

EMOTIONAL RESPONSES TO PREGNANCY BASED ON GEOGRAPHICAL CLASSIFICATION OF RESIDENCE

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Keywords: Pregnancy, Rural, Anxiety, Depression, Uncertainty

ABSTRACT

Pregnancy is a time of life-changing events. How the woman adapts to pregnancy varies greatly. These variations may be seen in the measurements of anxiety, depression and uncertainty. These emotional responses may be influenced by factors in her psychosocial environment. Of interest in this study was whether the woman's emotional responses to pregnancy was influenced by whether she lived in a rural or urban setting. A descriptive design was used to compare pregnant women's responses to a survey instrument measuring the aspects of anxiety, depression and uncertainty based on geographical classification of residence. A sample of 128 first-trimester primiparas was recruited from obstetrical providers' offices in three southern cities. The providers cared for women living in the urban area and surrounding rural counties. Rural residence was significantly related to anxiety, depression and uncertainty scores in pregnant women. These findings should alert nurses and other healthcare providers to screen for these differences and plan interventions to reduce high levels of negative emotional responses and hopefully improve outcomes.

INTRODUCTION

The process of adapting to pregnancy and the resulting life changes is often difficult even when pregnancy is planned. This is because pregnancy is a time of complex physical and emotional change. The woman must recognize and incorporate these changes into her self-image, her social network and her life-style. When the pregnancy is unplanned, the psychosocial changes may be even more profound and result in greater problems adapting to pregnancy. Usually this adaptation is eventually accomplished without major problems; however a substantial portion of pregnant women face difficulty with the emotional adjustments.

Pregnant women living in rural areas may be faced with additional stressors that could increase the anxiety, depressive symptoms, and uncertainty even more than urban pregnant woman. Rural women are generally less educated, have lower socioeconomic status, have longer distances to access healthcare, and fewer sources of social support than women living in urban areas (Bushy, 2005). The purpose of this study was to explore the emotional concerns in women during the first trimester of their first pregnancy based on county of residence and other demographic variables. Findings may increase our understanding of the emotional impact of pregnancy in this population and lead to increased understanding and more supportive interventions by health professionals, especially nurses. The research questions included the following:

1. What are the demographic, socioeconomic, and social support characteristics of rural pregnant women compared to urban pregnant women?
2. Is there a difference in the levels of anxiety in pregnant women based on geographical classification of residence?
3. Is there a difference in levels of depression in pregnant women based on geographical classification of residence?
4. Is there a difference in uncertainty in pregnant women based on geographical classification of residence?

LITERATURE REVIEW

Physical Changes of Pregnancy

The physical changes of pregnancy occurring in virtually every body system are well-known and quickly apparent. Early changes include amenorrhea, breast enlargement and tenderness, nausea and vomiting, urinary frequency and fatigue. Changes in complexion and body size and shape, occur as pregnancy progresses, accompanied by changes in gait, and concerns of loss of attractiveness. These changes are generally addressed during prenatal care and are described as minor and are limited in duration. The symptoms generally resolve without major consequences. Unless the woman alerts the healthcare provider of her associated concerns, the symptoms may receive little attention or explanation.

Emotional Changes of Pregnancy

Women's mental health should be a primary concern by all women's health nurses because of the higher prevalence of depressive and anxiety disorders in women. Goodman (2005) reported as many as 21% experience depression and 34% deal with an anxiety disorder at some time during their lives. The varying hormone levels and stressors during pregnancy may precipitate the occurrence of depressive symptoms.

Pregnancy-specific anxiety may occur as the woman worries about the fetus, the delivery, physical changes in her body and her maternal attitudes toward the pregnancy and future baby. Typical concerns involve thoughts such as, "Am I really pregnant?" "Are my symptoms normal?" "Will labor and delivery be safe?" "Will I be able to deal with the pain of labor?" "Will my baby be alright?" "How will pregnancy and a baby change my relationships and life-style?" A delay in reporting troublesome symptoms may occur when anxiety levels are high. Ristvedt and Trinkaus, (2004) reported a correlation between delayed reporting of symptoms and higher anxiety levels. Such delays could result in worsening physical or emotional conditions.

The emotional changes during pregnancy are compounded as the woman adapts to her changing image and new responsibilities. The emotional changes are just as complex as the physical changes, but may not be openly discussed. The woman may fear that others do not understand her feelings or consider them insignificant. When this happens the woman may be left to deal with her concerns and fears alone.

Anxiety

Anxiety is a diffuse apprehension, vague in nature and associated with feelings of uncertainty and helplessness. Most women and healthcare providers view an undefined level of anxiety as common and acceptable in pregnancy. Cote-Arsenault (2003) define pregnancy-specific anxiety as a “typical set of worries about the fetus, the delivery, physical changes in the body and the woman’s maternal attitudes.” Anxiety may be generalized to the pregnancy or specific to identified concerns.

Depression

A meta-analysis on perinatal depression identified depression as a major complication of pregnancy, affecting as many of 14.5% of women during pregnancy or the following year (Gaynes, et al., 2006). Perinatal depression may involve minor or major depression or combination of classifications. Depression during this period can have far-reaching consequences on the woman and her family. The researchers recommended screening for depression, interventions to reduce depressive episodes, and further research to study various questions about perinatal depression.

Uncertainty

Mishel’s uncertainty theory (Mishel, 1981; Mishel, 1990; Mishel, 1997) is well-recognized in health care. Mishel describes uncertainty as a complex cognitive stressor that impacts an individual’s ability to make sense of events. Uncertainty occurs when the person is unable to accurately predict outcomes because sufficient cues are lacking. Uncertainty is especially present when events are ambiguous, complex, or if the outcome of the event cannot be predicted. These event characteristics make it difficult to develop certainty about the situation. Uncertainty may be foundational to both anxiety and depression as the woman may be unable to accurately determine the meaning of the symptoms or changes in her life because the situation may not be adequately structured or categorized because sufficient cues are lacking. McCormick’s (McCormick, 2002) concept analysis of uncertainty supports many of the basics of uncertainty, but also discussed alternate definitions that encompassed a broader environment than an illness event. McCormick (2002) acknowledged the relationship between uncertainty and high emotional distress, anxiety and depression.

Geographical Classification of Residence

Women in both rural and urban settings share many of the same concerns about pregnancy and face many of the same difficulties in life. While it is difficult to provide distinct differences, it is possible to discuss general differences between rural and urban women. In the last decade, the professional literature has addressed rural and urban populations on a continuum (Bushy, 2005). The urban woman generally has a higher level of formal education, a higher level of income, and more social support. The urban woman also typically lives in a resource-rich environment and has greater access to prenatal care and public transportation. The reduced geographical distance between

family and friends in the urban area results in less social isolation as compared to the rural woman.

The first impression of rural residential areas is often one of a peaceful landscape with a low population density. While this is generally true, the classification of rural is multifaceted and lacks universal agreement on criteria (Bushy, 2005). Variations of the criteria for rural classification include population size and density, proximity to urban areas, economic and trade activities. A county-based classification is often used (Hart, Larson, & Lishner, 2005).

Rural residents comprise approximately 20% of the US population (Bushy, 2005). Residents of rural areas often have lower educational levels, lower socioeconomic levels, are more underinsured, and have greater travel distances to access healthcare than their urban counterparts (Hart et al., 2005). These characteristics may have a negative impact on the pregnant women who may be less able to read and understand patient education materials, afford or access routine health care and attend regular appointments. These factors may negatively influence the woman's attempt to deal with unfamiliar symptoms and life changes.

On the positive side there have been many indications that maternal and perinatal care for rural and other underserved population has improved over the past decade. However, Lishner, Larson, Rosenblatt and Clark (1999) state that certain trends have emerged or persisted that are cause for concern. Among rural women, especially those from certain minority groups; high rates of childbearing among rural teenagers and limited access to family planning services; marked disparities in post-neonatal death among rural as compared to urban residents; signs that regionalized perinatal care systems may be unraveling; and evidence that economically disadvantaged rural women continue to experience significant barriers to obstetric care.

METHODOLOGY

The study was a descriptive correlational study. Relationships among the variables of anxiety, depression, and uncertainty were examined to determine differences in pregnant woman based on their place of residency. A descriptive design was appropriate as the method to gain additional information about a particular group or situation. There was no attempt to establish causality.

Sample and Setting

Based on a desired power of 80%, a significance level of 0.05, a small effect size (0.20 to 0.22) and the number of variables in the study; a sample size of 125 was required. Criteria for inclusion in the study were women: (a) with a positive diagnosis of pregnancy receiving care from an obstetrical health care provider, (b) who had not previously delivered an infant, (c) 18 to 40 years of age and (d) who consented to take part in the study. Exclusion criteria were: (a) an uncertain estimated due date, (b) inability to read and speak English and (c) any diagnosed cognitive dysfunction that would interfere with understanding the tools or the basic directions given by the researcher. The women within this sample included variations in the classifications of age, rural/urban dwellers, racial groups, socioeconomic levels, educational levels, health status and pregnancy status

(normal/high-risk). These characteristics were included because the variables are among those most frequently included in studies of uncertainty, anxiety, and depression. The actual sample of 128 first-trimester primiparas was recruited from obstetrical providers' offices in three southern cities. The providers' practices were located in urban areas, but also provided care for a sizable number of women living in surrounding rural areas.

Extraneous variables were controlled in a variety of ways. Obtaining the sample from several practice groups helped assure that results were not due to the specific conditions in a single practice group. Recruiting participants during the first trimester decreased the influence a specific practice group might have over the course of the pregnancy. Including only women who had not previously delivered a child avoided the comparison between the current pregnancy and any previous pregnancy.

Instrumentation

Three instruments, (a) a demographic data form, (b) a modification of Mishel's MUIS to include pregnant women called the MUIS-OB, and (c) the anxiety and depression subscales of the Abbreviated Scale for the Assessment of Psychosocial Status in Pregnancy (ASAPSP) were combined into one questionnaire for data collection. The anxiety and depression subscales and the MUIS-OB were Likert-type scales with 5-point responses ranging from strongly agree to strongly disagree. The ASAPSP was compiled and tested by Goldenberg et al. (1997) as a screening tool for psychosocial problems in pregnancy. Five existing scales measuring anxiety, self-esteem, mastery, and depression were combined into abbreviated subscales for each category. The abbreviated scales were evaluated with 1223 pregnant women at risk for poor pregnancy outcomes. The findings were highly correlated ($r=0.97$) with the full scales and supported the use of the abbreviated instrument instead of using the longer, separate instruments.

The MUIS-OB was a slightly modified version of the Mishel's Uncertainty in Illness Scale (MUIS). The MUIS has demonstrated reliability and validity with a standardized alpha of .91 was reported by Mishel (1983). Mishel recommends modification to fit different populations. The current modification, the MUIS-OB, was developed with the assistance of an expert panel, and pilot tested with pregnant women. The modifications adjusted the statements to fit the symptoms of pregnancy rather than the symptoms of illness. The alpha coefficient on the MUIS-OB was 0.74.

Data Collection Procedures

Permission for the study was obtained from the Institutional Review Board at the University of Mississippi Medical Center. Exempt status was granted therefore no consent form was required. Permission to enlist participants from obstetrical patients was also obtained from the health care providers in the selected practice groups. The researcher worked with the staff to identify women who met the eligibility criteria to participate in the study.

Those women who agreed to participate and met study inclusion criteria completed a survey packet which included a demographic data form, anxiety and depression subscales from the Abbreviated Scale for the Assessment of Psychosocial Status in Pregnancy (ASAPSP) and a revision of Mishel's Uncertainty in Illness Scale for

use with pregnant women (MUIS-OB). The demographic data form requested information concerning age, race, income, residential classification, marital status and pregnancy-related data.

The women were recruited from the waiting area of the obstetrical providers' office as they signed in for their appointments. The purpose of the study and the requirements for participation were explained. The researcher or office staff explained to the women that (a) all information would be kept confidential, (b) they were not required to participate, (c) their decision concerning participation would not affect their care, and (d) they could withdraw from the study if they so decided at any time prior to returning the completed instruments and forms.

The instruments were distributed and collected during the women's routine prenatal visits at the obstetrical providers' offices. The women completed the instrument as they waited for their obstetrical appointments then placed the materials in the provided envelope, sealed the envelope, and returned the completed packet to the office staff. The sealed envelopes were placed in a file box and stored in a secure area until they were collected weekly. The brevity of the instrument and the waiting time required for office visits allowed the women to complete the forms during the same visit. Estimated completion time for the instrument and data form was 30 minutes based on the time required by two volunteers selected by the researcher to complete the instrument. Data collection occurred over a three month period.

ANALYSIS

The Statistical Package for Social Science (SPSS) 13.0 was used for statistical analyses. Descriptive statistics were used to characterize the population based on geographical county of residence. Independent t - tests were computed to explore the differences in the levels of uncertainty, anxiety and depression in pregnant women based on geographical classification of residence. The MUIS consisted of four subscales whose individual scores were combined for a total uncertainty score. Each item was scored in a range from one to five. In the total scale, a possible uncertainty score ranged from 29 to 145. The higher the total score, the higher the level of uncertainty. The item responses of the subscales were totaled and analyzed to study the factors of uncertainty. The ASAPSP also consisted of subscales that measured the five emotional states previously described. Cronbach's alpha coefficient is the most commonly used method to assess internal-consistency reliability. This analysis tests the degree to which all items in the instrument measure the same construct. A Cronbach's alpha was obtained to determine the reliability of this current study's data collection instrument (MUIS-OB) and the ASAPSP's anxiety and depression subscales in this research sample.

RESULTS

A description of the sample and the findings are presented in this section. The geographical classification of residence was classified as rural or urban based on the classifications developed by the Alabama Rural Health Association (Alabama Rural Health Association, 2003).

In the total sample 31.4 % (n = 40) of the women resided in a rural county compared to 68.4% (n = 88) that resided in an urban county. The percent of rural residents for this sample is somewhat greater than the reported national percent (20 %) (DHHS, 2001). The women in the sample ranged from 18 to 31 years of age with a mean age of 22.8. The rural women were younger with a mean age of 21.4 years, compared to the mean age of the urban residents of 23.6 years. Slightly over half of the women in the total sample were married (59%, n = 75). Fewer rural women (n = 14), 35 % were married compared to 69% of urban women (n = 61). Eighty four percent of the total sample had completed high school (n = 108) however the educational level was lower in rural women. Twenty five percent of the rural women in this sample (n = 10) had not completed high school as compared to only 11 % of the urban women (n = 10). A large majority of rural women (85%, n = 34) reported an income of less than \$40,000 as compared to urban women (41%, n = 36). The percentages according to ethnic group in the rural women was 82.5% African-American (n = 33), 17.5% Caucasian (n = 7), and no Asians or Hispanics as compared to urban women who reported being 25% African-

Table 1
Descriptive Statistics for Demographic Variables based on Geographical Classification of Residence (N = 128)

Sample	Age	Marital Status	Race	Education	Income
Rural (n=40)	21.4 yrs	M = 14 (35%)	C = 7 (17.5%)	< HS = 10 (25%)	< \$40,000 = 34 (85%)
		S = 26 (65%)	AA = 33 (82.5%)	HS = 24 (60%)	\$40,000 – 79,990 = 4 (10%)
			Hispanic = 0 (0.0%)	College = 6 (15%)	\$80,000 or > = 2 (5%)
			Asian = 0 (0.0%)		
Urban (n= 88)	23.6 yrs	M = 61 (69%)	C = 61 (69.3%)	< HS = 10 (11%)	< \$40,000 = 36 (41%)
		S = 27 (31%)	AA = 22 (25%)	HS = 37 (42%)	\$40,000 – 79,990 = 38 (43%)
			Hispanic = 3 (3.4%)	College = 41 (47%)	\$80,000 or > = 14 (16%)
			Asian = 2 (2.3%)		
Total (N = 128)	22.8 yrs	M = 75 (59%)	C = 68 (53%)	<HS = 20 (16%)	< \$40,000 = 70 (55%)
		S = 53 (41%)	AA = 55 (43%)	HS = 61 (47%)	\$40,000 – 79,990 = 42 (33%)
			Hispanic = 3 (2%)	College = 47 (37%)	\$80,000 or > = 16 (12%)
			Asian = 2 (1.5%)		

American (n = 22), 69% Caucasian (n = 61), and 2% Asian (n = 2). Therefore, the rural women were somewhat younger, less likely to be married, more likely to be African-American, less likely to have graduated from high school and more likely to be poorer than their urban counterparts (see Table 1).

The demographic variable of geographic residence was measured as a categorical variable. Independent t-tests were done to determine the difference in the uncertainty, depression, and anxiety scores. Data analysis indicated that pregnant women living in rural counties rated higher on all three emotional scales. The rural women had significantly higher scores on the anxiety scale (p= 0.001), the depression scale (p= 0.000) and on the uncertainty scale (p= 0.000) (see Table 2).

Table 2

Differences between Levels of Uncertainty, Anxiety, and Depression in Pregnant Women based on Geographical Classification of Residence.

Emotional responses of pregnant women	Rural (n = 40)		Urban (n = 88)		t	p
	X	SD	X	SD		
Uncertainty Score	79.73	11.48	69.17	15.06	3.939	<0.001
Depression Score	20.85	6.29	17.61	4.71	3.651	<0.001
Anxiety Score	21.25	6.30	17.61	4.70	3.141	<0.001

Anxiety

On the anxiety subscale, the total sample mean was 18.63 (SD = 4.86). The women in rural counties scored a mean of 21.25 (SD = 6.30) compared to their urban counterparts score of 17.61 (SD = 4.70). The alpha coefficient on the anxiety scale in this study was 0.77.

Depression

The scores on the depression subscale were similar. The total sample mean was 18.76 (SD = 5.69). The rural pregnant women scored a mean of 20.85 (SD = 6.29) while the women living in urban areas yielded a lower mean of 17.61 (SD = 4.71). The alpha coefficient on the depression scale was 0.78.

Uncertainty

The mean uncertainty score analysis demonstrated the same pattern. The mean score for the total sample was 72.47 (SD = 14.83). The rural group's score of 79.73 (SD = 11.48) was significantly higher than the urban groups mean score of 69.17 (SD = 15.06).

DISCUSSION

The purpose of the research reported here was to describe the population based on geographical residence and to examine the difference in mean uncertainty, anxiety and depression scores in pregnancy when geographical classification of residence was considered. Limitations of the study, conclusions, implications, and recommendations are presented in this section.

Limitations

The use of a purposive, convenience sample was necessary because of the sample requirement of participants being women in the first trimester of their first pregnancy. This sampling method limits the generalizability of the study findings to those pregnant women in that population. Another limitation was the timing of the data collection. The women sampled may have had one, two, or three visits to the obstetrical care provider office. While all participants were in the first trimester, the occurrence of previous visits could have decreased the uncertainty level by the establishment of a credible authority relationship with a health care provider or the provision of information. A third limitation was the use of the revised MUIS instrument. While analytical results supported the reliability of the instrument, this was the first time the revised instrument had been used. Continued use of the instrument in future research will allow for further analysis and greater confidence in the instrument's reliability and validity.

Conclusions

The data were normally distributed and the response ranges were similar to the ranges reported by Mishel and other researchers (Mishel, 1997). In this study, rural residence were slightly younger (2.2 years), 34 % less likely to be married, 57.5% more likely to be African American, 24 % less likely to complete high school and 44 % more likely to have an income of less than \$40,000 than their urban counterparts. Significant differences in the level of uncertainty, anxiety, and depression concerning their pregnancy were demonstrated when residential location was included in the analysis. The rural residential classification was significant when considering the impact of area of residence with the emotional scores on anxiety, depression and uncertainty scales in pregnant women. Although it is not known why these scores were higher in pregnant women living in rural areas it may be related to difficulties in travel to access health care from the rural areas. Age, race, marital status, income and education may have also influenced the higher uncertainty, anxiety, and depression scores in rural woman. These findings are consistent with other research studies that have explored the variables that may impact pregnancy (Goldenberg et al., 1997; Goodman, 2005; Lishner et al., 1999; Mishel, 1997). The new information in this study included the differences found between urban and rural pregnant women in emotional responses.

Implications

The findings from this study have a number of implications. Pregnancy is an almost universal experience for women, yet the responses to pregnancy are generally not included in research studies. Adequate screening, recognition of emotional responses, and appropriate interventions are essential to the promotion of a healthy adjustment to pregnancy. Nurses and other healthcare providers should consider the difficulties encountered by pregnant women in rural areas and develop appropriate interventions to improve outcomes.

Recommendations

These recommendations are based on the findings of this study and are of importance to the care of pregnant women and are applicable to practice, education and research. The majority of these recommendations may easily be incorporated without substantial costs.

Healthcare providers should consider the possible impact of emotional responses in pregnancy. Attempts to decrease high levels of uncertainty, anxiety, and depression should be incorporated into care. Screening tools such as the Goldenberg's ASAPSP abbreviated scale for psychosocial assessment in pregnancy may be a useful and practical measure to administer during the first trimester of pregnancy. Younger, African-American women, living in rural areas with less social support, income and education should be targeted for interventions that decrease high levels of uncertainty, anxiety, and depression. The provision of accurate, consistent information in a timely manner will give the woman a basis on which to understand the events of her pregnancy. Providing information at the appropriate educational level may promote understanding and decrease uncertainty, anxiety, and depression. The development of trust relationships requires the expression of concern for needs of the pregnant woman and support for her self-esteem. Inclusion of a significant member of the woman's social support system may strengthen the woman's understanding of the pregnancy and development of trust in healthcare providers. And for rural woman, inquiring about transportation and making provisions for transportation may significantly reduce their levels of anxiety and uncertainty.

Some recommendations for future research have been identified. Initially, research should be expanded to explore how emotional responses might change during the course of pregnancy. This would provide a basis for determining the most stressful periods of pregnancy for women and the effective timing of interventions. Secondly, studies that seek to identify the causes of emotional stress in rural pregnant women would allow health care providers to develop and implement appropriate interventions.

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