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Supplemental Digital Content

Table 1

Qualitative studies of uncertainty in high risk pregnancy

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| Study, Year, & Level of evidencea | Design | Sample | Key findings |
| Carolan & Nelson (2007)  III; B | Qualitative; longitudinal: 4 time points | Twenty-two primigravid women >35 years of age | Dealing with uncertainty emerged as one of the risk-related themes. Women dealt with uncertainty by seeking out more information or by emotionally distancing themselves from the pregnancy. |
| Cevik & Yagmur (2018)  III; A | Quantitative; cross-sectional | One hundred and seventy-one pregnant women at risk of miscarriage and 171 pregnant women not at risk of miscarriage | Intolerance of Uncertainty Scale (α = 0.95) (*M*= 110.1 vs. *M*= 69.2). Subscales (uncertainty is stressful and upsetting, negative self-assessment about uncertainty, uncertainty about future is a disturbing thought, and uncertainty keeps me from active) also revealed a significant difference between groups. Negative relationship between uncertainty and psychological well-being. Positive relationship between uncertainty from a risk of miscarriage and stress and anxiety. |
| Clauson (1996)  III; B | Quantitative; two time points | Fifty-eight hospitalized pregnant women (Bleeding, PTL, hypertensive disorders) aged 21 to 39 years (*M*= 30.3); 72% multiparous;  50% completed college at 21-38 weeks gestation (*M*= 30.8) | USS-HRPV (α = 0.96): Moderate to low levels of uncertainty on admission (M=113.9); significantly lower at discharge.  Positive relationship between uncertainty and stress, perception of threat, and LOS.  Negative relationship between uncertainty and gestational age.  Negative trend toward decreased uncertainty with increasing maternal age.  No relationship between uncertainty and gravidity. |
| Currie & Cornsweet Barber (2016)  III; B | Qualitative; cross-sectional | Twelve women with a medical complication during pregnancy aged 23-40 years; 66% multiparous | Pregnancy was distressing and overshadowed by complications, unpredictability and the need for control. The importance of the relationship with HCP, disempowerment in the hospital, and the role of support was evident. |
| Giurgescu, et al. (2015)  III; C | Quantitative; cross-sectional | Twelve AA women with preeclampsia and Thirty-seven low-risk AA pregnant women aged *M* = 25.4; 79% single; 47% income <$10,000 at 26-36 weeks gestation | MUIS (α = 0.85): *M*= 72.33  Positive relationship between uncertainty and psychological distress.  No differences in uncertainty between women with preeclampsia and low risk pregnant women. |
| Giurgescu, et al. (2006)  III; B | Quantitative; cross-sectional | One hundred and five high-risk pregnant women aged 18 to 34 years (*M*= 28); 38% AA, 32% white, 15% Hispanic; 57% married; 74% had at least some college; 76% multiparous at 24-36 weeks gestation (*M*= 32) | MUIS (α = 0.91): Low levels of uncertainty (*M*= 74.04)  Positive relationship between uncertainty and avoidance  Negative relationship between uncertainty and social support, psychological well-being, and positive interpretation  Avoidance mediated the effect of uncertainty on psychological well-being |
| Gupton, et al. (1997)  III; B | Qualitative; cross-sectional | Twenty-four high-risk pregnant women (placenta previa, PROM, hypertensive disorders, PTL) aged 18 to 36 years (*M* = 29); Majority white and married with 12-20 years of education (*M* = 14.7) at 26-39 weeks gestation (*M* = 32.5) | Situational stressors included uncertainty and lack of control. Social support and coping aided in mediating stress as a result of situational stressors, including uncertainty. |
| Höglund & Dykes (2013)  III; B | Qualitative; cross-sectional | Fifteen women on sick leave for PTL aged 25- 42 years (*M*= 32.3); 53% primiparous, all married or co-habitating at 27-37 weeks (*M*= 31) | Unpredictable contractions perpetuated a lack of control and uncertainty over when to take them seriously (normal versus pathologic symptom). Women strove to find balance, and support from their partners and HCPs aided them in achieving this balance. |
| Jones, et al. (2005)  III; B | Qualitative; longitudinal: within 10 weeks of diagnosis up to 14 months after birth | Seven mothers with a baby with a fetal anomaly aged 24-32 years; 57% multiparous at 20-28 weeks at diagnosis | Uncertainty was among the three aspects of emotional turmoil identified in women whose pregnancies were complicated by a fetal anomaly. There was uncertainty over whether or not the baby would survive, and if they did survive, what life would be like for the parents and child and whether or not their child would want to live with this condition. |
| Lou, et al. (2016)  III; B | Qualitative; cross-sectional | Sixteen couples with a high-risk prenatal screening result aged 21-42 years (*M*= 35); 56% primiparous at 14-26 weeks (*M*= 18) | High-risk screening result generate worry and uncertainty. Couples sought to attend to the uncertain situation by gathering information together while withdrawing socially and socially engaging through distraction simultaneously as they came to their own understanding. They coped through focus on the positive pregnancy experiences and finding blessings in everyday life rather than focusing on the uncertainty. |
| Martens & Emed (2007)  III; B | Qualitative; cross-sectional | Nine pregnant women with thrombophilia aged 30-36 years; all married and multiparous at 12 weeks gestation to 24 weeks post delivery | Women experienced uncertainty over the treatment outcome and labor and birth and sought to cope with the challenges by taking control of uncertainty through a conclusive diagnosis and maintaining perspective. |
| Moore & Cote-Arsenault (2018)  III; B | Review of pregnancy diaries from within a caring-based home visit intervention for women pregnant after loss | Nineteen women pregnant after perinatal loss aged 24- 41 years (*M*= 32.53); 73.7% Caucasian; 84.2 % married with 10-20 years education (*M*= 15.42) during 1st or 2nd trimesters of pregnancy | The metaphor of navigating an uncertain journey emerged as the main finding. Women dealt with uncertainty through both negative (anxiety and fear) and positive (anticipation, excitement, confidence, and happiness) emotions. Women recognized a support network was necessary and vigilantly monitored physical symptoms. Fetal movement was reassuring. |
| Patterson (1993)  III; C | Qualitative; cross-sectional | Seven black women at risk for PTB and ten black women not at risk for PTB after 28 weeks gestation | Presence of risk shifted women from certainty to uncertainty as women were unable to determine the outcome. Uncertainty occurred when situations were not compatible with women’s projections of a typical pregnancy experience. Sought out advice from other women when uncertainty occurred. HCPs were the last consulted. |
| Price et al. (2007)  III; B | Qualitative; cross-sectional | Twelve pregnant women admitted for HRP complications (PTL, bleeding, twin-to-twin transfusion) aged 20-39 years; 100% white; 75% post-secondary education | High risk pregnancy was a challenge with a lot of fear, uncertainty, and stress. Spiritual beliefs and practices aided them in their search for meaning as the moved through the experience of HRP. |
| Shannon & Lee (2008)  III; B | Quantitative; prospective longitudinal: one prenatally and 5 postpartum visits | Twenty HIV-infected mothers aged 19-43 years; 40% non-Hispanic Caucasian, 40% AA with 10-20 years education; 85% married or co-habituating at 32-39 weeks (*M*= 34.95) gestation for prenatal time point | PPUS-D (α = 0.96): Mean not reported  Uncertainty was inversely associated with social support and positively associated with perceived stress, interpersonal social conflict, psychological symptom distress, and depressive symptoms. Maternal uncertainty over infant HIV serostatus decreased significantly over time. |
| Smeltzer (1994)  III; B | Qualitative; cross-sectional | Fifteen pregnant women with MS aged 24-40 years (*M*= 30.3); 93% married with 12-20 years education (*M*= 15.7) | Uncertainty permeated their pregnancy experience over an unpredictable illness with incongruence in their expectations of illness and pregnancy-related symptoms, labor and delivery outcomes, breastfeeding, and long and short-term parenting. Lack of information from their HCPs further heightened their sense of uncertainty. The presence of social support was significant. |
| Sun, et al (2008)  III; B | Qualitative; longitudinal 4-6 contacts; 1 post delivery | Twenty Taiwanese women greater than 35 years old undergoing an amniocentesis aged 35-41 years (*M*= 37.7); all married with at least high school education; 60% nulliparous at 16-20 weeks gestation | Uncertainty was central to the amniocentesis experience and a prevailing sense of uncertainty was the core category. Five stages were recognized: ambivalence toward the pregnancy, decision to undergo the procedure, concerns over the safety of the procedure, anxiety while awaiting results, and wondering about the lifelong commitment. |
| Tseng, et al. (2008)  III; B | Qualitative; cross-sectional | Twelve Taiwanese pregnant women with prenatal depression aged 19-33 years (*M*= 29); all married with  58% college or higher education | Future uncertainty was among five of the recurring sub-themes of an unbalanced commitment to motherhood in women with prenatal depression. Further uncertainty was expressed by women with HRP complications beyond depression surrounding unpredictable pregnancy outcomes. Previous negative experiences intensified this. |
| Weiss, et al. (2002)  III; B | Qualitative; cross-sectional | Thirty pregnant women with PTL aged 19-39 years (*M*= 27.5); 70% white; 57% primiparous; 57% married; 57% college graduate at  20-34 weeks gestation | Uncertainty over recognition and naming of symptoms and the threat or risk attributed to the cause of the symptoms. Uncertainty emerged as a complex mix of hope, worry, denial, or failure to recognize labor as a possibility. |

*Note. M*, Mean; PTL, preterm labor; USS-HRPV, Uncertainty Stress Scale-High Risk Pregnancy Version; LOS, length of stay; HCP, health care provider; MUIS, Mishel Uncertainty in Illness Scale; AA, African American; PROM, premature rupture of membranes; PTB, preterm birth; HRP, high-risk pregnancy; PPUS-D, Parental Perception of Uncertainty Scale-Diagnosis; MS, multiple sclerosis.

a Level of evidence as outlined by Dearholt, S., Dang, D., & Sigma Theta Tau International. (2012). Johns Hopkins Nursing Evidence-based Practice: Models and Guidelines. Retrieved from https://libguides.ohsu.edu/ld.php?content\_id=16277844