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# ORIGINAL RESEARCH - QUANTITATIVE

# An Australian survey of women's use of pregnancy and parenting apps



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#### ABSTRACT

*Background*: There are now many pregnancy and parenting apps available on the market for both pregnancy and parenting.

Aims: To investigate how Australian women use pregnancy and parenting apps, their attitudes about the information provided and data privacy and security related to such use, and what features they look for in these apps

Methods: An online survey was completed by 410 women who were pregnant or had given birth to at least one child in the past three years, were aged between 18 and 45 and were competent in English. Findings: The use of pregnancy and parenting apps was common among the respondents. Almost three quarters of respondents had used at least one pregnancy app; half reported using at least one parenting app. Respondents found the apps useful or helpful, particularly for providing information, monitoring foetal or child development and changes in their own bodies and providing reassurance. Yet many users were not actively assessing the validity of the content of these apps or considering issues concerning the security and privacy of the personal information about themselves and their children that these apps collect

Conclusion: Apps are becoming important as a source of information and self-monitoring and for providing reassurance for Australian pregnant women and mothers with young children. Midwives and other healthcare professionals providing care and support for pregnant women and women in the early years of motherhood need to take women's app use into account and recognise both the potential and limitations of these apps.

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# Summary of relevance:

#### Issue

The paper reports on original findings from a survey focusing exclusively on how and why a non-random sample of 410 women around Australia are using pregnancy and parenting apps.

# What is already known

Women in western countries often use digital media for information and support during pregnancy and the early years of motherhood and find these very helpful.

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## What this paper adds

The use of pregnancy and parenting apps was common among the respondents. Almost three quarters of respondents had used at least one pregnancy app; half reported using at least one parenting app. Yet many users were not actively assessing the validity of the content of these apps or considering issues concerning the security and privacy of their personal information.

#### 1. Introduction

Many women in western countries are now turning to digital sources for information and support during pregnancy and early motherhood more than at any other time of their lives. This is a life phase when women are adjusting to their new status as

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mothers. They may be dealing with uncertainty, anxiety and isolation, as well as learning how to care for their newborn infants. The advent of the Internet allowed pregnant women and those experiencing early motherhood to use websites and online discussion boards to seek information about conception, pregnancy and motherhood and engage in discussion with other women. In recent times, newer digital technologies such as social media (for example, Facebook, Instagram, YouTube and Twitter), apps and self-tracking devices have brought with them different practices for self-monitoring and the sharing of personal information. These novel technologies provide expanded opportunities for women to create and comment on online content, monitor their bodies and those of their foetuses and infants with increasing quantitative precision and to share their personal experiences about their pregnancies or mothering experiences on social media networks.

In this article, we focus on pregnancy and parenting apps as one of these new digital media forms. Many pregnancy and parenting apps for smartphones and other mobile devices are on the market – more than one thousand for pregnancy alone. Healthcare and public health professionals have observed that many women seeking maternity care and child health services are using these apps and that app use should be considered in the future planning of care provision. Despite the prevalence and apparent popularity of these apps, as yet little research has been published that has focused in detail on how women use them, particularly in the Australian context.

The research reported here is drawn from an integrated research programme on digitised pregnancy and parenting involving: (1) a critical content analysis of pregnancy-related apps<sup>2,5</sup>; (2) an online survey of 410 Australian women's use of pregnancy and parenting apps; and (3) focus groups with Sydney women about their use of apps and other digital media for pregnancy and parenting. The present article reports the findings of the online survey. Our aims were to investigate how Australian women use pregnancy and parenting apps, their attitudes about the information provided and data privacy and security related to such use, and what features they look for in these apps.

### 2. Background

#### 2.1. Pregnancy and parenting apps

Australians have a very high rate of smartphone ownership and app use: estimates of ownership of smartphones in Australia based on the latest data (from 2014) range from 74% to 89%. However, it should be noted that the ownership of smartphones and use of the internet are considerably lower among certain population groups, such as older people, those with disabilities, low-income groups and those with lower levels of education. In Of those Australians owning smartphones in May 2014, three-quarters had downloaded an app in the previous six months. Pregnancy apps are popular in the health and fitness category: a market research report showed that pregnancy apps were used more often than fitness apps. 12

One of us with Gareth Thomas conducted a critical discourse analysis of all pregnancy apps offered in the two major online app stores (Google Play and the Apple App Store) in June 2015.<sup>2,5</sup> The analysis found that the App Store offered 1141 pregnancy apps while Google Play had 665 pregnancy apps available for download (many of the same apps were available in both stores). The vast majority of apps were in three main categories: 'entertainment', 'pregnancy and foetal monitoring' and 'pregnancy information'. The prevalence of pregnancy apps for entertainment – the largest category of apps – is worthy of note. Included in this category were games, pregnancy test and ultrasound pranks, shopping for pregnancy-related products, quizzes to test pregnancy knowledge,

gender predictors, and baby name generators. The second largest category of apps was those that provided functions that encourage women to monitor and survey both the foetus and the pregnant body. This includes tracking weight and waist measurements, diet, water consumption, symptoms, moods, medications, cravings, energy levels, and appetite. Other apps in this category allow women to input due dates and appointments, record foetal heartbeat and movement, write journals and create scrapbooks. and share ultrasound images and biometric data (for example, kicks, heartbeats) with health professionals as well as friends and family members via social media. The third category provides a range of information about pregnancy, including details about foetal development, nutrition and exercise in pregnancy and substances and behaviours that pregnant women should avoid in the interests of maintaining their health and promoting the health and optimum development of their foetus. Some information apps offer women online forums in which to connect with other pregnant women (for example, to share and compare stories and experiences).

Pregnancy and parenting apps regularly feature among the most popular in the health and fitness and medical categories (the apps appearing in the top charts for each week can be viewed on each website under app categories). The Google Play app store (which, unlike Apple, lists downloads for apps) shows that the most popular of the pregnancy and parenting apps have been downloaded by millions of users. For example, the 'I'm Expecting – Pregnancy App' attracted 1 to 5 million downloads from the Google Play store alone. The Apple App Store's list of popular health and fitness apps in June 2015 featured several pregnancy-related apps such as 'Period Diary' (a fertility and ovulation tracker), 'My Pregnancy Today', 'Pregnancy & Baby – What to Expect' and 'Baby Names'.

Academic research is beginning to show that pregnant women and new mothers commonly download pregnancy and parenting apps and find them useful sources of information and support. For example, a study of women using maternity services in Ireland in 2015 found 76% of respondents had a smartphone and 59% of those used a pregnancy app. The researchers suggest that websites and apps may be particularly helpful for women from socioeconomically disadvantaged groups, who may lack access to other sources of information and advice. 13 Other research involving African-American first-time mothers found that they were more engaged with apps on pregnancy and parenting than with the pamphlets they received from their health carers. 14 A large-scale national online survey conducted with American women who had recently given birth found that 56% of first-time mothers rated pregnancy apps as providing very valuable information, as did 47% of experienced mothers. However, only 35% rated apps as completely or very trustworthy. 15 Other researchers have found that women note the difficulty of assessing the credibility of information provided. They are more likely to invest their trust in the advice and information given by healthcare providers and in the online information provided by such providers or medical institutions. 16-18

A series of focus groups carried out with pregnant women in the US state of Pennsylvania in 2013 elicited the women's views on online technologies related to pregnancy. <sup>19</sup> This study found that over 80% of the women reported using social media sites at least once a day. The participants said that they used online sites and apps for pregnancy information because prenatal care was not meeting their needs, particularly when they wanted information early in their pregnancy when few prenatal visits are scheduled. The women in this study, the majority of whom were white, referred to using apps to track their foetus's growth and development and social media sites like Facebook to share their experiences. They also found videos on childbirth that were available on the Internet to be useful sources of information.

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