



Using the Internet as source of information during pregnancy - a descriptive cross-sectional study among fathers-to-be in Sweden

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ABSTRACT

Objective: The aim of this study was to identify how fathers-to-be used the Internet as a source of information during their partners' pregnancy and how it affected them.

Design and setting: A descriptive cross-sectional study was conducted. Data were collected through a questionnaire and distributed at a maternity clinic in south of Sweden. The data were analysed descriptively.

Participants: Ninety-two Swedish fathers participated in the study, and the response rate was 98.9%.

Findings: Of all the fathers-to-be, 76% sought pregnancy-related information on the Internet. One sought information on a daily basis, 40.6% every week and 58% every month or more rarely. The fathers-to-be who participated at all/most visits at antenatal care searched for information on the Internet more often than those who only attended few/no visits ($p = 0.012$). A total of 33.4% of fathers-to-be had been recommended a web page by the midwife at the antenatal care. The main reason for using the Internet was to find information about pregnancy related subjects and read about people in similar situations. More than half of the fathers-to-be (61.8%) had at some point been worried by something they read online. These concerns were commonly addressed by asking the midwife at their next appointment (33.9%). Almost 26% of the fathers-to-be chose not to take any action at all to address their concerns.

Conclusion: The majority of all fathers-to-be searched for information on the Internet, and more than half of the fathers were, at some point, worried about the information they read on the Internet. One way to address questions and concerns could be for the fathers-to-be to ask and discuss with the midwives what they read online so that midwives can recommend appropriate and credible websites. To achieve this, there must be opportunities for midwives to gain knowledge on how best to use the Internet as a tool.

Introduction

Pregnancy is also an overwhelming time for prospective parents, who must prepare themselves for childbirth and parenting. Prospective parents have great need for information as well as high expectations of being part of the woman's care during pregnancy (Hildingsson and Thomas, 2007). A lot of studies have highlighted and mapped out how pregnant women use the Internet to seek information, and how the information affects them (Bjelke et al., 2016; Gao et al., 2013; Lagan et al., 2010; Lagan et al., 2011; Larsson, 2009; Lima-Pereira et al., 2012; Sayakhov and Carolan-Olah, 2016; Weston and Anderson, 2014). On the other hand, there is limited research on how fathers-to-be use the Internet to seek information.

Antenatal care in Sweden

In Sweden, antenatal care is included in public healthcare services, where almost all pregnant women (99%) participate (SFOG, 2016). Midwives have the main responsibility for treating women with normal pregnancies and childbirth. The aim of antenatal care is to prepare the woman and her partner for childbirth and strengthen their ability to meet the needs of their newborn child. The partner is invited to accompany the woman during her antenatal visits and to participate in parenting education classes. In studies, fathers-to-be have described that they often felt neglected during antenatal visits. They thought the information was directed primarily at the pregnant woman, which made them feel left out. This made them feel uncertain about the pregnancy, expected childbirth and parenthood (Premberg and Lundgren, 2006; Deave and Johnson, 2008; Fenwick et al., 2012). Fathers-to-be realised

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that antenatal care visits were not the only forum where they could get information. Information was obtained instead from family, friends, Internet and literature (Premberg and Lundgren, 2006).

Internet use during pregnancy among pregnant women and fathers-to-be

In 2015, 91% of the Swedish population used the Internet, and young well-educated women searched for health and medical information on the Internet more often than men (Findahl and Davidsson, 2015). In recent years, the Internet has become a very popular source of health information for pregnant women (Bjelke et al., 2016; Lagan et al., 2010; Lagan et al., 2011; Larsson, 2009; Lima-Pereira et al., 2012). Studies have shown that 84–95% of pregnant women use the Internet to find information related to pregnancy and childbirth (Bjelke et al., 2016; Gao et al., 2013; Lagan et al., 2010; Larsson, 2009). The most common subjects that pregnant women sought information about were: foetal development, nutrition and childbirth (Bjelke et al., 2016; Gao et al., 2013; Larsson, 2009; Lima-Pereira et al., 2012; Sayakhot and Carolan-Olah, 2016). Women also participated in discussion forums on the Internet. These helped to create contact, provide support and exchange experiences with others in similar situations (Lagan et al., 2011).

Information retrieved on the Internet generated both positive and negative feelings among pregnant women. Most women felt that the information was reliable and useful, but it also caused concerns (Bjelke et al., 2016; Lagan et al., 2011; Sayakhot and Carolan-Olah, 2016; Weston and Anderson, 2014). One problem was the difficulty to evaluate if information was trustworthy and reliable (Gao et al., 2013; Lagan et al., 2010; Sayakhot and Carolan-Olah, 2016; Weston & Anderson, 2014). A common strategy to determine if information was reliable was to evaluate if it was consistent with other sources or look for references (Gao et al., 2013; Lagan et al., 2010; Larsson, 2009). Studies have also reflected the problem of not knowing which site to use (Lima-Periera et al., 2012; Weston and Anderson, 2014). In the Spanish study, nearly half of the prospective parents indicated that they wanted guidance on how to find information on the Internet, and there were more prospective parents who visited websites recommended by the media than those recommended by midwives (Lima-Periera et al., 2012). This is one of few studies that examine Internet use by fathers-to-be during pregnancy. The study was conducted with a total of 139 prospective parents who participated in parent groups, and 21 of the participants were fathers-to-be. The study showed that 93.5% of prospective parents used the Internet regularly, and there were no significant differences between the sexes. Almost all prospective parents (97%) had at some point sought pregnancy-related information on the Internet.

The most common subjects that fathers-to-be searched for information were: foetal development, different phases during pregnancy and childbirth, diet during pregnancy, name suggestions as well as breastfeeding. There were differences in fathers-to-be and women's searches, where fathers-to-be reported more frequent searches on subjects such as painless delivery, healthcare information, postnatal care and relationship/sexuality/emotional support.

Today, prospective parents are actively involved and seek information on websites on the Internet. On the one hand, Internet use during pregnancy offers opportunity to get access to information quickly and easily as well as to share apprehensions and doubts with others. On the other hand, information can be confusing, overwhelming and makes it difficult for prospective parents to judge if information is trustworthy. Ever increasing Internet use among prospective parents challenges midwifery practice. From being an authority in the field of normal childbirth, the midwife now meets prospective parents who have gained a lot of different information from Internet sources. From a family perspective, support from fathers-to-be during pregnancy and childbirth is important (Alio et al., 2011). Therefore, more knowledge is needed about fathers-to-be and their information searches online in order for midwives in maternal healthcare to be able to meet their needs. Thus,

Table 1

Background characteristics of fathers-to-be who searched for pregnancy-related information on the Internet (n = 70).

	n	%
Educational level*		
Primary	6	8.7
Secondary	35	50.7
College/University	28	40.6
Occupation*		
Student	2	2.9
Working full-time	63	91.3
Working part-time	1	1.5
Unemployed	3	4.3
Parity		
Primiparous father	28	40.0
Multiparous father	42	60.0
Participation in parental education classes		
Yes, during this or previous pregnancy	41	58.6
No	29	41.4
Attendance at antenatal care		
All/most appointments	33	47.1
Few/no appointments	37	52.9

* n = 69.

Table 2

Websites used when accessing pregnancy-related information online.

	n	%
Information website	55	78.57
Forum website	38	54.29
Blogs	2	2.86
Social media	16	22.86
Other	12	17.14

Since multiple categories could be chosen, the total percentage exceeds 100%.

the purpose of this study was to evaluate how fathers-to-be used the Internet as a source of information during their partner's pregnancy as well as how it affected them.

Methods

A descriptive cross-sectional study was conducted. Inclusion criteria were Swedish-speaking new fathers in southern Sweden. In Sweden, new fathers spend time with the mother and the baby at the maternity ward and stay overnight if possible. Via an information letter, midwives at the maternity clinic recruited new fathers. The fathers received information about the purpose of the study, implementation, voluntary nature of participation and confidentiality. Data collection took place during a 6-week period in autumn 2016. A questionnaire was created based on two previous studies conducted among women (Bjelke et al., 2016; Larsson, 2009). The questions were reworded to be applicable to fathers-to-be. In total, the questionnaire covered 21 questions. The first few questions addressed participants' backgrounds such as age, marital status, educational level, employment, primipara or multipara, participation in parenting groups and participation in antenatal care visits, as well as if they were satisfied with information received from midwives.

Thereafter, questions were posed regarding whether fathers-to-be had sought pregnancy-related information on the Internet during pregnancy. If they answered no, the questionnaire was terminated. The next 13 questions concerned Internet usage by fathers-to-be during pregnancy. The questions addressed search frequency, websites viewed, purpose of searching online information as well as topics searched. Two questions asked whether the information they read on the Internet caused any concerns. For the first question regarding concerns, fathers-to-be were asked to rate the extent to which different types of websites

Table 3
Purposes of searching for information on the Internet during pregnancy (n = 70).

	Agree		Disagree		No answer	
	n	%	n	%	n	%
Find information	66	94.0	2	2.9	2	2.9
Read about people in similar situations	36	51.4	31	44.3	3	4.3
Find support	24	34.3	41	58.6	5	7.1
Share thoughts/experiences with others	4	5.7	61	87.1	5	7.1
Being anonymous and talking about sensitive topics	18	25.7	47	67.1	5	7.1

Since multiple categories could be chosen, the total percentage exceeds 100%.

caused them worries. The second question examined how they coped with such feelings. The response options were designed so that fathers-to-be were able to estimate their responses according to a four-point Likert scale, where 1 corresponded to "don't agree" and 4 to "agree completely". Other questions were multiple-choice or had multiple response alternatives. The questionnaire took about 5–10 min to answer. The questionnaire was tested in a pilot study with five fathers-to-be, and no adjustments were required.

Data were analysed in the PSPSS statistics programme. It is a free software replacement for IBM SPSS (Statistical Package for the Social Sciences). All responses using the four-point Likert scale were dichotomised. Differences in Internet usage between groups were tested with the Chi-two test. Significance level was set at $p < 0.05$. Ethical approval for the research was obtained from the Ethics Committee Sydost (dnr. EPK 365 –06/2016).

Results

Out of a total of 93 questionnaires, 92 were answered, resulting in a response rate of 98.9%. The average age of fathers-to-be was 31.4 years SD 5.06 (22–45 years), and all were cohabiting or married. A total of 76% ($n = 70$) of fathers-to-be sought pregnancy-related information on the Internet. Regarding background data, no statistically significant differences were found between those who searched for pregnancy-related information and those who did not. Background data for fathers-to-be who sought pregnancy-related information are presented in Table 1. Of these 70 fathers-to-be, 64 (91.4%) attended antenatal care visits, and all were satisfied with the information received from midwives.

Out of the fathers-to-be ($n = 70$) who sought pregnancy-related information on the Internet, there was one who searched for information daily, 40.6% each week and 58% each month or more rarely. First-time fathers sought pregnancy-related information more often than those who previously had children ($p = 0.036$). The fathers-to-be who attended all/ most of the antenatal care visits sought information on the Internet more often than fathers-to-be who attended only on a single occasion or not at all ($p = 0.012$). The various websites where fathers-to-be searched for information are presented in Table 2. A total of 34.3% ($n = 24$) of the websites were a recommended page by the midwife in maternity care.

The primary reason for using the Internet was to search for pregnancy-related information and read about others in similar situations. Twenty-five per cent used the Internet anonymously to talk about sensitive topics (Table 3). The fathers-to-be who participated in parenting education sought more online support than those who did not participate in parenting education ($p = 0.034$). Topics that fathers-to-be primarily searched on the Internet are presented in Fig. 1.

A majority (61.8%) of fathers-to-be, who sought pregnancy-related information on the Internet, had concerns about what they read, at some point. The websites and forums that caused concerns are presented in Table 4.

How fathers-to-be addressed concerns are presented in Table 5. The results showed that 44.4% of first-time fathers were so worried that they brought up their concerns with the midwife at the next visit, compared to 19.5% of fathers-to-be who previously had children ($p = 0.027$).

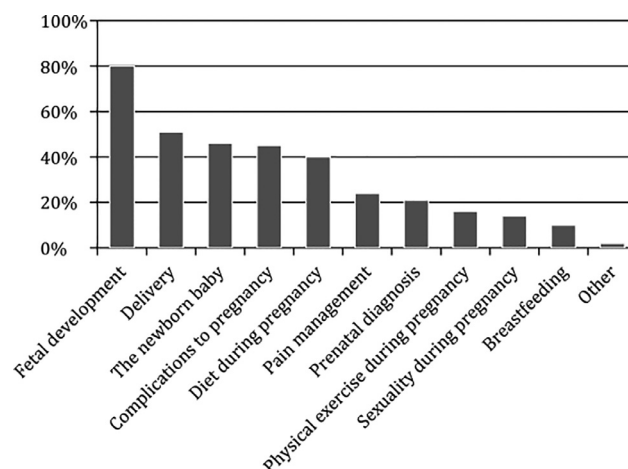


Fig. 1. Categories for which men mainly sought information on the Internet. Since multiple categories could be chosen, the total percentage exceeds 100%.

Table 4
Websites and forums causing concerns.

	Agree		Disagree		No answer	
	n	%	n	%	n	%
Information website	25	35.7	43	61.4	2	2.9
Forum website	23	32.9	45	64.3	2	2.9
Blogs	13	18.6	52	74.3	5	7.1
Social media	17	24.3	49	70.0	4	5.7

Discussion

The results show that most fathers-to-be used the Internet regularly to search for pregnancy-related information. However, there was a small group of fathers-to-be who did not use the Internet as source of information, and this group was also characterised by those who rarely or never attended antenatal care visits. Of the fathers-to-be who sought pregnancy-related information, one-third of them were recommended a website by the midwife. A majority of them had concerns about something they read on a web page, but few had discussed this with the midwife.

The results in this study are similar to previous studies conducted among women, showing that many women seek pregnancy-related information on the Internet, at some point (Bjelke et al., 2016; Gao et al., 2013; Lagan et al., 2010; Larsson, 2009; Lima-Periera et al., 2012). These results indicate how common it is for prospective parents to use websites and that the Internet is an important factor to consider when prospective parents seek health information. Midwives should highlight the positive aspects of seeking information on their own, but at the same time could refer parents to reliable sources as well as discuss if there are any concerns that arise from what parents have read.

This study shows that fathers-to-be who attended all/most visits to maternity care sought information on the Internet more often than those

Table 5
How fathers-to-be coped with their feelings of worry (n = 70).

	n	%
Asking friend/family for support	10	14.3
Asked midwife at next appointment	20	28.6
Called midwife between appointments	3	4.3
Contacted healthcare except antenatal clinic, e.g. delivery ward, maternity ward, emergency room	8	11.4
Experienced feelings of worry but did nothing	18	25.7
Have not felt worried	26	37.1
Did not answer	2	2.9

Since multiple categories could be chosen, the total percentage exceeds 100%.

fathers-to-be who only attended antenatal care visits on a single occasion or not at all. Lagan et al. (2011) found contradictory findings regarding women. The fewer antenatal care visits made by the women, the more information they sought on the Internet. There are too few studies to determine the relationship, but our results can be interpreted to mean that there is a group of fathers-to-be who do not participate during pregnancy. Engagement by fathers-to-be is important, and it has been found that fathers-to-be who are engaged early on in pregnancy as well as have contact with maternity care and attend antenatal care visits more frequently show greater participation and increased involvement during and after pregnancy (Redshaw and Henderson, 2013). It is a big challenge for healthcare professionals to reach these fathers-to-be. Perhaps maternity care staff need to change their way of working, since many fathers-to-be report that they feel left out when they visit antenatal care (Deave and Johnson, 2008; Fenwick et al., 2012; Johnsen et al., 2017; Premberg and Lundgren, 2006). To offer fathers-to-be the opportunity to communicate with midwives via chat rooms or e-mail could be a solution in the future, for reaching those who do not attend antenatal care visits.

Many fathers-to-be who read pregnancy-related information stated that they had been worried, and similar results have also been observed among women (Bjelke et al., 2016; Gao et al., 2013; Lagan et al., 2010; Lagan et al., 2011; Lima-Pereiras et al., 2012; Sayakhot and Carolan-Olah, 2016; Weston & Anderson, 2014). There are numerous websites where pregnant women and their partners can seek information; although there are many advantages to this, there are also disadvantages. One disadvantage is that anyone can publish information, and it can be difficult for parents to be critical and choose credible sources. Internet usage will not diminish or cease. Therefore, it is in the best interest for healthcare to publish their own websites with credible and evidence-based information. In Sweden, today, there are websites, so-called "The National Healthcare Counselling Service-1177" (<https://www.1177.se/Skane/Other-languages/Engelska/>), with information on healthcare and is provided by Sweden's county councils and regions. Several of the health guidance websites contain information about pregnancy and childbirth, which has been reviewed and contain evidence-based knowledge. Unfortunately, almost all information is directed towards pregnant woman, and only limited part is translated into other languages. There is no specific information directed towards fathers-to-be.

This study shows what kind of information is sought by fathers-to-be. One limitation, however, is that the questionnaire had predetermined response options, which were initially designed to suit pregnant women. It would be interesting to impartially investigate what information fathers-to-be wish for, which could be done through a qualitative study.

The results of this and other studies highlight the need for parents to have recommendations on credible and reliable websites (Bjelke et al., 2016; Lagans et al., 2011). Only 34.3% of the participants had been recommended any website by the midwife. Few fathers-to-be brought up what they had read with the midwives during antenatal care visits, even though they had concerns. This is consistent with a study by Diaz et al. (2002), which revealed that patients do not discuss information retrieved from the Internet with health professionals, unless health

professionals initiate a discussion. This shows the need for midwives to be the ones who take the initiative for a discussion. Additionally, health information via websites cannot be considered as a replacement for professional information and advice. On the other hand, it may be an aid where parents can access information and knowledge in peace and quiet and then discuss with midwives, which has been requested (Plantin et al., 2011). When this happens, it is a win-win situation for both parties.

Strengths and limitations

Non-Swedish-speaking fathers-to-be were excluded from this study, which can be seen as a limitation. Another limitation was that during the time of data collection, there were no lesbian couples who were going to have children. Therefore, the term "partner" was excluded, and the term "fathers-to-be" was used throughout. The study was conducted at a clinic where fathers-to-be came from small towns and medium-sized cities. It would have been optimal if we could have included metropolitan areas and larger number of fathers-to-be. As there are no studies in the field, however, the results can still contribute to increasing knowledge.

Conclusion

The majority of all fathers-to-be searched for information on the Internet, and more than half of them became worried at some point due to the information they read on the Internet. Few had been recommended websites by the midwife or discussed any concerns. One way to address questions and concerns could be that midwives inquire as to what they have read on the Internet as well as recommend appropriate and credible websites during antenatal care visits. To achieve this, there must be opportunities for midwives to gain knowledge on how best to use the Internet as a tool. Today, fathers-to-be are involved in pregnancy, childbirth and care of their newborn child. A contribution to a more equal care may be to create credible websites that also address fathers-to-be and partners.

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Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.midw.2018.04.008.

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