

Health Orientation, Beliefs, and Use of Health Services Among Minority, High-risk Expectant Mothers

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Abstract This article reports on initial findings of a continuing longitudinal study investigating the relationships of health beliefs as conceptualized by the health belief model and the use of well-baby services among first-time black mothers. The health beliefs of mothers about their babies were measured before the babies were born and during their use of the services at the baby's first and sixth-month visits. Mothers in the sample who became nonusers of the well-baby services were also interviewed. This report describes the results of the first interview of the 662 females who composed the sample for the study, including the following characteristics of a minority, high-risk population: health orientation, health beliefs about their unborn babies, and use of health services. These findings are discussed with implications for community health nursing practice with maternal clients.

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This article reports on initial findings of a continuing longitudinal study investigating the relationships of health beliefs as conceptualized by the health belief model (HBM) and the use of well-baby services among first-time black mothers. Focus was on (1) the demographic characteristics of this high-risk population; (2) their health orientation; (3) health beliefs about the unborn baby; and (4) their use of health services.

Many studies document the importance of early prenatal care and its continuation throughout pregnancy for the health of the mother and the baby (Ingram, Makuc, & Kleinman, 1986; Morales, Vaughn, & Diebel, 1985; Oxford, Schinfeld, Elkins, & Ryan, 1985; Boone, 1982). Indeed, one priority of the Public Health Service's National Objectives for Health Promotion and Disease Prevention is that "by 1990, the proportion of women in any county or racial or ethnic group who obtain no prenatal care during the first trimester should not exceed 10 percent" (U.S. Public Health Service, 1980).

The Robert Wood Johnson Foundation's national study (1985, p. 9) showed that "79 percent of white mothers and 62 percent of black mothers began prenatal care in the first three months of pregnancy during 1983. Younger women and those with less than a college education are less likely to receive early care. 1982-1983 marked the first period since 1969 (when such data began to be available) that the percent of black women beginning prenatal care in the first trimester declined. As of 1983, among pregnant black women, one in ten received delayed (third trimester) prenatal care or none at all."

These and other reports invariably identify black women, especially the unmarried, young, and poor, as

TABLE 1. Educational Level and Marital Status of the Subjects

	Age (yrs)				Totals ^a (%)
	13-15 (%)	16-18 (%)	19-22 (%)	23-25 (%)	
Educational level					
≤9th grade	8.6	3.2	.8	0	12.6
10th-12th grade	1.8	33.9	22.7	6.0	64.4
>12th grade	0	1.7	14.3	7.1	23.0
Totals	10.4	38.8	37.7	13.1	100 (658)
Marital status					
Married	0	.9	2.8	1.8	5.5
Unmarried	10.5	37.9	34.9	11.2	94.5
Totals	10.5	38.8	37.7	13.0	100 (648)

^aThe totals vary from the sample total of 662 due to missing observations.

a high-risk population. Community health nurses practice among minority clients who are disproportionately represented in these high-risk groups. These factors provide the rationale to focus on a low-income, black, high-risk group for the study. The benefits from this study can include the development of better strategies to reach these women with quality maternal care to improve the health outlook for the mothers and their babies.

CONCEPTUAL FRAMEWORK

The health belief model posits that for persons to take a recommended preventive health action, they perceive themselves to be vulnerable to a particular health condition (perceived susceptibility); perceive the condition to have serious consequences (perceived severity); perceive that the benefits of taking the action outweigh any costs or barriers (perceived benefits minus perceived barriers); and have received a cue or cues to take the action. Whether or not the preventive health action is taken also can be influenced by demographic and sociopsychologic variables (Becker, Haefner, Kasl, Kirscht, Maiman, & Rosenstock, 1977).

METHODS

Research Design

The research design is a longitudinal, prospective study with three interviews conducted with each subject at one prenatal visit, at the baby's first well-baby visit, and at the baby's sixth-month visit.

Sample and Setting

The sample was obtained from April 1985 through April 1986 from three maternal and child health clinics operated by the Chicago Department of Health. It consisted of 662 expectant mothers who completed the first interview during a prenatal visit. There were 674 eligible to be included. The 662 women who agreed to partici-

pate in the study represented a response rate of 98 percent.

A record audit was done at the three clinics to identify all clients who met the study's eligibility criteria: (1) black female having a first pregnancy; (2) currently or would be in her second trimester or more at the time of the interview; and (3) normal progress in the pregnancy. In addition to the record audit, new clients who met the eligibility criteria during the data collection period were included in the sample. Policies of the University of Michigan and the Chicago Department of Health regarding the protection of human subjects were followed.

The subjects were interviewed in the clinic setting by trained interviewers. The interview lasted about 30 minutes.

The majority of the 648 females (94%) were unmarried (Table 1). The small percentage of those who were

TABLE 2. Employment Status and Household Income Reported by Subjects

	Number	%
Employment		
Employed	71	11
Unemployed	195	30
Student	352	54
Other	31	5
Totals	649	100
Income^a (\$)		
<5,000	227	35
5,000-9,999	183	28
10,000-14,999	70	11
14,500-34,999	80	12
Missing	96	15
Totals ^b	656	100

^aThe mean number of persons per household was 4.

^bThe totals vary from the sample total of 662 due to missing observations.

TABLE 3. *Health Outlook of the Expectant Mothers*

Statement	% Agree (no.)	% Disagree (no.)	% Totals* (no.)
"No matter how well a person follows her doctor's orders, she has to expect a good deal of illness in her lifetime."	62 (412)	37 (244)	99 (656)
"I expect my baby to have a healthy life."	99 (650)	1 (8)	100 (658)
"I will be prepared to care for my baby after leaving the hospital."	99 (652)	1 (7)	100 (659)

*The totals vary from the sample total of 662 due to missing observations.

married were older than 18 years. The age range was 13 to 35 years (median 18 years). Ten percent were 13 to 15 years of age and 11 percent, 23 to 35 years. Sixty-four percent of the subjects had completed tenth to twelfth grade of school and 56 percent had graduated from high school. Almost one-fourth of the sample reported an educational level of more than the twelfth grade.

Table 2 shows that only 11 percent were employed, either full-time or part-time. Thirty percent (195) of the respondents in the labor market were unemployed. Over one-half were students.

Annual household income of less than \$10,000 was reported by 63 percent and less than \$5,000 by approximately 35 percent. The mean number of persons per household in this sample was four. The March 1985 Current Population Survey (CPS) reported that the average poverty threshold for a family of four was \$10,609 in 1984. Therefore, almost two-thirds of the respondents were in families who fell below the poverty level.

Instruments

The investigators developed the instruments based on a literature review of studies using the health belief model as a conceptual framework and previous reports of health use surveys. A study was conducted by the investigators and used the instruments for the first time (Kviz, Dawkins, & Ervin, 1985). This study allowed for the testing of the methodology for the study, which included the pretest of the instruments. The instruments were structured interview schedules that primarily consisted of closed, precoded items. Coefficient Cronbach's alpha reliabilities indicated acceptable internal consistency for the perceived susceptibility (0.88) and perceived severity (0.92) scales.

RESULTS

Mothers' Health Orientation

The mothers' health orientation was measured by the responses to 17 statements about (1) the health outlook of the mother and her unborn baby, (2) satisfaction with health care services, and (3) general health care practices. The responses were combined to create the mothers' health orientation score (MHO). The highest MHO score possible was 100. The subjects' MHO scores ranged

TABLE 4. *Health Outlook and Ages of the Expectant Mothers*

Age (yrs)	Agree (%)	Disagree (%)
13-15	70	30
16-18	69	30
19-22	59	40
≥23	43	56
Total ^b	63	37

*Response to the item, "No matter how well a person follows her doctor's orders, she has to expect a good deal of illness in her lifetime."

^bThe totals vary from the sample total of 662 due to missing observations.

from 55 to 95. A score of 50 or above was categorized as positive health orientation; scores below 50 as negative health orientation. There were no differences among the various age groups in the sample, with all of them having a positive health orientation.

One denotes a paradox, however, in responses to 3 of the 17 items within the MHO score. Table 3 shows almost two-thirds of the subjects agreed with the statement "No matter how well a person follows her doctor's orders, she has to expect a good deal of illness in her lifetime." Table 4 shows that respondents in the older age categories (19 years or older) were less likely to agree with the statement. The subjects were almost unanimous, however, in agreement with the statements "I expect my baby to have a healthy life," and "I will be prepared to care for my baby after leaving the hospital."

Health Beliefs About the Unborn Baby

To explore the mother's health beliefs about her unborn baby, a series of questions was used to determine her perceptions of the baby's susceptibility to a health problem and her perceptions of its severity. The questions related to perceived susceptibility were phrased, for example, for a cold, "After your baby is born, how likely is it that your baby will get or have a cold in the next month?" Continuing with this example, the next question regarding perceived severity was asked: "After your baby is born, how serious would it be for your baby to get or have a cold in the next month?" These

TABLE 5. Mother's Perceived Susceptibility and Perceived Severity of Health Problems for her Unborn Baby (n = 662)

Health Problem	Perceived Susceptibility		Perceived Severity	
	Unlikely	Likely	Not Serious	Serious
	%	%	%	%
Cold	30	69	49	50
Fever $\geq 101^\circ$ for 2 days	59	40	29	70
Ear infection	59	40	40	59
Mumps	53	45	42	57
Measles	57	41	39	60
Polio	71	26	30	68
Whooping cough	56	41	33	65

The totals vary from 100 percent due to rounding and/or missing data for the particular item.

sets of questions were asked for each of 12 health problems: mumps, cold, fever of 101 degrees or more for two days, measles, diarrhea, iron-deficiency anemia or low blood count, polio, ear infection, rash, eye infection, whooping cough, and repeated vomiting.

Sixty-nine percent of the subjects felt that it was likely that the baby would get a cold, but that it was less likely that they would develop a fever or ear infection (Table 5). Most mothers felt that a fever was more serious than an ear infection (70% vs 59%), while 50 percent perceived a cold as being serious.

It is of interest that 26 percent of the subjects indicated that they thought it likely that their baby would develop polio. There was a statistically significant relationship between education and the mothers' perceived likelihood of whether or not the unborn baby would contract polio within the year after birth ($\chi^2 = 12.48, 2 df, P = 0.001$). Respondents with more education were less likely to believe that their unborn baby might have polio within the year after birth. Thirty percent did not perceive polio to be a serious disease. The results for mumps, measles, and whooping cough were all similar, with a little over half of the subjects thinking that it was unlikely that their children would get the diseases and a little less than two-thirds perceiving these diseases as serious.

Use of Health Services

Table 6 shows that 304 subjects (46%) reported having a regular source of care prior to pregnancy while 352 (54%) did not. Of those with a regular source of care, 36 percent went to a private physician. This finding was similar for those who did not have a regular source of care, of which 32 percent reported seeing a private physician when they became ill. Sixty percent of those with a regular source of care used a health clinic when they became ill, as compared with 49 percent without a regular source. It is interesting to note that 18 percent

TABLE 6. Regular Source of Health Care Prior to Pregnancy

Source	Yes	No
	(n = 304) (%)	(n = 352) (%)
Private physician	36	32
Clinic	60	49
Emergency room	2	18
Other	2	1

of the subjects without a regular source of care used the emergency room when they became ill. Only 2 percent of those who reported a regular source of care identified an emergency room as that source.

Over three-fourths (78%) of the sample sought prenatal services during the first trimester of pregnancy (Table 7). Most of those who sought the services were in the older age categories; 19 to 22 years (84%) and over 22 years (88%). Those who initiated prenatal services in the second or third trimester were younger: 13 to 15 years and 16 to 18 years. In addition, the higher the level of education, the more likely the women were to have initiated prenatal services during the first trimester of pregnancy.

Discussion and Implications

From the data gathered in this study, the subjects, first-time black mothers, held varying views and knowledge about childhood communicable diseases. For example, there was a relationship between education and the mothers' perception of whether or not the baby would contract polio in the first year after birth. The more educated mothers were less likely to report this than those with less education. In addition, approximately one-third of the mothers responded that it would not be serious for the baby to have mumps, measles, polio, or whooping cough. This finding indicates a knowledge deficit regarding childhood communicable diseases for some of the mothers, especially the very young ones, who were generally those with lower educational levels.

Health information needs of mothers, especially pregnant adolescents, continue to require nursing assessment and emphasis as high-priority aspects of total prenatal care. Teaching about the needs of the newborn baby, as well as the need for and types of infant immunizations, are appropriate topics to emphasize systematically throughout prenatal education.

A greater proportion of older and more educated

TABLE 7. Initiation of Prenatal Services by Educational Level and Age

	Trimester of Pregnancy		Totals ^a (no.)
	First (%)	Second-Third (%)	
Educational level			
≤9th grade	63	37	84
10th-12th grade	78	22	415
>12th grade	88	12	150
Totals	78	22	649
Age (yrs)			
13-15	68	32	68
16-18	73	27	253
19-22	84	16	246
>22	88	11	85
Totals	78	22	652

^aThe totals vary from the sample total of 662 due to missing observations.

females sought early prenatal care than their younger and less educated counterparts. This is similar to the national survey findings of Ingram and associates (1986) and the Robert Wood Johnson Foundation's national study (1985). A higher percentage (78%) of the mothers in this current investigation began their prenatal care in the first trimester of pregnancy, as compared with the 62 percent in the Robert Wood Johnson Foundation's study. Several plausible reasons could explain this finding. First, the subjects who participated in our study were clients at maternal health clinics. They were already in the health care system and therefore some may have a propensity or motivation toward seeking health care. Results also showed that there were no differences among the various age groups regarding health orientation. This high-risk population of expectant mothers had a positive health orientation.

A second reason for the higher percentage who sought care in the first trimester may be the ease of access to the maternal health services offered by the Chicago Department of Health. Many of the clients lived close to the clinic they attended. All of the clinics have sliding fee scales and accept Medicaid and other third-party reimbursement.

The percentage seeking prenatal care in the first trimester could have been different if pregnant subjects had been sampled from nonhealth care as well as health care sites. This was beyond the scope and resources of the current investigation. Future studies may consider the inclusion of subjects who are not already enrolled in health facilities.

Even though enrolled in a maternal health clinic, almost one-fourth of the subjects reported that they

initially sought care in the second or third trimester. These women tended to be younger and less educated than their counterparts. This may indicate that more outreach programs and the greater use of case-finding techniques in community health nursing are urgently needed to reach high-risk populations that have been so thoroughly profiled in the literature as those at risk for higher maternal morbidity and infant mortality. At times, community health nursing services have tended to be passive receptacles of referrals that have been more than enough for the available resources. Effective case finding, however, requires that target populations be identified, strategies designed for reaching them, and resources shifted to the new priorities. No nursing service can do all that is needed; therefore services are most effective if concentrated over time in priority areas.

When the data collection for the second and third interviews is completed, and with the use of the HBM theoretical framework, explanations can be given of exactly how the mothers' health beliefs influenced their use of well-child services as well as what kinds of factors were involved in the use or nonuse of these services. It will be possible to determine how such factors as the mothers' pattern of health care use prior to pregnancy and when prenatal care was first sought relate to subsequent use of well-child services.

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