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Antenatal stress: An Irish case study

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ABSTRACT

Background: stress in pregnancy is common and impacts negatively on women, infants and families. A number of factors contribute to high levels of stress in pregnancy, including financial concerns, marital discord, low support systems and low socio-economic status.
Objectives: the aim of this study was to evaluate stress anxiety levels and depressive symptoms among low risk women in an area in Ireland that was particularly impacted by the 2008 economic crisis.
Design: a quantitative descriptive cross-sectional design was used. Data were collected using the Edinburgh Postnatal Depression Scale (EPDS), the Perceived Stress Scale and the State Trait Anxiety Inventory (STAI). Data was collected at a single time during the second trimester.
Setting: this paper reports a case study of one maternity service in Ireland. Participants included low risk pregnant women who were attending the hospital clinic for routine antenatal care.
Results: of 150 questionnaires distributed, 74 completed questionnaires were returned indicating a 49.3% return rate. Findings indicated high levels of stress, anxiety and depressive symptomatology among participants. There were no significant difference in mean EPDS score for different age groups ($F_{4,69}=2.48$, $P=0.052$), living arrangements ($F_{4,68}=0.90$, $P=0.5$) or usual occupation ($F_{4,69}=1.45$, $P=0.2$). A score of ≥12 was taken as indicative of probable antenatal depression and 86.5% of participants responded with a score of 12 or above. PSS scores were also high and more than three quarters of respondents scored ≥15 (75.6%) and more than a third had scores ≥20 (35.1%), out of a total score of 40. There was a significant difference in mean PSS score between the different age groups ($F_{4,69}=3.60$, $P=0.010$) but not for living arrangements or usual occupation. A STAI score of ≥39 was taken as indicative of antenatal anxiety, and 74.3% of participants responded with a score of 39 or above. There were no significant differences in mean STAI score between the different age groups ($F_{4,68}=1.68$, $P=0.16$), living arrangements ($F_{4,67}=2.30$, $P=0.068$) or usual occupations ($F_{4,68}=1.25$, $P=0.3$).
Key conclusions and implications for practice: this study found high levels of antenatal stress, anxiety, and depressive symptoms in a low risk pregnant population, in an economically impacted region in Ireland. These findings have implications for fetal development and maternal health during pregnancy and in the post partum. Further studies are important to confirm rates and should be conducted over a longer time frame with data collected at more than one point in time, such as mid and late pregnancy. If findings are confirmed, early recognition and treatment of stress, anxiety and depressive symptoms is important to ameliorate some of the harmful effects of these conditions.

Introduction

Childbirth is a universal event; however, the meaning of pregnancy and birth is affected by *but not limited to* both social and cultural factors and the individual's life history (Page and McCandlish, 2006). For *women today,* pregnancy usually occurs in the context of paid employment until just before the birth of the baby, followed by a period of maternity leave, which may be paid or unpaid. In general, women's contribution to the workforce, and thus to family income, diminishes in the year of pregnancy and in the subsequent years, as mothers often return to part-time work (Beblo and Wolf, 2002; Han et al., 2008; Ekelin et al., 2009). In times of economic stress, these employment factors can assume greater than usual significance (Ekelin et al., 2009).

The rapid collapse of the Irish economy in 2008 left the population facing falls in GNP (gross national product) of over 25%, and dramatically increasing unemployment rates *with loss of*

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salary (Kelly, 2009). Ireland was unusual in that its economy over the preceding 15 years was driven almost entirely by a property and building boom, which saw property prices rise alarmingly (Kelly, 2009; Drudy and Collins, 2011). Following the collapse, housing values dropped just as sharply and many families were left with mortgages that considerably exceeded their property value at the same time as the threat of unemployment was very real (Kelly, 2009). The current project was conducted during this period of property value collapse, increasing unemployment and an anticipated intensification of stress on families and pregnant women. The area where this project was conducted suffered a particularly sharp impact with the closure of many local businesses, relocation of businesses overseas, and an almost overnight dwindling of employment opportunities. It was anticipated that such circumstances might contribute to greater than usual levels of stress among pregnant women in the region.

In general, stress and psychological distress are common in pregnancy (Glover and O'Connor, 2006) and driven by factors such as: financial concerns (Öhman et al., 2003; Braveman et al., 2010; Mohammad et al., 2011); low socio-economic circumstance (Braveman et al., 2010) and limited support systems (Cunningham and Zayas, 2002; Kukulu et al., 2006; Pippins et al., 2006). Stress in pregnancy is a concern as the evidence suggests a strong link between high levels of antenatal stress and less than optimal maternal and infant outcomes (Glover and O'Connor, 2006; Alder et al., 2007; Glover, 2007; Monk et al., 2008; Kinsella and Monk, 2009). For the mother, this includes a greater risk of poorer maternal-infant bonding (Lundy et al., 1999; Monk et al., 2008) and antenatal and postnatal depression (Heron et al., 2004; Britton, 2008). For the infant, a number of additional unfortunate sequelae present, including preterm birth, low birth weight and poorer cognitive and neurological development of the infant (Dole et al., 2003; Laplante et al., 2004; Knackstedt et al., 2005; Ruiz and Avant, 2005; Mastorci et al., 2009). However, although the evidence is strong in linking adverse fetal outcomes to high levels of maternal stress, we were unable to locate any evidence to indicate at what level damage occurs.

Maternal stress originates in different ways and may emerge from emotional or physical stressors. Nonetheless, regardless of the origin, the physical response to maternal stress is similar and results in an activation of both the sympathetic nervous system and the hypothalamic–pituitary adrenal (HPA) axis (Huizink et al., 2002; Weinstock, 2005; Talge et al., 2007). This activation results in an increase in levels of corticotrophin releasing hormone (CRH) and cortisol, adrenaline and noradrenaline (Huizink et al., 2002; Weinstock, 2005; Talge et al., 2007). In pregnancy, the release of these stress hormones may be triggered by a number of stressful life events, including financial concerns (Braveman et al., 2010), marital discord (Kerstis et al., 2012) and anger and anxiety (Field and Diego, 2008; Charil et al., 2010). There is strong evidence to suggest that higher levels of stress hormones in pregnancy, impact negatively on fetal development, and give rise to developmental and behavioural delays and abnormalities in the child (Lundy et al., 1999; Ruiz and Avant, 2005; Glover, 2007; Talge et al., 2007; Charil et al., 2010). Ruiz and Avant (2005), who conducted a review on the effects of pregnancy stress on the infant's development, concluded that there was a strong link between antenatal stress and poorer infant neurological development. This author proposed that the release of CRH, cortisol and adrenocorticothrophic hormone (ADH), during pregnancy, also gives rise to an increase in circulating cytokines, compromising the maternal immune system and predisposing her to infection and preterm birth (Ruiz and Avant, 2005). Maternal cytokines may *or may not* negatively affect the developing fetal immune system and predispose the infant to illness and developmental delay (Ruiz and Avant, 2005). Other researchers concur with these findings and O'Connor et al. (2002) demonstrated a strong link between maternal anxiety in the third trimester and emotional and behaviour problems in offspring at aged four, while Talge et al. (2007) found that the effects of antenatal anxiety and stress were clinically evident among offspring who were substantially more likely to have emotional or cognitive problems, including attention deficit/hyperactivity disorder, anxiety, and language delays. Because of these serious consequences, the current study, aimed to evaluate levels of stress, among low risk pregnant women in this economically impacted region in Ireland, using three approved instruments (Edinburgh Postnatal Depression Scale (EPDS); Perceived Stress Scale (PSS) and State Trait Anxiety Index (STAI). The study was intended as a preliminary step to developing an intervention to relieve antenatal stress.

Methods

A quantitative descriptive cross-sectional method was used, as described by Schneider et al. (2009, p. 161). This method involves the collection of survey data at a single point in time and the approach can be descriptive or analytic. A descriptive cross-sectional survey was considered appropriate for this study. This was because this method is particularly useful when information about a population characteristic is being sought, as in this case, when information was required about stress levels in a low risk pregnant population. A strength of this method is its capacity to gather information from a large group of participants in a relatively short time frame (Bowling, 1999; Schneider et al., 2009). Pregnant women were recruited at the hospital antenatal clinic and the midwives clinic, if they satisfied the following criteria: low risk pregnancy, aged more than 18 years, second trimester; no anticipated serious maternal or infant morbidity. Information sheets were distributed at the clinic and interested women could collect a questionnaire with a return paid envelope from the midwife. Consent was implied by return of the completed questionnaire. The study was approved by hospital and university ethics committees, and women were informed that completing the questionnaire was voluntary and would not impact on their care in any way.

Measurement

In addition to basic demographic data measuring maternal age group, usual occupation and living arrangements, three well-known and validated instruments were used to collect questionnaire data. Instruments included: EPDS, PSS, STAI. Sample questions from each instrument are included in Box 1.

Edinburgh Postnatal Depression Scale (EPDS)

Although the EPDS was designed initially as a screening tool for the detection of postpartum depression (Cox et al., 1987), it has also been frequently used to assist in the detection of antenatal depression (Kukulu et al., 2006; Pippins et al., 2006; Roman et al., 2009; Alipour et al., 2012) and has been validated for use during pregnancy (Murray and Cox,, 1990). In this study, the EPDS was used to measure antenatal depressive symptoms. Participants rated statements about their thoughts and feelings in the prior week on a 4-point Likert scale ranging from 1 (not at all) to 4 (almost always). Positive questions, such as *I have been able to laugh and see the funny side of things,* were scored in reverse order, 4–1. Higher scores indicated clinically significant antenatal depressive symptoms and the cut-off score was set at ≥12. Although there is no absolute consensus on which EPDS cut-off