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Self-Care for Health in Rural Hispanic Women at Risk for Postpartum Depression

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Abstract
Objective To determine factors that affect self-care of rural Hispanic women at risk for postpartum depression (PPD).
Methods This study was a descriptive cross-sectional design based on the key concepts of Orem's Self-care Deficit Nursing theory. Data were collected from 223 Hispanic postpartum women residing in Mecca, North Shore, and Thermal in California by an interviewer-administered survey. Four instruments were utilized: Edinburgh Postnatal Depression Scale (EPDS) for PPD, Multidimensional Scale of Perceived Social Support for social support, Duke University Religion Index (DUREL) for spirituality, and Self Rated Abilities for Health Practices for self-care.
Results The prevalence of women at risk for PPD was about 43 %. Social support, spirituality, and self-care ability were significantly correlated in women with PPD. Social support was a strong factor in predicting self-care ability for 'Nutrition', 'Psychological well-being', 'Exercise', and 'Responsible Health Practices' in the rural Hispanic women at risk for PPD.
Conclusions The study findings can enable nurses and healthcare professionals to develop effective tailored interventions to assist rural Hispanic women's abilities to perform self-care for health, and in particular, during the postpartum period.

Keywords Postpartum depression (PPD) · Hispanic women · Self-care · Rural health

Significance Statement

This is the first study using Orem's Self Care Deficit Nursing Theory as a framework for this research. This study highlighted the prevalence of rural Hispanic women who were at risk for postpartum depression and their ability to provide self-care. Social support and spirituality were factors found to influence their self-care ability for health practices.

Introduction

Growth of Hispanics in Rural areas

The Hispanic population has increased about 58 % between 1990 and 2000, and about 42 % between 2000 and 2010 and is the largest and fastest growing minority in the United States (Fraga et al. 2012). The United States Census Bureau 2010 reported that about 16.3 % of the total U.S. residents were self-identified as Hispanic or Latino. The definition of Hispanic or Latino used in the 2010 census refers to a person of Cuban, Mexican, Puerto Rican, South or Central Americans or other Spanish culture or origin regardless of race. Hispanic or Latino was used interchangeably.

Johnson (2012) reported that Hispanics contributed about 54 % of the rural population gain from 2000 to 2010.

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The population growth of the Hispanic group is projected to increase to about 30 % of the total U.S. residents by 2050 with 65.7 % of Mexican origin (Passel and Cohn 2008). This growth is more likely from the exponential increase of rural residents. This demographic change reflects the significant attention to Hispanics for an overall healthy America (Kandel and Parrado 2006; O'Hare 2010). Data on Hispanic women in rural areas, however, are still lacking, which can impact the development of informed healthcare interventions or policies for rural health (Tripathy et al. 2010).

Postpartum Depression in Rural Areas

Among the many health issues in rural areas, mental illness is highlighted as a growing issue for a healthy America (Rural Assistance Center). Mental illness, however, has long been neglected in rural areas (Haworth-Brockman et al. 2012). Depression is one of the common mental disorders in human life and found in 10–25 % of women and 5–12 % in men (Aguirre 2007).

Women may experience depressive feelings ranging from postpartum blues to postpartum depression and postpartum psychosis during the first year after childbirth Postpartum blues includes mild depressive symptoms such as anxiety and irritability and generally disappears within a few weeks without any medical treatments (Beck and Driscoll 2006), while postpartum psychosis is a more severe mental condition associated with hallucination and delusion and occurs in approximately one to two of every 1000 childbearing women (Beck and Driscoll 2006; Halbreich and Karkun 2006; Lintner and Gray 2006).

While postpartum depression (PPD) is a common health issue among childbearing women, its etiology remains unclear (Bottino et al. 2012). It is a more prolonged and severe depressive condition than postpartum blues, and usually occurrs the first four weeks following childbirth to the third month and can last up to 12 months (Lintner and Gray 2006; Hendrick et al. 2000). According to the Diagnostic and Statistical Manual of Mental Disorder (APA 2013), PPD is a clinical term referring to a major depressive episode temporarily associated with childbirth. The symptoms of PPD are similar to a major depression. Symptoms such as feeling sad and unhappy, no interest in life, change in sleep pattern, anxiety, fatigue, guilt feelings, inability to concentrate, suicidal thinking or attempt, or somatic symptoms including headache and diarrhea.

Depression during postpartum can go undetected. Mothers who are depressed are often reluctant to share mental problems with their spouses and family members from pressures of being a good mother. First time mothers may not recognize that what they are experiencing may not be the norm. They are also unlikely to seek healthcare services for professional treatments (Jesse et al. 2008; Kurtz and Cash 2009). Consequently, early detection of women at risk for postpartum is imperative for timely treatments so that mental conditions such as postpartum depression and postpartum psychosis can be prevented (Beck and Driscoll 2006; Dennis 2009).

Self-Care for Postpartum Women

Recently, health care system in the U.S. has become increasingly involved in health-promoting behaviors (Braun and Mendes 2009). Health promotion focuses on disease prevention and advocating self-care based on family or community support, culture, and collaborative care (Braun and Mendes 2009). However, rural residents often experience limited access to affordable healthcare services or health promotion programs (Snyder and McLaughlin 2004; Krothe 2008; Hutto et al. 2011).

Once childbearing mothers return home following her baby's birth, they are expected to take care of themselves and their babies. These mothers, not only care for their own physical and psychological requirements such as proper appearance, nutrition, hygiene, and sleep during the postpartum period, but also those of their newborns (Barkin et al. 2010). On the other hand, the lack of self-care ability for mothers with postpartum depression not only affect their own physical or psychological health conditions, but can also extend to their children's growth and development, such as behavior disturbance (Ramchandani et al. 2005) or cognitive defect (Keim et al. 2011). Therefore, the ability to provide self- care is a fundamental requisite for childbearing women to maintain and improve health during the postpartum period. Healthcare professionals must be cognizant of factors that promote mothers' abilities to choose and conduct appropriate self-care practices during the postpartum period, and especially in rural areas where access to healthcare programs and services may be limited.

Purpose of the Study

The purpose of this study was to determine factors that affect self-care of rural Hispanic women at risk for postpartum depression (PPD).

Theoretical Framework

The Orem's Self-Care Deficit Nursing Theory (SCDNT) was selected as the best fit to guide this study. SCDNT is widely used and the key concepts are easy to understand and are applicable to all persons who need care (Fawcett and DeSanto-Madeya 2013; Taylor and Renpenning 2011). According to Orem (2001), self-care is a human purposeful action to voluntarily take care of self for health or

happiness. In contrast, 'self-care deficit' is the lack of capacity to independently practice using one's own power to choose and conduct care for health and well-being. As such, nurses are well positioned to facilitate patients' individual purpose to maintain and achieve healthy behaviors through health promotion, care of the sick and to teach self-care to patients.

Orem (2001) identified ten Basic Conditional Factors (the BCFs) that can influence an individual's ability to perform self-care for health. The ten BCFs are namely: (a) age, (b) gender, (c) developmental status, (d) health status, (e) socio-cultural orientation, (f) healthcare system, (g) family system, (h) patterns of living, (i) environmental factor, and (j) resource availability and adequacy. Among these ten BCFs, age, socio-cultural orientation, developmental status, health status and pattern of living were selected for this study. On the operational level, age was defined as maternal age, social cultural orientation was defined as perceived social support, developmental status was defined as self-care ability, health status was defined as at risk for PPD and finally, pattern of living was defined as spirituality.

Findings showed that maternal age (Mayberry et al. 2007; Hutto et al. 2011), social support (Sumner et al. 2011; Leahy-Warren et al. 2012) and spirituality (Mann et al. 2010) are risk factors for depressive symptoms during the postpartum period. These studies' highlighted how these three factors can influence postpartum women's ability to perform self-care for health.

Research Questions

There were four research questions in this study:

1. What is the prevalence of the rural Hispanic women at risk for PPD?
2. What are the differences of maternal age, social support, spirituality, and self-care ability for health between the rural Hispanic women at risk for PPD and the rural Hispanic women without risk for PPD?
3. What are the correlations among maternal age, social support, spirituality, and self-care ability for health in the rural Hispanic women during the postpartum period?
4. What are the significant predictors of self-care ability for health in the rural Hispanic women at risk for PPD?

Methods

Design and Sampling

A cross-sectional descriptive design was used and the accessible population was drawn from women who lived in the city of Mecca, North Shore, and Thermal in Coachella Valley, California. Participants were self-identified Hispanic women between the ages of 18–47 years old, had a baby or babies aged 12 months or younger. Women diagnosed with mental disease by medical doctors or were taking medications for mental problems were excluded from the study.

Instruments

In addition to the demographic data, four instruments were used:

The Edinburgh Postnatal Depression Scale (EPDS)—is not a diagnostic tool but a valuable effective instrument to detect women at risk for perinatal depression (Cox et al. 1987; Freeman et al. 2005) and during the postpartum period (Glavin et al. 2009; Rouhi et al. 2012; Meltzer-Brody et al. 2013). The EPDS consists of ten questions to screen how woman has felt during the previous seven days. The total scores range from 0 to 30; with 10 as the cut-off score (Cox and Holden 2003; Gausia et al. 2009). Women with a score of 10 and above is at risk for PPD. The reliability and validity in both the English and Spanish versions have been achieved (Alvarado-Esquivel et al.,2006; Small et al. 2007; Alvarado et al. 2015; Kernot et al. 2015). The Cronbach's alpha of EPDS was .74 for this study.

The Multidimensional Scale of Perceived Social Support (MSPSS) was developed to assess social support from family (FA), friends (FR), and significant other (SO) in 1988 (Zimet et al. 1988). The MSPSS is a 7-point scale with a 12 item questionnaire. The response scale ranges from 1 (*very strong disagree*) to 7 (*very strongly agree*). Total scores of this scale range from 12 to 84. Higher scores indicate greater perceived adequacy of social support from significant others, family, and friends. The Cronbach's alphas of the MPSPSS were from .81 to .91 in this study.

Duke University Religion Index (DUREL) was developed in 1997. This tool is a 5-item and 5 or 6 point Likert-type scale to measure individual religious activities (Koenig et al. 1997). It has 3 subscales: Organizational religious activity (ORA), Non-organizational religious activity (NORA), and Intrinsic religiosity (IR) (Koenig and Bussing 2010). The ORA assesses the frequency of attendance at the ritual activities of church or religious institutions. The NORA measures how much an individual spends time for religious activities such as prayer, watching or listening to religious TV or radio, or Bible study. The IR measures personal experience with the Divine (Koenig et al. 1997). The total scores of DUREL range from 5 to 27. Intrinsic religiosity has been used as a proxy for spirituality and defined as such in several clinical trials and many rigorous studies of religion/spirituality and health and has been

validated as a measurement tool in different ethnicities and faith groups (Koenig et al. 2012).

The Self-Rated Abilities for Health Practices (SRAHP) was developed by Becker et al. (1993). This tool has four subscales: Exercise, Nutrition, Responsible Health Practice, and Psychological Well-Being. Each subscale consists of 7 question items, rated from 0 (not at all) to 4 (completely). It is a 28-item and a 5-point Likert-type scale to measure self-perceived ability for health practices (Becker et al. 1993). The total scores of the SRAHP range from 0 to 112. High scores indicate greater perceived abilities to conduct health practices.

Data Collection

Data were collected between December 14, 2013 and December 31, 2013 following the approval of Azusa Pacific University's Institutional Review Board. Recruitment flyers in both English and Spanish versions were displayed in designated bulletin boards in health clinics in the city of Mecca, North Shore, and Thermal. Interested participants contacted the primary investigator (English) or the research assistants (English/Spanish) for a preliminary telephone screening. Selected participants then participated in an interviewer-administered survey.

Data Analyses

Data were analyzed using statistical analysis (SPSS) version 21.0. Chi square, *t* test, correlation and multiple linear regressions were performed. The power analysis for this study was based on the formula of Cohen and Cohen (1983) which required at least 77 participants based on alpha of .05, power of .80 and a moderate effect size of .15 with three probable predictors: maternal age, social support and spirituality/intrinsic religiosity.

Results

A total of two hundred twenty-three (223) women participated in the study. The age range was between 18 and 42 years old and the mean age was 28.4 years (see Table 1). Among the 223 participants, 146 women lived in Mecca (65.5 %). A majority of participants (63.7 %, $n = 142$) completed a high school level of education; whereas 18 participants (8.1 %) had no formal education. Eighty-five women (38.1 %) stated that their annual household income was less than $10,000 per year. The majority of the study participants were Catholic.

The EPDS was used to detect women at risk for PPD. Of the 223 women, 95 scored greater or equal to 10, which was considered at risk for postpartum depression while 123 women scored lower than 10 which was considered no risk for PPD. The prevalence for this group of rural Hispanic women at risk for PPD was 42.6 %.

The total scores of the MSPSS between the two groups showed that the general perceived social support among the rural Hispanic women at risk for PPD was significantly less than that of the rural Hispanic women with no risk for PPD, $t(161.62) = -6.56$, $p < .01$. In detail, the social support from Significant Others, $t(180.10) = -4.92$, $p < .01$, Family, $t(143.98) = -4.96$, $p < .01$, and Friends, $t(182.92) = -4.78$, $p < .01$ in the women at risk for PPD were statistically lower than the women without risk for PPD. In addition, the outcomes of spirituality by the DUREL between the groups were also significant: Organizational Religious Activities t $(221) = -3.03$, $p < .01$, Non-organizational Religious Activities, $t(221) = 2.22$, $p < .05$, and Intrinsic Activities $t(221) = -2.32$, $p < .05$. The total scores of the SRAHP between the two groups indicated that the overall self-care ability for health among the rural Hispanic women at risk for PPD was significantly less than the rural Hispanic women with no risk for PPD, $t(221) = -6.05$, $p < .01$). The results of all subscales of the SRAHP in the rural Hispanic women at risk for PPD were also significantly less; Nutrition, $t(174.47) = -5.85$, $p < .01$, Psychological Well-being, $t(167.69) = -5.73$, $p < .01$, Exercise, $t(188.97) = -4.73$, $p < .01$, and Responsible Health practice, $t(156.85) = -3.58$, $p < .01$). However the result of a Chi square test for the comparison of the maternal age between the two groups was not statistically significant in this study.

Correlations among maternal age, social support, spirituality, self-care ability for health in the rural Hispanic women at risk for PPD ($n = 95$) were also performed (see Table 2) Results showed that self-care ability for Nutrition in the rural Hispanic women at risk for PPD was significantly related to social support from Significant Other, social support from Family, and social support from Friend at $p < .01$ and Intrinsic Religiosity at $p < .05$. Self-care ability for Psychological Well-being was associated with social support from Significant Other, social support from Family, and social support from Friends at $p < .01$ and Organizational Religious Activities at $p < .05$. Self-care ability for Exercise also had significant correlations with social support from Significant Other, social support from Family, and social support from Friends at $p < .01$. Lastly, self-care ability for Responsible Health practices among the rural Hispanic women at risk for PPD was correlated to social support from Significant Other, social support from Family, and social support from Friends at $p < .01$ and Organizational Religious Activities and Intrinsic Religiosity at $p < .05$.

Multiple regression analysis was conducted to determine the predictors of self-care ability for health among the rural

Table 1 Participants demographics

Demographic variables	Participants ($N = 223$)
Location	
Mecca	146 (65.5 %)
Thermal	43 (19.3 %)
North Shore	34 (15.2 %)
Age	
18–22	39 (17.5 %)
23–27	68 (30.5 %)
28–32	61 (27.3 %)
33–37	37 (16.6 %)
38–42	18 (8.1 %)
Marital status	
Married or living with partner	179 (80.3 %)
Single without partner	44 (19.7 %)
Education	
No education	18 (8.1 %)
Elementary	26 (11.7 %)
Middle school	27 (12.1 %)
High school	142 (63.7 %)
College or higher	10 (4.4 %)
Annual Household Income	
Less than $10,000	85 (38.1 %)
$10,000—$19,999	73 (32.7 %)
$20,000—$29,999	64 (28.7 %)
$30,000—$39,999	1 (.4 %)
Job condition	
Full-time or part-time	70 (31.4 %)
No job	153 (68.6 %)
Delivery type	
Vaginal	126 (56.5 %)
Cesarean	97 (43.5 %)
Religion	
Catholic	155 (69.5 %)
Protestant	17 (7.6 %)
Others	49 (22.0 %)
No religion	2 (.9 %)

Hispanic women at risk for PPD. The regression model for self-care ability for Nutrition by social support from Significant Other, social support from Family, social support from Friends, and Intrinsic Religiosity was statistically significant $F(4, 90) = 7.46$, $p < .001$. The outcome of R^2 in this regression was .25 which signified about 25 % variance of self-care ability for Nutrition could be predicted by four factors; social support from Significant Other, social support from Family, social support from Friends, and Intrinsic Religiosity. The significant factors for Nutrition were social support from Significant Other ($\beta = .26$, $p < .05$) and social support from Friend ($\beta = .21$, $p < .05$).

Regression analysis for self-care ability for Psychological Well-being including social support from Significant Other, social support from Family, social support from Friends, and Organizational Religious Activities was conducted. The model was statistically significant F (4, 90) = 9.70, $p < .001$. The outcome of R^2 in this regression was .30 which indicated about 30 % variance of self-care ability for Psychological Well-being was predicted by social support from Significant Other, social support from Family, social support from Friends, and Organizational Religious Activities. The significant factors for Psychological Well-being were social support from Significant Other ($\beta = .23$, $p < .05$) and social support from Friend ($\beta = .29$, $p < .01$).

A third regression analysis was conducted for self-care ability for Exercise with social support from Significant Other, social support from Family, and social support from Friends. This regression analysis was also significant, $F(3, 91) = 12.94$, $p < .001$. In this regression, R^2 was .30 which indicated that about 30 % variance of self-care ability for Exercise was predicted by social support from Significant Other, social support from Family, and social support from Friends. The significant factors for Exercise were social support from Significant Other ($\beta = .24$, $p < .05$) and social support from Friend ($\beta = .36$, $p < .01$).

A final regression analysis was conducted for self-care ability for Responsible Health Practices. This analysis included the five factors: social support from Significant Other, social support from Family, social support from Friends, Organizational Religious Activities, and Intrinsic Religiosity. This regression model was significant F (5, 89) = 13.59, $p < .001$. The outcomes of R^2 was .43, which showed that about 43 % variance of self-care ability for Responsible Health Practices were predicted by the following factors: social support from Significant Other, social support from Family, social support from Friends, Organizational Religious Activities, and Intrinsic Religiosity. The significant factors for Responsible Health Practices were social support from Significant Other ($\beta = .33$, $p < .01$), social support from Family ($\beta = .23$, $p < .05$), and social support from Friend ($\beta = .25$, $p < .01$).

Discussion

In using the Orem's SCDNT the essential factors for self-care among diverse populations were examined. This study has provided empirical validation on the usefulness of

Table 2 Correlations among age, MSPSS, DUREL and SRAHP in Rural Women at Risk for PPD (n = 95)

	Age	MSPSS (SO)	MSPSS (FA)	MSPSS (FR)	DUREL (ORA)	DUREL (NORA)	DUREL (IR)	SRAHP (NU)	SRAHP (PSY)	SRAHP (EX)	SRAHP (RHP)
Age	1										
MSPSS(SO)	.077	1									
MSPSS(FA)	−.291**	.366**	1								
MSPSS(FR)	−.105	.362**	.301**	1							
DUREL(ORA)	.011	.183	.058	−.056	1						
DUREL(NORA)	−.046	−.253*	.105	−.054	−.116	1					
DUREL(IR)	−.108	−.018	.037	.007	.428**	−.123	1				
SRAHP(NU)	−.182	.407**	.297**	.345**	.139	−.071	.203*	1			
SRAHP(PSY)	−.193	.423**	.332**	.411**	.202*	−.007	.122	.653**	1		
SRAHP(EX)	−.167	.407**	.292**	.478**	.135	−.043	.114	.660**	.642**	1	
SRAHP(RHP)	−.163	.537**	.430**	.427**	.226*	−.142	.238*	.600**	.681**	.575**	1

EPDS Edinburg Postnatal Depression Scale, *MSPSS* Multidimensional Scale Perceived Social Support, (*SO* Significant Other, *FA* Family, *FR* Friends), *DUREL* Duke University Religion Index (*ORA* Organizational Religious Activities, *NORA* Non-organizational Religious Activities, *IR* Intrinsic Religiosity), *SRAHP* Self Rated Abilities for Health Practices (*NU* Nutrition, *PSY* Psychological well-being, *EX* Exercise, *RHP* Responsible Health Practices)

* $p \leq .05$(2-tailed), ** $p \leq .01$(2-tailed)

SCDNT as a framework to investigate Hispanic women's ability for self-care in rural communities during the postpartum period. Among the 10 BCFs this study examined three factors: maternal age, social support and spirituality on self-care ability for health in rural Hispanic women experiencing depressive symptoms during postpartum.

The data in this study provided a single snapshot in time about rural Hispanic women during the postpartum period. This study found that the prevalence of rural Hispanic women at risk for PPD was about 43 %, which was higher than similar studies with a range of 18–20 % (Horowitz et al. 2011; Connelly et al. 2013). Other studies (Baker and Oswalt 2008; Hutto et al. 2011) also found about 23–33 % of women at risk for PPD in rural populations. The findings in this study provided evidence to substantiate previous studies of the growing health issues in rural areas and a growing concern for a healthy America.

Among the three factors for this study, maternal age was not significantly related to either PPD or self-care ability for health. However, social support and spirituality were significantly correlated with self-care ability for health among the rural Hispanic women at risk for PPD. Social support can be multidimensional supports or resources in human society. This study particularly focused on social support from significant other such as partners or spouses, social support from family, and social support from friends. Many studies have found that supportive and helpful support from husbands or partners manifested more positive mothers' health status during the postpartum period (Häggman-Laitila 2003; Hollist et al. 2007). Spousal support is regarded as a crucial method to decrease new mothers' depressive symptoms during postpartum (Gross et al. 2002). In addition, this study found that intrinsic religiosity and organizational religious activities combined with social support from significant others such as family and friends were significant predictors of self-care ability for health among rural Hispanic women at risk for PPD. Our findings were consistent with Koenig et al. 2012 study which demonstrated that intrinsic religiosity was a strong predictor of low scores for depression.

Conclusions

This study only collected data from the rural Hispanic women in the restricted areas. The results of this study cannot be generalized to other Hispanic women in different locations. However the findings of this study can provide additional scientific evidence to understand Hispanic women's self-care abilities for health in rural locations. This study chose a cross-sectional design to examine self-care in rural Hispanic women. Postpartum is generally defined as the time period of 12 months following childbirth. This study does not have the specific division of the postpartum period such as early or late postpartum period. Future studies may consider the division of postpartum and compare the differences of women's health during the divided period.

In order to collect the data from the Hispanic women, the bilingual research assistants spoke both English and

Spanish. Although, the research assistants were undergraduate nursing students who were bilingual; their abilities to translate communication between English and Spanish were not fully evaluated. Due to the interviewer-administered survey, the research assistants' interpretation was critical; it can also be biased. This study used the interviewer-administered survey to collect the data. The questionnaires of the study were related to personal feelings and experience; thus it is difficult to ascertain if the study participants fully understood and answered the questions honestly using the interviewer survey format. For future studies, researchers may consider a different method to collect data on personal feelings and experiences by considering participants' cognitive ability to read and understand questionnaires or to conduct the study in the native language of the participants.

In summary, early detection of women at risk for PPD is imperative for timely treatments and prevention. Factors such as social support and spirituality are found to be predictors of self –care ability for health practices for rural Hispanic women at risk for PPD. The ability to provide self-care is a fundamental requisite to promote one's own healthy living. Understanding what factors that affect the self-care ability of rural Hispanic women for health practices can facilitate the design of tailored interventions to teach and promote self-care. Nurses are well positioned to play a key role in the promotion of a healthy America.

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