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NURSING CARE AND BELIEFS OF EXPECTANT NAVAJO WOMEN

by
B. Carol Milligan
(PART 2)

DEVELOPMENT AND IMPLEMENTATION OF EXPERIMENTAL NURSING INTERVENTION STUDY

AN EXPERIMENTAL STUDY to analyze the effectiveness of clinical Application of the traditionality field study results was designed as the next phase in this project. The research question to be tested was: "Are there significant differences in patient outcomes when culturally relevant nursing care is provided during the childbirth cycle as compared to routine nursing care?"

Research Design. Two service units on the Navajo reservation were randomly selected for the data collection. Two bilingual Navajo research assistants, one a registered nurse, the other a nursing assistant, both of whom had been previously employed with NAIHS, were hired to collect data and monitor research activities. One week of training was provided with emphasis on mock interviews to provide an opportunity to practice asking questions in a consistent manner and practice translating into Navajo, items on the research instruments.

Potential participants were approached in prenatal clinics and upon agreeing to be in the study were interviewed with the traditionality instrument and were categorized by the interviewer as either traditional, transitional, or modern. Based on questionnaire responses, an individualized nursing care plan featuring each experimental group member's preference for traditional cultural practices was developed. Standard nursing care plans were used for control group members. All key agency staff were given a thorough indoctrination with the nurses involved being given a written set of guidelines and instructions on their role in the study. The research assistants interviewed each participant on the day of discharge to determine selected patient outcomes and the medical record was reviewed for additional patient outcome data.

The three independent variables used in the experimental study were operationalized as follows. Treatment was the presence or absence in the nursing process of culturally relevant aspects of care, based

on responses to the traditionality questionnaire. Hospital site was the two locations where patients delivered and were labelled Site A and Site B. Patient traditionality type was the classification of traditional, transitional, or modern as judged by the research assistant.

The dependent variables included the three patient outcome categories of satisfaction, compliance, and morbidity. Outcome measures were pretested for variability, sensitivity, internal consistency, and face and content validity. Patient satisfaction was measured with a "Patient's Opinion of Nursing Care" tool (alpha coefficients of internal consistency reliability, .75 to .89) as adapted from Risser's Patient Satisfaction Instrument (Hinshaw & Atwood 1977). Patient compliance was measured by a ratio of appointments kept to appointments scheduled. Morbidity measurements included composites of complications of pregnancy scores, each measured at antepartum, intrapartum, and postpartum times. A composite infection score was operationalized as the combination of one or more of three infections selected from a larger set of possible infections based on frequency of occurrence. Infant Apgar scores, mother's length of stay, and infant's length of stay were also included as outcome measures.

The number of culturally relevant interventions requested and received, and the ratio received to requested were defined as intervening variables.

The experimental approach involved the use of a 3 factor design: Treatment, by Site and by Traditionality. Assignment to the control or experimental group was based on the time a patient entered the study. The control group phase of the study had to be conducted for each hospital prior to the experimental phase due to the changes needed in implementing the culturally relevant health procedures for the experimental group, and the need to avoid biasing the control subjects as a result of those changes. Thus, the Site A control group entered the study in Spring, while the experimental group entered the study in early Fall. The Site B control group entered the study in early Fall and the experimental group entered the following Winter.

Data analysis included descriptive statistics, analysis of variance, multiple regression, discriminant analysis, crosstabulations, and content analysis of patients' open-ended responses.

The population sample consisted of 191 pregnant Navajo women between 30 and 36 weeks gestation who received prenatal, intrapartum and postpartum care at one of the two site facilities. Participants were recruited in prenatal clinic at the initial visit. Site A had 49 control and 29 experimental subjects (N=78) while Site B had 58 control and 55 experimental subjects (N=113). The total number of control subjects for both sites was 107, and the experimental group for both sites numbered 84.

TABLE 6
BREAKDOWN BY TREATMENT, SITE, AND TRADITIONALITY

	Site A	Site B
Traditional		
Control	8	29
Experimental	4	1
Transitional		
Control	22	25
Experimental	11	51
Modern		
Control	19	4
Experimental	14	3
TOTAL	78	113

Further breakdown of the sample by the variables of treatment, hospital site, and traditionality reveals a noticeable sampling bias (Table 6). For Site B, traditionals represented close to 50% of the control subjects and less than 2% of the experimental subjects.

Experimental Data. Prior to the experimental analysis, descriptive frequencies were generated for all items for which data were collected. In summary, Site A had a much higher proportion of moderns than did Site B, yet had a higher proportion of persons engaged in occasional shepherding. The typical patient at Site B appeared to be more likely transitional, rather than traditional with a higher economic status, more working mothers, higher family income, and less people on public assistance. They appeared to have traditional beliefs that were typical of transitionals.

With regard to the most commonly requested culturally relevant interventions, a consistent relationship between traditionality type and traditional practice was evident. That is, items associated with traditional beliefs were requested most often by traditional persons, while moderns frequently requested interventions that are characteristic of modern Anglo society, such as having the father present at birth or the use of stirrups during delivery.

A three-way Analysis of Variance was used for comparing mean score differences in outcomes across levels of the independent variables. The analysis was repeated with each of the selected dependent variables serving as the outcome. In some cases, analysis of covariance was used in order to control percentage of requested interventions as a covariate. Each analysis run was designed to test the null hypothesis that type of nursing intervention provided (i.e., culturally relevant vs. standard) would have no effect on patient outcome.

Results indicate that there were significant differences in the number of cultural intervention requests related both to traditionality ($F = 33.03$, $p = .001$) and to site ($F = 7.48$, $p = .007$). Results due to traditionality were in accordance with expectation. Results due to site may have been related to the sampling distribution of traditionals across sites and treatment groups.

There were significant differences in received cultural interventions related to treatment group ($F = 7.2$, $p = .008$), to site ($F = 22.3$, $p = .001$), and to traditionality ($F = 9.1$, $p = .001$). The result due to treatment was expected, while the result due to site indicated possible differences in nursing care which were not hypothesized. The results due to traditionality were consistent with the expectation that traditional persons will request and thus are likely to receive more specialized cultural interventions.

Significant differences were found in the ratio of received cultural interventions to requests related to treatment group ($F = 12.9$, $p = .001$), and to site ($F = 49.6$, $p = .001$). Interaction between group and site was observed. The overall result indicated that, while nurses appeared to provide a greater number of culturally relevant interventions to the experimental group, as designed in the study, there were many interventions taking place prior to experimental procedures. Surprisingly the difference in the health delivery process between the two sites was more predictive of the interventions provided than was the experimental treatment.

No significant differences in opinion of nursing care were found related to the experimental treatment. However, significant differences were found between the two sites ($F = 3.17$, $p = .001$), with Site B having a higher mean score, indicating more positive opinion. Again, this finding lends support to existing site differences being more predictive of outcomes than experimental treatment.

There were no significant differences to any of the experimental variables for infant 5 minute APGAR scores, ratio of appointments kept, or observed antepartum complications. Significant differences were found for the number of recorded intrapartum complications as related to site ($F = 7.9$, $p = .006$), with Site B indicating the higher average number of complications. Significant differences in postpartum complications were found related to the experimental treatment indicating an average of about twice the frequency of complications as the experimental group ($F = 7.16$, $p = .008$).

No significant differences were found in the number of reported infections related to the experimental treatment, but there were significant differences related to sites ($F = 30.6$, $p = .001$), with Site A indicating approximately 8 times the frequency of infections.

TABLE 7
SUMMARY OF SIGNIFICANT DIFFERENCES RELATED TO TREATMENT

Outcome	Mean Scores	
	Experimental	Control
Received Interventions	5.23	4.42
Ratio of Received Interventions	74.60	61.80
Postpartum Complications	.21	.46

TABLE 8
SUMMARY OF SIGNIFICANT DIFFERENCES RELATED TO SITE

Outcome	Means Scores	
	Site A	Site B
Requested Interventions	7.57	6.66
Received Interventions	3.89	5.39
Percent Interventions Received	52.00	67.40
Opinion of Nursing Care	71.50	79.10
Number of Infections	.49	.06
Intrapartum Complications	.45	.77
Mother's Length of Stay	70.80	94.40

No significant differences in length of mother's stay were related to the experimental treatment; however, there was a significant difference related to site ($F = 17.9$, $p = .001$), with Site B having a longer average stay. It is unclear at this point whether a longer length of stay can be considered a positive or a negative outcome due to its relation to other site related variables.

Table 7 compares those mean scores having significant outcomes in relation to the experimental treatment variable. Due to the larger number of significant differences related to site, Table 8 is also included.

After determining that the treatment variable was not the major predictor of differences in outcomes, and considering the sampling distribution, path analysis was selected for the purpose of explaining the relationships between predictors and outcomes. In this analysis the variable of site was found to be the strongest causal predictor of outcomes.

Site was found to have both direct and indirect effects on mother's length of stay and patient's opinion of nursing care. Site also had a direct effect on the number of infections observed in a direction opposite its effect on complications of pregnancy. The experimental treatment variable had some predictive effect on infections, postpartum complications, and the number of interventions received but no significant effect on the opinion of nursing care.

The preceding findings must be reviewed with relative caution. Site stands out above the other independent variables as explaining the largest percentage of outcome variance. However, in absolute terms, the percentage of variance explained by site is only about 10% in any of the major outcomes. In other words, 90% of the variation remains in outcome measures that must be attributed to a combination of other unmeasured factors and measurement error in study variables.

Discriminant Analysis Replication. In addition to the analyses discussed above, data were used in a discriminant function analysis to identify combinations of predictors capable of predicting traditionality types. The purpose of the discriminant analysis was to compare results produced by the data base from the experimental study with results obtained during the earlier field study. If the same variables emerged, this finding would lend additional validity to the earlier result.

Results of this discriminant analysis partially supported earlier findings. The variable set which best discriminated between modern Navajos and transitional Navajos was basically similar to that found earlier. By contrast, the discriminators of age and education which earlier proved to be the best for separating traditionals from transitionals did not emerge as clearly in the later study. The results raised the following possibilities.

1. The results of one or both studies were not reliable.
2. The population sampled for the experimental study was in fact different than that of the field study.
3. The occurrence of rater bias in classifying traditionals and transitionals was such that the same set of variables would not discriminate traditionality types in a manner similar to the field study.

Individual discriminant analysis was done for each hospital site, and contingency table analysis compared the patient's self-rating with that of the interviewer for each site. These analyses indicate that: (1) the agreement between rater judgments and statistical predictions in the field study was greater so that results of the field study appear to have greater validity than later results, (2) the agreement between ratings and statistical predictions using the later data base was higher in Site A than in Site B, (3) a large change took place between interviewer's pre-interview judgment and post-interview judgment at Site B, and (4) at Site B, many patients who rated themselves as transitional tended to be rated as traditional by the rater, while at Site A, self-rated transitionals tended to be rated as moderns.

Considering possibilities for error in the discriminant analysis, the most likely possibility appears to have been a systematic bias in

classification by interviewers which worked in opposite directions for the two sites. This finding has implications for other results of this study.

Interpretation: Experimental findings and path analysis results partly support the expectation that the introduction of culturally relevant nursing care can affect patient health outcomes. As previously mentioned, the strength of this finding is overshadowed by a seemingly stronger relation between the clinical site and patient outcomes causing one to look at the following possible factors.

Differences in staffing proportions and staffing patterns may have been an influence on outcome. For example, the staffing ratio at Site A was comparatively low relative to Site B, and there was a 33% turnover of obstetrical nursing staff at Site A. Nurse midwives performed the majority of deliveries at Site B while physicians did so at Site A. These findings could have influenced the patient's perception of nursing care.

Differences in data recording from charts and records could have occurred between hospitals thus influencing the reliability of complication and infection scores, and causing a systematic bias.

Differences in the proportion of specific infections within the general population of the two service areas could have influenced the reported frequencies of those infections within the study and lead to apparent site differences.

Implementation of culturally relevant nursing interventions differed between the two sites. Experimental subjects at Site A received 52% of the cultural aspects of their care while experimental subjects at Site B received 67%.

Perceptual differences of the two research assistants in classifying traditionality types could have created an interaction effect between traditionality and the other independent variables. Some bias has been shown in sampling distribution which could be related to this factor.

The time frame of the study which was necessary for design reasons could have in itself created a seasonal effect on the study. Data from the experimental group for Site B were collected over the winter months. During this time, traditional women who live further from the clinic would be less likely to present for pre-natal care and less likely to be included in the study.

Considering these factors together with study and follow-up data, tentative conclusions were suggested: The introduction of culturally relevant care can lead to improved patient outcomes, but this care cannot be considered independent of other factors in the care envi-

ronment such as staffing ratios and patterns. The total impact of culturally relevant care on patient outcomes is obscured in this study for several reasons including: (1) the degree to which these interventions were occurring prior to the experimental treatment, (2) measurement error in the variables, (3) rater bias in classifying traditionality types, (4) possible error in compiling chart data, and (5) possible major work environment differences at the two study hospitals. Differences in sites tend to represent the most significant predictor of outcomes. This finding is as valuable as one that would have related more closely to the experimental interventions. It is notable that Site B. hospital provides a significantly higher ratio of requested cultural interventions, independent of the study design, and that the same hospital's staffing pattern has nurses assuming the major care role. Finally, the same hospital scored more positively on major patient outcomes.

SUMMARY AND RECOMMENDATIONS

This study was initiated on the premise that people are more receptive to nursing care that is in harmony with their own cultural outlook on health. In an effort to foster this concept, identification of cultural needs and beliefs of expectant Navajo women and nursing interventions was done.

A major finding of the study was that the key indicators which separate the transitional from the traditional Navajo are not the same as those indicators separating the transitional from the modern person.

A second major finding of the study validated that the majority of pregnant Navajo women maintain many traditional beliefs and practices relating to the childbirth process. These were defined in terms of potential nursing interventions which could be incorporated in hospital and clinic practice and operationalized throughout the childbirth cycle.

Experimental findings partially supported the expectation that introduction of culturally relevant nursing care can lead to improved patient health outcomes, but this care could not be considered independent of other factors in the care environment. Factors believed to have impacted upon the findings of this study were differences between sites which could not be controlled, evidence of cultural interventions taking place prior to the health delivery process, and differences between the two research assistants involved with the study.

It is believed the results of this study, even considering its many limitations, will be of practical benefit to Navajo expectant women and to nurses who give their care. The study identified current cultural

beliefs of pregnant women related to the childbirth process. As a result nurses have a documented knowledge base of the patients they service and will be able to modify their nursing interventions accordingly. Positive native health practice will be reaffirmed to support the individual's concept of well being. In turn, the patient may find it easier and more acceptable to utilize preventive health services which are appropriate to her needs.

Other health related disciplines can use the body of knowledge obtained through this study in their educational programs. Health care institutions will find the information useful in their inservice and orientation programs.

The validated scale of traditionalism can be used in other areas of research. The researchers believe additional research will verify the interdependence between culture and the use of health care systems.

Recommendations for further research include:

1. Investigate the impact that nursing staff turnover has upon patient satisfaction.
2. Repeat the study reported in this paper.
3. Conduct longitudinal study to determine changes in nursing staff attitudes towards providing culturally sensitive care.
4. Study differences in attitudes between Native American nurses and nurses from non-Indian cultures towards providing culturally sensitive care.
5. Replicate this study with different ethnic groups.

The researchers believe nurses can be influential in promoting cultural change within health care systems, but it will require systematic evaluation of current practices and commitment to develop the profession of nursing through acquisition and implementation of nursing theories which are applicable to different cultures. Only then will holistic nursing care become a reality and not just an idealistic dream.

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