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The Use of Digital Media by Women Using the Maternity Services in a Developed Country

Abstract:
A O’Higgins, OC Murphy, A Egan, L Mullaney, S Sheehan, MJ Turner
Department of Obstetrics and Gynaecology, UCD Centre for Human Reproduction, Coombe Women and Infants University Hospital, Cork St, Dublin 8

The provision of high quality healthcare information about pregnancy is important to women and to healthcare professionals and it is driven, in part, by a desire to improve clinical outcomes. The objective of this study was to examine the use of digital media by women to access pregnancy information. A questionnaire was distributed to women attending a large maternity hospital. Of the 522 respondents, the mean age was 31.8 years, 45% (235/522) were nulliparous, 62% (324/522) lived in the capital city and 29% (150/522) attended the hospital as private patients. Overall 95% (498/522) used the internet for pregnancy information, 76% (399/522) had a smartphone and 59% (235/399) of smartphone owners had used a pregnancy smartapp. The nature of internet usage for pregnancy information included discussion forums (70%), social networks (67%), video media (48%), e-books (15%), blogs (13%), microblogs (9%) and podcasts (4%). Even women who were socially disadvantaged reported high levels of digital media usage. In contemporary maternity care women use digital media extensively for pregnancy information. All maternity services should have a digital media strategy.

Introduction
Effective communication is a key element of high quality maternity care. In addressing clinical issues this usually occurs in a one-to-one consultation between the woman and her healthcare professional. However, such consultations are limited by time particularly in a busy clinical setting, they usually focus on immediate concerns and they are dependent on the communication abilities of both parties. Before, during and after pregnancy, women are keen to receive information that will promote not only their own well-being but also that of their baby. Healthcare professionals in turn recognise the importance of providing such information, particularly lifestyle advice and information about the maternity services. Women attending for antenatal care are often given large amounts of written advice at their first hospital visit. Much healthcare information continues to be provided at an individual or population level using traditional communication channels such as leaflets, magazines, television and radio.

Traditional communication channels, however, are limited. They are expensive to develop and disseminate. Written information requires the woman to be able to read and to have adequate health literacy to interpret the information meaningfully. Poor health literacy is closely linked to socioeconomic disadvantage and socially disadvantaged women are at increased risk of an adverse clinical outcome. Therefore, it is often the women who are most in need of information who are least able to access or interpret it. It is challenging to measure by whom traditional communications messages are accessed and what their impact is on health outcomes. Finally, traditional communications are not designed to facilitate ongoing interactions between the woman and her healthcare providers or other women in the community. Communications in the modern world have been revolutionised by the invention of digital media. The development of social network platforms such as Facebook and Twitter has driven interactive, participative and expansive digitally-facilitated communications. By 2011, an estimated 136 million websites were disseminating pregnancy information who are least able to access or interpret it. It is challenging to measure by whom traditional communications messages are accessed and what their impact is on health outcomes. Finally, traditional communications are not designed to facilitate ongoing interactions between the woman and her healthcare providers or other women in the community. Communications in the modern world have been revolutionised by the invention of digital media. The development of social network platforms such as Facebook and Twitter has driven interactive, participative and expansive digitally-facilitated communications. By 2011, an estimated 136 million websites were disseminating pregnancy information.

The objective of this prospective study was to examine the use of digital media by women in Ireland in 2012-2013 to access pregnancy information.

Methods
A paper-based anonymous survey was distributed to patients attending a large Dublin maternity hospital from November 2012 to January 2013. The Hospital is a tertiary university maternity hospital delivering over 8,500 babies per annum. It accepts women from all socioeconomic groups across the urban-rural divide and about one in eight of the country's women want for pregnancy itself and in caring for their baby. Effective communication is a key element of high quality maternity care. In addressing clinical issues this usually occurs in a one-to-one consultation between the woman and her healthcare professional. However, such consultations are limited by time particularly in a busy clinical setting, they usually focus on immediate concerns and they are dependent on the communication abilities of both parties. Before, during and after pregnancy, women are keen to receive information that will promote not only their own well-being but also that of their baby. Healthcare professionals in turn recognise the importance of providing such information, particularly lifestyle advice and information about the maternity services. Women attending for antenatal care are often given large amounts of written advice at their first hospital visit. Much healthcare information continues to be provided at an individual or population level using traditional communication channels such as leaflets, magazines, television and radio. Women were considered socially disadvantaged is both they and their partner were unemployed, if they had left pregnancy Apps and pregnancy websites used and of the perceived difficulties accessing pregnancy information. The results were tested using X2 analysis and a p value of d 0.05 was considered statistically significant.

Results
Of the 550 surveys distributed, 542 were collected giving a response rate of 98.5%. A further 20 surveys were excluded from the final analysis as they were incomplete, leaving 522 (94.9%) for the final analysis. Of the 522 respondents, 42% (218/522) completed the survey antenatally and 58% (304/522) postnatally. The characteristics of the study population are shown in Table 1. There were no statistically significant differences for age, parity or Dublin residency between our cohort and the general hospital population. Overall regular internet use occurred more frequently at home than at work. Of the cohort, 69% (360/522) accessed the internet daily at home compared to 44% (229/522) at work (p<0.01). Overall, 95% (498/522) reported that they had used the internet to get information related to their pregnancy or the care of their baby, 76% (399/522) had a smartphone and 59% (235/399) of smartphone owners had used a pregnancy app.

Discussion
We found that neither maternal age nor parity influenced the use of digital media for pregnancy information. Of the cohort, 93% (78/82) of women aged less than 30 years and 95% (99/104) of women aged 35 years or more used the internet for pregnancy information (p=0.47). Of the nulliparous women 97% (229/235) used the internet for pregnancy information compared to 95% (265/277) of the parous women (p=0.18). We found no significant differences for age, parity or Dublin residency between our cohort and the general hospital population. Overall, 95% (498/522) reported that they had used the internet to get information related to their pregnancy or the care of their baby, 76% (399/522) had a smartphone and 59% (235/399) of smartphone owners had used a pregnancy app. Table 2 shows the sources of information women use to access pregnancy information. Table 3 shows the type of websites women currently use for pregnancy information. Table 4 shows that the type of digital media services women want for pregnancy itself and in caring for their baby.

We found that neither maternal age nor parity influenced the use of digital media for pregnancy information.
Our study found that women using the maternity services in Ireland in 2012-2013 reported high usage of digital media to obtain pregnancy information, with 95% using the internet to get information about their pregnancy. Almost three quarters of women owned a smartphone and we found high usage of smartphones and social media platforms. Of particular importance, we found that women used digital media more than traditional media sources and that the use of digital media was also widespread amongst socially disadvantaged women. A strength of our study is that it is a large representative sample of the communications behaviour in contemporary maternity services in a developed country. A potential weakness of the study is that it was limited to women with adequate literacy skills to complete the questionnaire and by the time it is published in the print media the findings may be out of date. The provision of any health information using traditional communication channels can be expensive to produce and to disseminate. There may be time lags between emerging best practice information and dissemination as well as geographical and language limitations. In contrast, digital media can be developed at a lower cost often leveraging on high quality existing content that has already been developed, for example, for the print media. Content for digital communications can be made available over a long time, globally as well as locally, and in different languages.

It is long established that adverse obstetric and neonatal outcomes are increased in women who are socially disadvantaged. However, the most vulnerable women in our society have least access to or the lowest usage of traditional public health information. Our findings that digital media are extensively used by women who are disadvantaged are encouraging. They mean that digital media have the potential to be harnessed beneficially as part of a high quality maternity service and may also have a role in research intervention studies1. The use of short message service (SMS) by mobile phone is currently being used successfully in the provision of antenatal care and postnatal care for both mothers and their babies in underdeveloped countries6. One of the problems with traditional public health communications is that we often do not know who receives the information and whether they respond positively or not. The use of digital media, however, can be easily measured with standard software both in terms of what content is accessed and for how long. It is also possible to study how individuals navigate around a particular website and assess if modifying the communication tool can improve usage. We can also collect information on what socioeconomic or demographic groups use digital platforms, and customise the information for different women. The major social changes in high resource countries with increasing mobilisation of people is the loss of proximity to the extended family. This can leave women feeling isolated during and after childbirth because they may not have strong family support nearby. We found that the most frequently cited websites used by women for pregnancy information were discussion forums and social media platforms. These sites appear to be a useful source of support and give women the opportunity to create a sense of community with other women with similar life experiences. Market research has shown that women turn to digital sources for information and support during pregnancy more often than with any other time. A survey asking women what life events prompted them to seek out information from or share opinions with others online found that pregnancy initiated online interaction in 94% of 654 respondents, compared to online interaction in 21% when looking for employment and in 37% when moving home. This readiness for online engagement in pregnancy means that digital delivery of health promoting information has the potential to be effective. Moderation of such platforms by a healthcare professional also opens up new opportunities for cost effective interventions, for example, lactation counsellors supporting breastfeeding mothers. Conversely, failure of healthcare professionals to provide digital access to high quality information leaves women vulnerable to receiving erroneous or misleading information through unregulated websites and commercial pregnancy Apps.

Our findings are consistent with previous reports5. The gap across social gradients in mobile phone ownership is negligible, as is the use of social networking sites. The expansion of wireless internet and the development of handheld computers such as smartphones and tablets now means that accessing digital media is feasible even while breast feeding. Based, on our study, we recommend that all maternity services should develop a digital media strategy. The gap across social gradients in mobile phone ownership is negligible, as is the use of social networking sites. The expansion of wireless internet and the development of handheld computers such as smartphones and tablets now means that accessing digital media is feasible even while breastfeeding. Based on our study, we recommend that all maternity services should develop a digital media strategy.

References