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Australian Fathers' Study: What Influences Paternal Engagement With Antenatal Care?

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ABSTRACT

This mixed-methods study explores factors associated with and levels of engagement of fathers in antenatal care. One hundred expectant fathers were recruited from antenatal clinics and community settings in Western Australia. They completed validated questionnaires. Eighty-three percent of expectant fathers reported a lack of engagement with antenatal care. Factors significantly associated with lack of engagement in multivariate analysis were working more than 40 hours a week and lack of adequate consultation by antenatal care staff. In qualitative analysis, 6 themes emerged in association with a lack of engagement. They were role in decision making, time pressures, the observer effect, lack of knowledge, barriers to attendance, and feeling unprepared or anxious. Care providers should involve fathers in consultations to improve paternal engagement.

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The event of childbirth is a time of joy and challenge for families (Teixeria, Figueriedo, Conde, Pacheco, & Costa, 2009; Woods, Melville, Guo, Fan, & Gavin, 2010) as well as a time of transition. Many efforts have been taken in the health-care system to help mothers cope with childbirth and the stress associated with postnatal life. These efforts include the provision of a myriad of health professionals focused on achieving maximal health outcomes for the mother and child (Beyondblue, 2011).

Less effort has been directed toward helping fathers to adjust to the antenatal, birthing, and postnatal period (Hildingsson, Thomas, Olofsson, & Nystedt, 2009). However, fathers' health outcomes are particularly important, given their increasing participation in pregnancy and childbirth over the past few decades (Draper, 1997). The increase in father attendance and participation coincides with a gradual social shift in the role of fathers (Draper, 1997). There has been a redefining of the role of fatherhood from that of breadwinner and

The presence of an engaged and supportive father figure in the antenatal, birth, and postnatal setting has been demonstrated to improve birth outcomes.

disciplinarian to one of active involvement in the care of children of all ages (Chin, Hall, & Daiches, 2011; Redshaw & Henderson, 2013; Tallandini & Genesoni, 2009). Significantly, this transition has been applied to the antenatal and birth periods, during which men are taking a more active role in pregnancy processes (Chin et al., 2011; Tallandini & Genesoni, 2009).

The presence of an engaged and supportive father figure in the antenatal, birth, and postnatal setting has been demonstrated to improve birth outcomes. In particular, it has been shown that the presence of a father figure throughout labor is associated with lower epidural rates, pain, panic, and exhaustion and reduced rates of cesarean surgery (Kennel, Klaus, McGrath, Robertson, & Hinkley, 1991). Furthermore, any significant psychological stress a father may experience as a result of the birth process is likely to have disseminating effects on the entire family. Specifically, fathers under stress are less likely to provide adequate emotional support for their partner during pregnancy and birth and may be less involved in the development of their child (Kennel et al., 1991; Tallandini & Genesoni, 2009).

Father engagement and participation throughout the antenatal period is a complex subject with several different factors playing a role. Specifically, demographic variables, attitudes of care providers such as midwives and medical staff, occupational factors, and strength of partner relationship have been suggested to influence paternal engagement (Hildingsson, Cederlöf, & Widén, 2011; Johansson, Rubertsson, Radestad, & Hildingsson, 2012). In terms of modifiable factors to improve paternal outcomes, the standardized practices and expectations of midwives and medical practitioners in the provision of antenatal care is at the forefront (Bäckström & Wahn, 2011; Johansson et al., 2012).

There is very limited Australian research on fathers and the birth process. Previous studies frequently focused heavily on psychological or birth outcomes and did not explore antenatal engagement, the starting point of the journey into parenthood (Fenwick, Bayes, & Johansson, 2012).

The purpose of this study is to assess levels of engagement in fathers in an Australian setting and to determine whether the potentially modifiable factor of consultation by antenatal care providers influenced paternal engagement.

METHODS

Type of Study and Ethics Approval

This mixed-methods study forms part of the Australian Fathers' Study, a larger longitudinal study of fathers' attitudes toward antenatal, birth, and postnatal care. The Australian Fathers' Study has institutional ethics committee approval, and individual informed consent was obtained from each participant.

Study Population

The data reported in this report come from public care participants recruited within the North Metropolitan Health Service of Western Australia who were male partners of women in their third trimester of pregnancy. The paternal population in this region is representative of the wider Australian population of public care expectant fathers. The mean age of fathers is 31.2 years compared to a background rate of 31.1 years. The percentage of families with a religious belief is 74% compared to a background rate of 74.4%. The percentage of first births is 43% compared to a background rate of 41% (Australian Bureau of Statistics, 2012). The study excluded men who were not fluent in English or where the pregnancy had a known fetal anomaly.

Fathers were recruited by research staff and completed questionnaires addressing demographic, attitudinal, and psychological symptomatology. Quantitative and qualitative data were collected.

Hypothesis

The primary hypothesis was that, consistent with the single overseas study, only 50% of fathers would report feeling engaged with antenatal care. The secondary hypothesis was that greater satisfaction with the consultation experience in antenatal care would increase engagement.

Variables to Be Measured and Examined

The antenatal questionnaire was based on those used in previous studies (Fenwick et al., 2012; Johansson et al., 2012). There were qualitative and quantitative components to the questionnaire. Given that fathers' level of engagement was the primary outcome, the

following broad areas were examined and used as the framework for analysis:

- Background demographics
- Relationship with partner
- Role in decision making

Sampling Recruitment and Size

The sample size for this study was calculated using Minitab Version 16 (University of Melbourne). The sample size calculation assumed that levels of engagement in fathers could be equally divided between those participants who selected the options of “engaged” or “somewhat engaged” from a choice of four options in accordance with a previous report (Johansson et al., 2012). The remaining two options were “neutral” and “not engaged.” For internal validation, participants were also asked to score their level of engagement in a Likert scale from 0 to 10, where 0 represented *no engagement* and 10 *complete engagement*. The correlation coefficient between a score greater than 5 and the options of “engaged” and “somewhat engaged” was high ($r = 0.89$).

The sample size calculation assumed that with adequate consultation, engagement would increase by 30% from a baseline level of 50%. To measure this with a power of more than .80 and alpha error of .05, a sample size of 90 fathers was required.

Statistical Analysis

Data were entered onto a data sheet using Minitab Version 16 (University of Melbourne). A descriptive analysis was used for the quantitative data. To analyze for differences in responses between fathers engaged in antenatal care and those who are not, the significance (p) of the differences was determined by a chi-square test (χ^2) for independence. Fisher exact test was used where cell size was less than 5. A p value of .05 was set for rejection of the null hypothesis.

A method described by Mantel and Haenzel (as cited in Rothman, 2012) was used to determine the relative risk of the variables asked in the questionnaire on lack of engagement. A logistic regression analysis in the Minitab package (Minitab Version 16, University of Melbourne) identified those factors most strongly associated with negative impacts on antenatal engagement. Variables significant in univariate analysis at a level of $p < 0.1$ were included in the model.

For the qualitative data in the “Comments” section of the questionnaire, an inductive content analysis was performed in accordance with methodology described by Elo and Kyngäs (2008). The written

comments were independently read by the principal researchers, and an abstraction process was used to summarize and conceptualize the overall meaning and implications of the comments. Open coding was performed to maximize the number of headings to describe all aspects of the content.

Both quantitative and qualitative aspects of the data were integrated for data interpretation.

RESULTS

Participants ($N = 100$) were recruited via their pregnant partner. Table 1 summarizes the demographic characteristics of the cohort. The mean age was 30.1 years, and most were born in Australia (79%) and living with

TABLE 1
Demographics of Cohort

| | Fathers ($N = 100$) | Australian Data |
|-------------------------|--------------------------|--------------------|
| Age in years | | |
| Mean (SD) | 30.1 (3.2) | 31.1 |
| Country of birth | | |
| Australia | 79 | |
| Elsewhere | 21 | |
| Relationship status | | |
| Living with partner | 87 | |
| Not living with partner | 13 | |
| Education | | |
| Less than 12 years | 24 | |
| 12 years | 30 | |
| Further education | 46 | |
| Employment | | |
| No ^a | 18 | |
| Yes—locally | 68 | |
| Yes—FIFO | 14 | |
| Hours employed | | |
| Not applicable | 18 | |
| 1–15 | 12 | |
| 15–40 | 33 | |
| 40+ | 37 | |
| Smoker | | |
| Yes | 29 | |
| No | 71 | |
| First-time father | | |
| Yes | 54 | 43 |
| No | 46 | |
| Pregnancy planning | | |
| Natural—planned | 68 | |
| IVF—planned | 6 | |
| Unplanned | 26 | |

Note. FIFO = fly-in, fly-out; IVF = in vitro fertilization.

^aIncludes newstart, youth allowance, parenting payment, carer, and pension recipients who may work, study or retrain for up to 8–15 hours a week, and retain their government benefit.

W
 Fly-in, fly-out is a method of employing people in remote areas by flying them temporarily to the work site instead of relocating the employee and their family permanently. This is common in large mining states in Australia.

their partner (87%). Approximately half the cohort had undertaken further education beyond Year 12, and 82% were employed. There was a high fly-in, fly-out workforce prevalence of 14%. One-third of the cohort worked in excess of 40 hours each week. Smokers represented 29% of the cohort. Half were first-time fathers, and the pregnancy was planned in most cases (74%).

Table 2 summarizes the impact of demographic and pregnancy variables on engagement. Overall, only 17% of the cohort reported being engaged with antenatal care. In univariate analysis, factors significantly impacting engagement were age (engaged = 29.6 years, not engaged = 31.8 years; $p = .03$), further education (engaged = 82%, not engaged = 38%; $p = .001$), employment (engaged = 53%, not engaged = 88%; $p < .001$), smoking status (engaged = 47%, not engaged = 25%; $p = .04$), and adequate consultation (engaged = 94%, not engaged = 63%; $p = .008$).

To refine the negative impact of employment on engagement, the employment variables of “fly-in, fly-out” employment status and working more than 40 hours a week were explored as univariate associations of lack of engagement. In univariate analysis, fly-in, fly-out working status was not associated with engagement, but employment for more than 40 hours a week was significantly associated with lower levels of engagement ($p = .02$).

In the multivariate analysis, modeling included the variables significant at $p < 0.1$ in univariate analysis. These variables were age, country of birth, education, employment, working more than 40 hours a week, smoking, and adequate consultation. Working more than 40 hours a week ($p = .04$) and adequate consultation ($p = .02$) retained their significant association with engagement.

In qualitative analysis, 59 respondents wrote comments relating to their engagement with the antenatal care process. Among fathers who indicated that they were engaged, two themes emerged: a valued role in decision making and staff behavior. In contrast, among fathers who indicated that they were not engaged, six themes emerged: no role in decision making, time pressures, the observer effect, lack of knowledge, barriers to attendance, and feeling unprepared and/or anxious.

The two themes from fathers who reported feeling engaged are as follows:

1. Valued role in decision making

The midwife went out of her way to make sure we were a couple making decisions together.

TABLE 2
Impact of Demographic Factors on Engagement

| | Engaged N = 17 n (%) | Not Engaged N = 83 n (%) | p Value OR (95% CI) |
|-----------------------------------|----------------------------|--------------------------------|------------------------|
| Age (years) | 29.6 (3.3) | 31.8 (3.0) | .03 |
| Country of birth | | | |
| Australia | 11 (65) | 68 (82) | .07 |
| Elsewhere | 6 (35) | 15 (18) | 0.4 [0.1, 1.3] |
| Relationship status | | | |
| Living with partner | 15 (89) | 72 (87) | .61 |
| Not living with partner | 2 (11) | 11 (13) | 1.1 [0.2, 11.7] |
| Education | | | |
| 12 years or less | 3 (18) | 51 (62) | .001 |
| Further education | 14 (82) | 32 (38) | 0.13 [0.02, 0.5] |
| Employment | | | |
| Yes | 9 (53) | 73 (88) | < .001 |
| No ^a | 8 (47) | 10 (12) | 64.9 [7.2, 580] |
| Fly-in, fly-out worker | | | |
| Yes | 1 (6) | 13 (16) | .45 |
| No | 16 (94) | 70 (84) | 0.34 [0.04, 2.8] |
| Worker for more than 40 hr a week | | | |
| Yes | 2 (12) | 35 (42) | .025 |
| No | 15 (88) | 48 (58) | 0.18 [0.04, 0.85] |
| Smoker | | | |
| Yes | 8 (47) | 21 (25) | .04 |
| No | 9 (53) | 62 (75) | 2.6 [0.0, 7.7] |
| First-time father | | | |
| Yes | 9 (53) | 45 (54) | .46 |
| No | 8 (47) | 38 (46) | 0.9 [0.3–2.7] |
| Pregnancy planning | | | |
| Planned | 15 (88) | 59 (71) | .12 |
| Unplanned | 2 (12) | 24 (29) | 3.1 [0.6, 29.3] |
| Adequate consultation | | | |
| Yes | 16 (94) | 52 (63) | .008 |
| No | 1 (6) | 31 (37) | 9.5 [1.3, 412] |

Note. OR = odds ratio.

^aIncludes newstart, youth allowance, parenting payment, carer, and pension recipients who may work, study or retrain for up to 8–15 hours a week, and retain their government benefit.

2. Staff behavior

The staff were fantastic and welcoming.

The six themes from fathers who reported they were not engaged are as follows:

1. No role in decision making

I wanted to have a say but they didn't listen to my opinion.

2. Time pressures

This is the busiest time of year and making time to get here has been difficult, even though its [sic] a priority for me.

I haven't had time to think about the baby let alone the prenatal stuff.

3. The observer effect

Antenatal care is really for her. There's no baby yet.

I feel I'm looking on but its [sic] happening to her and not me.

4. Lack of knowledge

I want to be more involved but don't know enough to ask.

Most of the time I don't understand what they talk about.

5. Barriers to attendance

I haven't been able to attend appointments as I work. This is my first time at the hospital and the baby is nearly here.

I miss a lot of things due to work.

6. Feeling unprepared and anxiety

Maybe I'm too anxious to be involved.

I can't believe the baby's due in a few weeks. Nothings [sic] ready. I'm not.

DISCUSSION

This is the first Australian study to evaluate engagement by fathers in antenatal care. Engagement rates were poor but were positively influenced by adequate consultation with antenatal care staff and negatively influenced by long working hours.

Research into the effects of pregnancy and birth on men is quite recent, corresponding with increased rates of birth attendance. Most studies have been exclusively directed at the experience of childbirth itself and not on antenatal and postnatal health. More data has evaluated the psychological transition to fatherhood (Hildingsson et al., 2011; Tallandini & Genesoni, 2009). The limited available studies concluded that the form of transition and the roles fathers chose were guided by the social context in which they lived, particularly in relation to expectations of the medical profession, as well as personal characteristics and the quality of partner relationship (Tallandini & Genesoni, 2009; Hildingsson et al., 2011).

Consistent with these studies, we found that positive engagement with care providers, either medical or midwifery, improved engagement. In the thematic analysis, fathers documented satisfaction when their opinions were valued and dissatisfaction when they were not. Thematic analysis also found that fathers needed to identify a role for themselves in the antenatal period, and this could be achieved through caregiver consultation.

Our results are consistent with two Swedish studies demonstrating that 74% of all fathers with a positive birth experience reported that attending staff addressed their specific concerns and valued their role (Hildingsson et al., 2009; Woods et al., 2010). The overlying theme in studies from this area of research suggests that to improve father satisfaction, men need to be linked more closely to medical and midwifery professionals (Hildingsson et al., 2009). It is therefore suggested that services should endeavor to meet fathers individually, discuss expectations regarding the father's role, and assess their experience during the birth process (Hildingsson et al., 2009; Woods et al., 2010).

The main driver for poor engagement stemmed from difficulties men experienced in attending antenatal care appointments. Employment for more than 40 hours a week was associated with poorer engagement. Thematic analysis revealed fathers experienced dissatisfaction related to time pressures and work-related barriers to attendance.

Fathers who cannot attend antenatal clinics are not going to have an opportunity to receive any form of consultation from care providers, adequate or not. Attendance is important as the first step for engagement to occur. Although many workplaces offer caregiver's leave, this is often limited and men may be reluctant to use it for the antenatal period, preferring to keep it for the birth and immediate postnatal period. There may also be other pressures from employers. Employers are obligated to accept medical certificates for women attending antenatal care, but most fathers have difficulty accessing medical certificates for leave to attend an antenatal clinic appointment. However, when fathers were able to access antenatal care and encountered positive consultation with care providers, engagement levels were significantly improved.

We predicted that fly-in, fly-out fathers might report poorer antenatal engagement. However, this was not demonstrated in our analysis. The impact of employment on poor engagement was exerted

Greater insight into the psychological experiences of fathers can help to identify vulnerable fathers, just as many services now screen for anxiety and depression in mothers in the antenatal period.

principally through number of hours worked. It may be that fly-in, fly-out fathers miss certain antenatal opportunities for engagement when they are away with work. However, this may be offset by greater flexibility when they are home, which in turn enables them to attend sessions of care provision. The father who works lengthy hours but does not fly-in and fly-out lacks even this flexibility to attend antenatal care appointments.

Anxiety was another theme emerging from fathers reporting a lack of engagement. This theme has been previously reported. Two previous studies have reported that poorly engaged fathers reported feeling helpless, anxious, and depressed during the antenatal period (Fenwick et al., 2012; Johansson et al., 2012). Greater insight into the psychological experiences of fathers can help to identify vulnerable fathers, just as many services now screen for anxiety and depression in mothers in the antenatal period. Research has shown that a father's experiences have a genuine impact on the family's emotional response to the birthing process (Bäckström & Wahn, 2011; Hildingsson et al., 2011). Strategies that improve the psychological health of either parent are likely to benefit the family into the future. The change in social norms means there is untapped potential to improve outcomes for fathers by providing more medical and psychological support throughout the pregnancy period (Hildingsson et al., 2011).

A lack of knowledge was the final theme emerging from fathers reporting a lack of engagement. Although there is a plethora of online and hard copy materials available for the expectant mother, less is available for the expectant father. Given the lack of research data on fathers, most data are highly subjective or anecdotal. Hospitals should consider developing a pamphlet for expectant fathers to help alleviate their gaps in knowledge.

This study is limited because it includes fathers from a single Australian metropolitan region.

Although there is a plethora of online and hard-copy materials available for the expectant mother, less is available for the expectant father.

However, the region selected was representative of the wider Australian community in age, religion, and country of birth, although fly-in, fly-out rates were likely to be higher than those reported nationally.

In recent years, medical professionals and midwives have actively encouraged paternal birth attendance because of its associated improvement in health outcomes and the positive psychological impact it has on the mother (Johansson et al., 2012; Kennel et al., 1991). However, this may not be enough. The needs of fathers should be individually assessed before labor. Furthermore, this evaluation must consider the father's unique role and individual needs and not merely regard him as an extension of the mother.

IMPLICATIONS FOR PRACTICE

Paternal engagement is improved by positive antenatal experiences. Health-care providers should be encouraged to involve expectant fathers in consultations throughout the antenatal period. In particular, concerns of expectant fathers should be addressed. Improving paternal engagement throughout the antenatal period is likely to have effects on the family by improving paternal bonding with the newborn and support of the mother. Making antenatal care available outside of routine office hours is important, not only for working mothers but also for working fathers who may otherwise be excluded from care episodes. Our research suggests many fathers feel unprepared and anxious about birth and may benefit from greater antenatal engagement in care.

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REFERENCES

- Australian Bureau of Statistics. (2012). *Year book Australia, 2012* (No. 1301.0). Retrieved from <http://www.abs.gov.au/ausstats/abs@.nsf/mf/1301.0>
- Bäckström, C., & Wahn, E. (2011). Support during labour: First-time fathers' descriptions of requested and received support during the birth of their child. *Midwifery, 27*(1), 67–73. <http://dx.doi.org/10.1016/j.midw.2009.07.001>
- Beyondblue. (2011). *Clinical practice guidelines: Depression and related disorders—anxiety, bipolar disorder and puerperal psychosis—in the perinatal period. A guideline for primary care health professionals*. Retrieved from <http://www.gmsbml.org.au/images/files/Perinatal%20Guidelines.pdf>

- Chin, R., Hall, P., & Daiches, A. (2011). Fathers' experiences of their transition to fatherhood: A metasynthesis. *Journal of Reproductive and Infant Psychology*, 29(1), 4–18. <http://dx.doi.org/10.1080/02646838.2010.513044>
- Draper, J. (1997). Whose welfare in the labour room? A discussion of the increasing trend of fathers' birth attendance. *Midwifery*, 13(3), 132–138. [http://dx.doi.org/10.1016/S0266-6138\(97\)90003-6](http://dx.doi.org/10.1016/S0266-6138(97)90003-6)
- Elo, S., & Kyngäs, H. (2008). The qualitative content analysis process. *Journal of Advanced Nursing*, 62(1), 107–115. <http://dx.doi.org/10.1111/j.1365-2648.2007.04569.x>
- Fenwick, J., Bayes, S., & Johansson, M. (2012). A qualitative investigation into the pregnancy experiences and childbirth expectations of Australian fathers-to-be. *Sexual & Reproductive Healthcare*, 3(1), 3–9. <http://dx.doi.org/10.1016/j.srhc.2011.11.001>
- Hildingsson, I., Cederlöf, L., & Widén, S. (2011). Fathers' birth experience in relation to midwifery care. *Women and Birth*, 24(3), 129–136. <http://dx.doi.org/10.1016/j.wombi.2010.12.003>
- Hildingsson, I., Thomas, J., Olofsson, R., & Nystedt, A. (2009). Still behind the glass wall? Swedish fathers' satisfaction with postnatal care. *Journal of Obstetric, Gynecologic & Neonatal Nursing*, 38(3), 280–289. <http://dx.doi.org/10.1111/j.1552-6909.2009.01024.x>
- Johansson, M., Rubertsson, C., Radestad, I., & Hildingsson, I. (2012). Childbirth—An emotionally demanding experience for fathers. *Sexual & Reproductive Healthcare*, 3(1), 11–20. <http://dx.doi.org/10.1016/j.srhc.2011.12.003>
- Kennel, J., Klaus, M., McGrath, S., Robertson, S., & Hinkley, C. (1991). Continuous emotional support during labor in a US hospital: A randomized control trial. *Journal of the American Medical Association*, 265(17), 2197–2201. <http://dx.doi.org/10.1001/jama.1991.03460170051032>
- Redshaw, M., & Henderson, J. (2013). Father's engagement in pregnancy and childbirth: Evidence from a national survey. *BMC Pregnancy and Childbirth*, 13, 70.
- Rothman, K. (2012). *Epidemiology: An introduction*. New York, NY: Oxford University Press.
- Tallandini, M., & Genesoni, L. (2009). Men's psychological transition to fatherhood: An analysis of the literature, 1989–2008. *Birth*, 36(4), 305–318. <http://dx.doi.org/10.1111/j.1523-536X.2009.00358.x>
- Teixeria, C., Figueriedo, B., Conde, A., Pacheco, A., & Costa, R. (2009). Anxiety and depression during pregnancy in women and men. *Journal of Affective Disorders*, 119(1–3), 142–148. <http://dx.doi.org/10.1016/j.jad.2009.03.005>
- Woods, S., Melville, J., Guo, Y., Fan, M., & Gavin, A. (2010). Psychosocial stress during pregnancy. *American Journal of Obstetrics & Gynecology*, 202(1), 61.e1–61.e7. <http://dx.doi.org/10.1016/j.ajog.2009.07.041>

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