and maternal health.

Figure 1

A COMPARISON OF PATTERNS OF FAMILY FUNCTION FOR PARENTS OF WELL AND PARENTS OF ILL INFANTS



Standard Scores

	C	EX	CON	IND	AO	ICO	ARO	MRE	OR	CTL
Well baby parents	62	64	32	49	46	47	43	57	51	35
Ill baby parents	56	57	37	40	46	39	34	59	56	46

Scale Key

C=Cohesion
EX=Expressiveness
CON=Conflict
IND=Independence
AO=Achievement Orientation
ICO=Intellectual/Cultural Orientation
ARO=Active-Recreational Orientation
MRE=Moral-Religious Emphasis
OR =Organization
CTL=Control

Results

Family Environment Scale. When parents whose babies had had zero or one illness (N=11) were compared with parents whose babies had had two or more illness episodes (N=14), parents with healthier babies perceived their family environments to be significantly more cohesive ($Z=-1.97$; 2-tailed $P=.05$) and significantly more expressive ($Z=-2.13$; 2-tailed $P=.03$) than did parents of less healthy infants. There were no significant differences between the two groups in terms of perceived family conflict. As can be seen in Figure 1, descriptively the healthy group was characterized by less conflict, greater dependence, greater intellectual-cultural and active-recreational orientation, less organization, and less control.

Perceived family stress attributed to infant. Mothers of ill babies rated the presence of the infant in the family unit as significantly more stressful than did mothers of well babies ($Z=-2.52$; 2-tailed $P=.01$), prior to the first illness episode.

Social support. There was no difference between the two groups in terms of availability of social support. However, mothers of well babies utilized their support system more frequently than did mothers of ill babies ($Z=-2.17$; 2-tailed $P=.03$).

Relationship with physician. There were no significant differences between the two groups in terms of their evaluation of the comprehensibility, competence, or personal empathy of the physician, or tendency to reject the doctor's advice or opinion (see Table 1).

Maternal physical and psychological health. There were no differences between the two groups in either of these areas (see Table 1).

Discussion

The small size of the sample and the nature of the sample itself, i.e., Marine families, make broad sweeping conclusions or extensive generalizability inappropriate. However, this preliminary investigation does raise some interesting issues which point the way for further research.

First, this study documents that in a young, high school-educated, lower income population in the early developmental stages of family life,[15] there may be a significant relationship between frequency of illness episodes requiring medical attention in the child and overall patterns of family functioning (measured prior to the occurrence of the first illness episode). In par-

Table 1

MEAN INTERVIEW SCORES COMPARING MOTHERS OF "WELL" BABIES WITH MOTHERS OF "ILL" BABIES

Item	"Well" Baby Mothers X	"Well" Baby Mothers SD	"Ill" Baby Mothers X	"Ill" Baby Mothers SD
Competency as mother	8.69	0.88	8.31	0.85
Physical affection toward infant	9.44	1.44	7.56	1.30
Pleasure in infant	9.00	0.72	8.00	1.31
Negative emotions toward infant	7.50	1.44	9.50	1.39
Communication with spouse regarding infant	9.06	0.65	7.94	0.64
Agreement with spouse regarding infant	9.81	1.28	7.19	1.25
Ways in which infant affected marriage adversely	7.69	0.51	9.31	0.49
Reject doctor's opinion	6.50	1.11	10.50	1.18
Doctor competent	9.25	0.57	7.75	0.44
Doctor understanding	9.88	1.28	7.13	1.20
Social support	8.94	0.72	8.06	0.71
Physical health	8.38	0.95	8.63	0.91
Spirits	8.88	0.79	8.13	0.72

ticular, families of infants who remained "healthy" perceived themselves to be closer, warmer, and able to express feelings and talk to one another more than families of less healthy infants.

The more detailed interview also provided interesting findings. One of the strongest findings was that mothers of ill babies felt these infants to be more stressful on the family than did mothers of well babies. Perusal of anecdotal data from the questionnaire supports this finding. Even prior to the first illness episode, mothers of ill babies tended to express more doubts about their competency as a mother, tended to perceive themselves as less physically affectionate with their infant, rated themselves as taking less pleasure in the infant, and had more negative emotions toward their infant than mothers of well babies. They also tended to have less communication with their spouse about the infant, and to have more areas of disagreement with their spouse about care of their infant. Finally, they were more apt to indicate ways in which presence of the child had affected their marriage adversely (Table 1). Thus, it is possible that in these more poorly functioning families, even prior to the occurrence of illess, the infant's presence exacerbated personal insecurities and familial tensions.

It is now clearly recognized that social support is a positive mediating variable in considering the effectiveness of individual response to physical illness.[16] More recently, the concept of social support has been refined to include factors of both availability and utilization.[17] The findings of this investigation lend support to the theory that it may be the individual's willingness to mobilize social support on his or her behalf which is the critical mediating element.

There is also a large literature discussing the importance of the doctor-patient relationship on therapeutic outcome.[18-19] While our inquiries in this area did not prove statistically significant, it is worthwhile noting that on every dimension, mothers of ill babies rated the doctor more negatively—comprehensibility, competency, and empathy—and tended to be more likely to reject the doctor's opinion.

Finally, the confirmation of the null hypothesis in terms of maternal emotional and physical health suggests that it is to the interactive patterns of the family unit, rather than the internal characteristics or properties of a particular individual, that we should most profitably turn for predictors of infant health and illness.

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